

CITY OF HOLLY HILL, FLORIDA

CITY COMMISSION

AGENDA • JULY 11, 2017

City Commission Chamber

Regular City Commission Meeting

7:00 PM

CITY HALL
1065 RIDGEWOOD AVENUE
HOLLY HILL, FL 32117

City Clerk's office: (386) 248-9441 - Fax: (386) 248-9448



City Commission Chamber
City Hall
1065 Ridgewood Avenue
Holly Hill, FL 32117

CITY COMMISSION MEMBERS

Mayor
John Penny

District 1 - Commissioner
Arthur J. Byrnes

District 3 - Commissioner
John C. Danio

District 2 - Commissioner
Penny Currie

District 4 - Commissioner
Chris Via

CITY MANAGER
Joseph Forte

CITY CLERK
Valerie Manning

1. CALL TO ORDER

- a. Roll Call
- b. Invocation
- c. Pledge of Allegiance

2. PUBLIC COMMENTS**3. APPROVAL OF MINUTES - NONE****4. CONSENT AGENDA - ITEMS (1 - 4)**

The action proposed is stated for each item on the Consent Agenda. Unless a City Commissioner removes an item from the Consent Agenda, no discussion on individual items will occur and a single motion will approve all items. Is there anyone in the audience who wishes to speak on any item on the Consent Agenda?

- 1. Resolution Resolution 2017-R-37 A Resolution of the City Commission of the City of Holly Hill, Florida, Awarding the Contract and Authorizing the Execution of the Project "Lift Station 7 Rehabilitation" to the Low Bidder, Hinterland Group and Authorizing the City Manager to Execute the Agreement; Providing for Severability; and Providing for an Effective Date.

(Requested by Mark Juliano, Public Works)

- 2. Resolution Resolution 2017-R-39 a Resolution of the City Commission of the City of Holly Hill, Florida, Amending the Fiscal Year 2016-2017 Annual Budget; and Providing for Severability; and Providing for an Effective Date.

(Requested by Kurt Swartzlander, Finance)

- 3. Technology Asset Disposal

(Requested by Kurt Swartzlander, Finance)

- 4. Volusia County Law Enforcement Mutual Aid Agreement

(Requested by Steve Aldrich, Police)

5. REGULAR AGENDA

- 1. Resolution Resolution 2017-R-38 A Resolution Fo the City Commission of the City of Holly Hill, Florida, Authorizing the Agreement with Dredging and Marine Consultants to Perform the Engineering Services for "Sunrise Park North Seawall Improvements"; Providing for Severability; and Providing for an Effective Date.

(Requested by Mark Juliano, Public Works)

6. PUBLIC HEARING

- 1. 999 Third Street Special Exception Request to Approve a Child Day Care as Special Exception Use in the B-1 Professional Office Zoning District.

(Requested by Thomas Harowski, Board of Planning and Appeals)

7. COMMUNICATIONS

- A. City Manager & Staff Comments
- B. City Attorney Comments
- C. Mayor's Comments
- D. City Commission Comments

8. ADJOURNMENT

Website Address – www.hollyhillfl.org (City Clerk)

NOTICE – If any person decides to appeal any decision of the City Commission at this meeting, he/she will need a record of the proceedings and, for that purpose, he/she may need to ensure that a verbatim record of the proceedings is made, which record includes the testimony and evidence upon which the appeal is to be based. The City does not prepare or provide such a record.



For special accommodations, please notify the City Clerk's Office at least 72 hours in advance. (386) 248-9441



Help for the hearing impaired is available through the Assistive Listening System. Receivers can be obtained from the City Clerk's Office.

In accordance with the Americans with Disabilities Act (ADA), persons needing a special accommodation to participate in the Commission proceedings should contact the City Clerk's Office no later than three (3) days prior to the proceedings.



**STAFF REPORT
CITY OF HOLLY HILL, FLORIDA**

**City Commission
Resolution**

MEETING DATE: July 11, 2017
FROM: Mark Juliano
SUBJECT: Resolution 2017-R-37 A Resolution of the City Commission of the City of Holly Hill, Florida, Awarding the Contract and Authorizing the Execution of the Project "Lift Station 7 Rehabilitation" to the Low Bidder, Hinterland Group and Authorizing the City Manager to Execute the Agreement; Providing for Severability; and Providing for an Effective Date.
NUMBER: (ID # 1716)
APPLICANT:
PLANNER:

DISCUSSION:

During an evaluation of the City's lift stations it was determined that Lift Station #7, located at 1300 Riverside Dr., is in need of refurbishing. This lift station improvement project was proposed due to the age (52 years), the condition of the lift station, and its location adjacent to the river. A complete upgrade including the pumps, rails, piping, electrical, and control equipment are to be installed. The proposed refurbishing is consistent with the need to upgrade facilities to reach full compliance with Department of Environmental Protection standards and protect health, safety and welfare of our citizens.

The City received three (3) bids for this project and the low bidder is Hinterland Group out of Cocoa, FL. The bid amount is \$289,000.00.

FISCAL ANALYSIS:

This project is funded in the Wastewater Renewal and Replacement Fund, 480-3020-535-6300.

STAFF RECOMMENDATION:

Approve the award the contract to the low bidder and authorize the City Manager to enter into a contract with Hinterland Group for the project Lift Station #7 Rehabilitation.

COMMISSION GOAL:

Goal #1: Develop and maintain a sound and sustainable financial plan for the city that

establishes sufficient reserves for all funds, ensures (whenever possible) that user fees pay for services rendered, provides a realistic capital improvement program, and encourages public/private sector partnerships and intergovernmental partnerships.

Goal #4: Provide proficient public health and safety services in terms of police and fire protection, water, storm water, waste water and solid waste management and disaster preparedness with a focus on intergovernmental collaboration, private sector partnerships, and utilization of technologies and proven innovations.

MOTION:

APPROVE RESOLUTION 2017-R-37, AUTHORIZING THE CITY MANAGER TO ENTER INTO A CONTRACT WITH HINTERLAND GROUP TO PERFORM THE PROJECT “LIFT STATION 7 REHABILITATION” FOR A TOTAL AMOUNT NOT TO EXCEED \$289,000.

ATTACHMENTS:

- HH121 Award Recommendation 6.27.17 (PDF)
- HH121_LS7 Rehabilitation_Bid Set Specs (PDF)
- LS7 Rehab Drawings (PDF)

Resolution No. (ID # 1716)**RESOLUTION 2017-R-37 A RESOLUTION OF THE CITY COMMISSION OF THE CITY OF HOLLY HILL, FLORIDA, AWARDED THE CONTRACT AND AUTHORIZING THE EXECUTION OF THE PROJECT "LIFT STATION 7 REHABILITATION" TO THE LOW BIDDER, HINTERLAND GROUP AND AUTHORIZING THE CITY MANAGER TO EXECUTE THE AGREEMENT; PROVIDING FOR SEVERABILITY; AND PROVIDING FOR AN EFFECTIVE DATE.****RESOLUTION 2017-R-37**

A RESOLUTION OF THE CITY COMMISSION OF THE CITY OF HOLLY HILL, FLORIDA, AWARDED THE CONTRACT AND AUTHORIZING THE EXECUTION OF THE PROJECT "LIFT STATION 7 REHABILITATION" TO THE LOW BIDDER, HINTERLAND GROUP AND AUTHORIZING THE CITY MANAGER TO EXECUTE THE AGREEMENT; PROVIDING FOR SEVERABILITY; AND PROVIDING FOR AN EFFECTIVE DATE.

WHEREAS, the City bid the Lift Station Rehabilitation project and opened bids on June 22, 2017; and

WHEREAS, Hinterland Group Is the low bidder at \$289,000.00; and

WHEREAS, City staff recommends award the contract to Hinterland Group.

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COMMISSION OF THE CITY OF HOLLY HILL, FLORIDA:

SECTION 1. That the City Commission of the City of Holly Hill does hereby award the contract and authorize the execution of the project Lift Station #7 Rehabilitation to Hinterland Group.

SECTION 2. That the City Manager of the City of Holly Hill is hereby authorized to execute the agreement with Hinterland Group to perform the project Lift Station #7 Rehabilitation.

SECTION 3. SEVERABILITY. If any section or portion of a section of this Resolution proves to be invalid, unlawful, or unconstitutional, it shall not be held to invalidate or impair the validity, force, or effect of any other section or part of this Resolution.

SECTION 4. EFFECTIVE DATE. This Resolution shall take effect immediately upon adoption by the City Commission.

APPROVED AND AUTHENTICATED this 11th day of JULY, 2017.

June 27, 2017

Walt Smyser
Public Works Deputy Director
City of Holly Hill
453 LPGA Boulevard
Holly Hill, FL 32117

Email: wsmyser@hollyhillfl.org
Hard Copy Mailed Only on Request

***CITY OF HOLLY HILL
LIFT STATION #7 REHABILITATION
RECOMMENDATION OF AWARD***

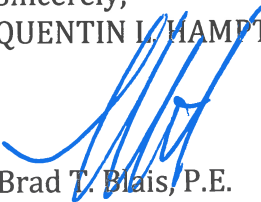
Dear Walt,

As you are aware, the City received bids for the above referenced project on June 22, 2017. Three (3) contractors submitted bids of which Hinterland Group of Riviera Beach, Florida submitted the lowest with a base bid of \$289,000.00. The second bid was received from Danus Utilities of New Smyrna Beach with a base bid amount of \$321,250.00

We have reviewed Hinterland Group's bid package and have found it responsive. We had previously contacted three (3) of their references and received favorable responses. The listing of similar projects indicate that they are qualified to complete this project. We, therefore, recommend award of this project to Hinterland Group for the base bid amount of \$289,000.00.

Contact our office if you have any questions.

Sincerely,
QUENTIN L. HAMPTON ASSOCIATES, INC.



Brad T. Blais, P.E.
President

BTB:bf

Encl.: Bid Tabulation

CITY OF HOLLY HILL
LIFT STATION #7 REHABILITATION
BID# 17WW07
BID TABULATION

ITEM NO.	DESCRIPTION	QTY	UNIT	HINTERLAND GROUP, INC. Riviera Beach, FL		DANUS UTILITIES, INC. New Smyrna Beach, FL		TLC DIVERSIFIED, INC. Palmetto, FL	
				UNIT COST	TOTAL	UNIT COST	TOTAL	UNIT COST	TOTAL
1	Preconstruction Video	1	LS	\$1,000.00	\$1,000.00	\$1,500.00	\$1,500.00	\$1,000.00	\$1,000.00
2	Demolition	1	LS	\$45,000.00	\$45,000.00	\$12,000.00	\$12,000.00	\$46,000.00	\$46,000.00
3	Bypass Pumping	1	LS	\$25,000.00	\$25,000.00	\$10,000.00	\$10,000.00	\$71,000.00	\$71,000.00
4	Complete Lift Station	1	LS	\$125,000.00	\$125,000.00	\$225,000.00	\$225,000.00	\$208,000.00	\$208,000.00
5	Electrical	1	LS	\$57,000.00	\$57,000.00	\$37,500.00	\$37,500.00	\$31,000.00	\$31,000.00
6	Tie-Ins								
	a) Tie-In to Existing Force Main	1	LS	\$3,500.00	\$3,500.00	\$2,500.00	\$2,500.00	\$4,000.00	\$4,000.00
7	DIP Fittings Add or Delete	1000	LBS	\$4.00	\$4,000.00	\$8.00	\$8,000.00	\$6.00	\$6,000.00
8	Cap and Abandon Existing Old Force Main	1	LS	\$1,500.00	\$1,500.00	\$1,500.00	\$1,500.00	\$1,000.00	\$1,000.00
9	Permits and Allowances	1	LS	\$10,000.00	\$10,000.00	\$10,000.00	\$10,000.00	\$10,000.00	\$10,000.00
10	As-Built Plans	1	LS	\$3,500.00	\$3,500.00	\$5,000.00	\$5,000.00	\$5,000.00	\$5,000.00
11	MOT	1	LS	\$3,500.00	\$3,500.00	\$2,500.00	\$2,500.00	\$4,000.00	\$4,000.00
12	Restoration	1	LS	\$10,000.00	\$10,000.00	\$5,750.00	\$5,750.00	\$9,000.00	\$9,000.00
				BID TOTAL	\$289,000.00		\$321,250.00		\$396,000.00

Bidding/Contract Documents and Specifications
for

CITY OF HOLLY HILL, FLORIDA



LIFT STATION #7 REHABILITATION

BID # 17WW07
May 2017

Prepared by:



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CITY OF HOLLY HILL
LIFT STATION #7 REHABILITATION
BID NO. 17WW07**

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NOT USED

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SECTION 00 02 00
INVITATION TO BID
CITY OF HOLLY HILL, FLORIDA
LIFT STATION #7 REHABILITATION
BID# 17WW07

Notice is hereby given that the City of Holly Hill, Florida is accepting bids for **LIFT STATION #7 REHABILITATION**. Bids will be accepted by the City of Holly Hill, 1065 Ridgewood Avenue, Holly Hill, Florida 32117, **until 2:00 p.m. on June 22, 2017**, at which time and place all proposals received shall be publicly opened and read aloud in the City Hall.

There will be a pre-bid meeting for this project **at 2:00 p.m. on June 8, 2017**. The meeting will be held in the Workshop Conference Room, located in City Hall, 1065 Ridgewood Avenue, Holly Hill, FL 32117.

Description of Work: *This project includes the rehabilitation of the City of Holly Hill Lift Station #7. Includes the conversion of the can lift station into a submersible station. Work includes bypass pumping, demolition of (2) existing pumps, piping, and valves to abandon pump can. Installation of two (2) new submersible pumps, new wet well, top slab, piping, valves, and valve vaults.*

Copies of the bid documents may be obtained electronically from VendorLink at www.myvendorlink.com. Any addenda to these bid documents will be posted on the VendorLink website. It is the bidder's responsibility to confirm that all addenda have been received prior to submitting a bid for this project. All questions should be directed **in writing** to bids@qlha.com. Questions to be submitted no later than 5:00 p.m. on **June 15, 2017**.

A certified check or bank draft, payable to the City of Holly Hill, Florida, or a satisfactory bid bond executed by the Bidder and an acceptable surety, in an amount equal to five percent (5%) of the bid, shall be submitted with each bid. NO bid shall be withdrawn for a period of ninety (90) days subsequent to the bid opening without the consent of the City of Holly Hill, Florida.

Upon award, the successful bidder will be required to furnish and pay for a satisfactory Contract one hundred percent (100%) Performance Payment Bond which must be recorded by the Clerk of the Court, Volusia County, and enter into a Contract for Services with the City of Holly Hill.

All bidders are required to complete and submit the "Public Entity Crime Sworn Statement", Form #PUR 7068, as designated by Florida Statutes, Section 287.133(3)(a), with their bids.

The City of Holly Hill is not responsible for the U.S. mail or private carriers or messengers in regards to mail being delivered by the specified time so that a bid can be considered.

No bids received after the time and date specified for the opening will be considered. The City of Holly Hill, Florida reserves the right to reject any and all bids, to waive any and all non-substantial irregularity in bids reviewed, whenever such rejection or waiver is in the best interest of the City.

Bids shall be addressed to City Clerk, City of Holly Hill, 1065 Ridgewood Avenue, Holly Hill, Florida 32117, in a sealed envelope plainly marked on the outside: **"LIFT STATION #7 REHABILITATION"**.

CITY OF HOLLY HILL
VOLUSIA COUNTY, FLORIDA
s/ **Joseph A. Forte**
City Manager

Attachment: HH121_LS7 Rehabilitation_Bid Set Specs (1716 : Lift Station #7 Rehabilitation 17WW07)

SECTION 00 10 00

INSTRUCTIONS TO BIDDERS

PART 1 - GENERAL**1.01 PROJECT DESCRIPTION**

- A. The work of this project consists of furnishing all labor, materials, equipment, tools, transportation, services, and incidentals and performing all work necessary to construct

**LIFT STATION #7 REHABILITATION
BID NO. 17WW07**

All above referenced work shall be complete, in place, and ready for service in accordance with the drawings and specifications prepared therefore by Quentin L. Hampton Associates, Inc., and entitled, **“LIFT STATION #7 REHABILITATION”**

- B. The location of the project is the City of Holly Hill, Florida.

1.02 DEFINED TERMS

Terms used in the Instructions to Bidders are defined and have the meanings assigned to them in the General Conditions.

1.03 COPIES OF BIDDING DOCUMENTS

- A. Only complete sets of Bidding Documents will be issued and shall be used in preparing bids. Neither the OWNER nor the ENGINEER assumes any responsibility for errors or misinterpretations resulting from the use of incomplete sets.
- B. Complete sets of Bidding Documents may be obtained in the manner and at the location stated in the Invitation to Bid.

1.04 RECEIPT OF BIDS

The Place to which proposal must be delivered, the amount of Proposal Security required and the date, time and place of opening of proposals, are stated in the Invitation to Bid. The Proposal form amplifies the Advertisement in indicating the location and description of the project to be constructed and shows the approximate quantities of work to be performed and materials to be furnished, if a unit price contract, any special requirements which may vary from or are not contained in the specifications. The bid documents as listed in Paragraph 1.08, Preparation of Proposal, shall be submitted as described in Section 00 30 00-3 under Supplemental Requirements.

1.05 BIDDER'S QUALIFICATIONS

The Bidder will be required to show that he/she is capable of performing the work contemplated and shall furnish, if requested, in duplicate the following:

- a. A sworn statement showing the equipment definitely controlled by the Bidder and available to him for performing the work;
- b. A sworn statement of his/her experience in performing work of the character for which his bid is submitted; and,
- c. A sworn statement showing his current assets and liabilities as of a date not more than ninety (90) days prior to the date of submission.

If the Owner approves the above required statements and the Proposal is accompanied by the specified security, the person, firm or corporation submitting such Proposal shall be considered as a qualified Bidder.

1.06 BIDDER'S RESPONSIBILITY

The Bidder is required to carefully examine the site of the project, the Proposal Form, Drawings, Specifications, Agreement Form, and all other forms pertinent to the work contemplated. It will be assumed that he has satisfied himself as to the conditions to be encountered, the character, quality, and quantities of work to be performed and materials to be furnished, and the requirements of the Contract and specifications. No allowance or concession will be made for lack of such information on the part of the Contractor.

Whenever such information concerning subsurface materials or conditions is given on the drawings, it is understood, in the absence of any qualifying notation, that it was obtained in the usual manner and the location, depths, and character of the material have been recorded in good faith. There is no expressed or implied agreement that the depths or the character of the material have been correctly indicated and Bidders should take into account the possibility that conditions affecting the cost or quantities of work to be done may differ from those indicated.

1.07 APPROXIMATE ESTIMATE OF QUANTITIES

The Bidder's attention is directed to the fact that in contracts based on unit prices the estimate of quantities of work to be done and materials to be furnished under these specifications, as shown on the Proposal Form, and in the Contract, is approximate and is given only as a basis of calculation upon which to determine the lowest Bidder. The Owner does not assume any responsibility that the quantities shall obtain strictly in the construction of the Project, nor shall the Contractor plead misunderstanding or deception because of such estimate of quantities, or of the character of the work or location, or other conditions pertaining thereto. The Owner reserves the right to increase or diminish any or all of the above mentioned quantities of work or to omit any of them, as it may deem necessary, and such increase or decrease of the quantities given for any of the items shall

not be considered as sufficient grounds for granting an increase in the unit prices bid, except as set forth in the General Conditions.

1.08 PREPARATION OF PROPOSAL

In preparing Proposals in the manner prescribed under Paragraph 1.14, the Proposal Form, the Bid Form (when a Bid Bond is permitted as proposal security), Certificate as to Corporate Principal, Public Entity Crimes Statement, Anti-Collusion Statement, and Drug Free/Tie Preference Statement, must be properly executed in ink .

Upon the prescribed Schedule of Unit Prices, all bid prices shall be written in ink, in both words and numerals, in the blank spaces for each item, with the amounts extended if a unit price bid and all amounts totaled. In the event of any discrepancy between the written amounts and the numerals, the written amounts shall govern and will be considered as the price bid. The sum of the Total Bid as calculated from the individual items in Section 00 31 00, Schedule of Unit Prices, shall equal the Total Price as listed in Section 00 30 00, Proposal.

Except as provided below, bids containing substitutions or combinations of alternates will not be considered unless such substitutions or combinations are specifically authorized by the Proposal.

In unit price bids, the extensions, if any, and the total are for informational purposes only, and the determination of the lowest bid will be based solely on the total results of computations of the estimated quantities and the prices bid. The Bidder shall submit a completed Schedule of Unit Prices, Section 00 31 00 with each bid. The bid may be considered non-responsive without this form.

The Bidder shall sign his/her name and give his/her business address in the spaces provided therefore. If the Proposal is made as a partnership, it shall be signed by all partners; if made by a corporation, it shall be signed in the name of the corporation by one of the officers thereof and shall have affixed the seal of the corporation.

1.09 PROPOSAL SECURITY

Each Proposal shall be accompanied by a security in the form of a certified check or, when specifically permitted, a Bid Bond, payable to the Owner, in the amount indicated in the Invitation to Bid and, in either case, with properly executed Agreement of Surety. Such proposal security of the successful Bidder shall be forfeited to the Owner as liquidated damages if the successful Bidder fails to execute and deliver the Contract in conformity with the Form of Agreement, and furnish bonds and insurance certificates as specified within ten (10) days after notification by the Owner of the acceptance of his bid, *excluding Bond review by the City Attorney*. Within three (3) days after formal opening of bids, if requested by the Contractor, the securities therefore will be returned excepting those which the Owner elects to hold until the award is made and the successful Bidder qualified and executes the Contract. Thereafter, Proposal Securities, other than that of the qualified low Bidder, will be returned at once. The security of the successful Bidder will be returned to him when the Contract is executed by both parties hereto and the Performance and Payment Bonds have been recorded. If all Proposals are rejected, the securities therefore will be returned immediately after the determination of such rejection.

1.10 WITHDRAWAL OF PROPOSALS

All Bidders specifically waive any right to withdraw a Proposal after it has been submitted to the Owner, except as hereinafter provided. A Bidder may withdraw a Proposal provided the Bidder makes a request to do so by telephone, telegraph, or in writing to the Owner, and provided that such requests reach the office of the Owner not later than the day previous to the date set for opening thereof. Requests by telephone or telegraph must be confirmed in writing, by the Bidder in person, or by an accredited representative of the Bidder before the time set for the opening of the Proposals. No bids may be withdrawn for a period of NINETY (90) DAYS after the date and time designated for the opening thereof.

1.11 RIGHT TO REJECT PROPOSALS

The unqualified right is reserved by the Owner to waive any informalities in, or reject any or all Proposals as may be deemed to the best interest of the Owner. Proposals which contain any omissions, erasures, alterations, additions not called for, conditional bids, or irregularities of any kind, or Proposals otherwise regular which are not accompanied by Proposal Security, may be rejected as informal. Proposals in which the bid prices are obviously unbalanced may be rejected.

1.12 CHANGES PRIOR TO THE OPENING OF BIDS

During the period allowed for preparation of bids, the Bidders may be furnished addenda or bulletins for additions to or alterations of the Drawings or Specifications, which shall be included in the work covered by the Proposal and become a part of the Contract Documents, Bidders may submit to the Engineer a written request for an interpretation thereof. The Bidder submitting the request will be responsible for its prompt delivery. Any interpretation of the Contract Documents will be made only by addendum duly issued and a copy of such addendum will be mailed or delivered to each prospective Bidder of Record. The Owner will not be responsible for any other explanations or interpretations of the proposed Contract Documents.

1.13 SCOPE OF WORK

Unless otherwise provided in the Construction Specifications or the Proposal, it is the intent of the Contract Documents to prescribe a complete project which the Bidder proposes to construct, by furnishing all labor, materials, equipment, tools, necessary utilities and other facilities, and performing all work necessary to incidental to such construction, in full compliance with the Drawings, Specifications, Proposal, and Contract, and any special requirements contained therein or supplements attached thereto.

Should any construction or condition be anticipated which is not covered by these Specifications, the special requirements thereof will be stated in the Proposal, and any such special requirements shall be considered a part of these specifications as though they were fully contained herein. If any special requirements stated in the Proposal conflicts with any of the provisions of these Specifications, the former shall govern.

1.14 SUBMITTING PROPOSAL

Two (2) copies of the Proposal, accompanied by the Proposal Security, and all addenda, if any, and all other required supporting documentation shall be submitted in an opaque, sealed envelope, addressed to the Owner. The name of the Bidder shall appear in the upper left-hand corner of the envelope and the following notation shall appear in the lower left-hand corner.

LIFT STATION #7 REHABILITATION

1.15 AWARD AND EXECUTION OF CONTRACT

When a Proposal received has been determined to be satisfactory, a Contract will be awarded to the lowest responsible Bidder within the time designated in the Contract Documents.

The Bidder to whom the award is made shall execute the Contract and return it, together with the properly executed bonds and insurance certificates, to the office of the Owner, within the time specified in Paragraph 1.09 of Section 00 10 00.

If the Contractor executes his Contract as herein provided and the Contract is not executed by the Owner within thirty (30) days after the receipt thereof from the Contractor, the Owner upon written request of the Contractor will return the Proposal Security. In such event, the award of the Contract shall be considered as annulled.

The Contract, Surety Bonds, and insurance certificates shall be executed in quintuplicate, or in as many copies as the Owner may require.

1.16 CANCELLATION OF AWARD

The Owner reserves the right to cancel the award of any contract at any time prior to its execution by the Owner.

1.17 SURETY BONDS

With the execution and delivery of the Contract, the successful bidder receiving the Contract award will be required to furnish within the time specified in Paragraph 1.09 of Section 00 10 00, a Payment and Performance Bond, covering faithful and satisfactory performance of the work contracted, in an amount not less than one hundred percent (100%) of the total contract price, and a Public Construction Bond in an amount not less than one hundred percent (100%) of the Contract amount, covering payment in full for all services rendered, materials furnished and labor supplied or performed. The same Surety must execute both bonds each of which shall be in the form provided in the Contract Documents.

Should any Surety upon any Bond furnished in connection with this Contract become unacceptable or be deemed unsatisfactory to the Owner at any time, the Contractor shall upon written notice from the Owner, promptly furnish acceptable or substitute security as may be required to protect the interests of the Owners or of persons supplying services, labor and materials in the prosecution

of the work under Contract. No further payment shall be deemed due or shall be made under this Contract, until the new Surety or Sureties will qualify and be accepted by the Owner.

1.18 INDEMNITY AND INSURANCE

The Contractor shall not commence work under this Contract until he has obtained all insurance required under by these Specifications and such insurance has been approved by the Owner, nor shall the Contractor allow any subcontractor to commence work on a subcontract until all similar insurance required of the subcontractor has been so obtained and approved by the Contractor.

- A. Certificates. The Contractor shall submit certificates or other documentary evidences to the Owner for approval, covering Workmen's Compensation Insurance; and Public Liability and Property Damage Insurance as well as any other insurance required by the Contract Documents.

Each certificate or other documentary evidence presented shall contain therein or have contained in a rider attached thereto and made a part thereof, a clause to the effect that the insurer will notify the insured and the Owner in writing thirty (30) days prior to the cancellation of the policy. The certificate for each policy shall be executed in quintuplicate, or in as many copies as the Owner may require.

- B. Accidents and Claims. The Contractor shall be held responsible for all accidents and shall indemnify to the extent permitted by law and protect the Owner from all suits, claims and actions brought against it, and all cost or liability, including attorneys fees, to which the Owner may be put for any injury or alleged injury to the person or property of another resulting from negligence or carelessness in the performance of the work, or from any improper or inferior workmanship, or from inferior materials used in the work.
- C. Mutual Responsibility of Contractors. Should a Contractor in the performance of his/her Contract cause damage to any person, any property, or work of another Owner or other party to the damage, arrange for an amicable settlement thereon. It is agreed by all parties herein that such disputes shall not delay completion of the work, nor be cause for claim against the Owner. Work shall be continued by the party claiming damages at his expense, subject to such damages as may be obtained by due course of law.
- D. Contractor's Liability. The status of the Contractor in the work to be performed by him/her under this Contract is that of an independent Contractor and that, as such, he shall properly safeguard against any and all injury or damage to the public, to public and private property, materials and things; and that, as such, he/she alone shall be responsible for any and all damage, loss or injury to persons or property that may arise, or be incurred, in or during the conduct or progress of said work without regard to whether or not the Contractor, his/her subcontractors, agents, or employees have been negligent; and that the Contractor shall keep the Owner free, and discharge of, and from any and all responsibility for risks or casualties of every description, for any or all damage, loss or injury to persons or property arising out of the nature of the work, from the action of the elements, or from any unforeseen or unusual difficulty, the Contractor shall assume and be liable for all blame

and loss of whatsoever nature by reason of neglect or violation of any federal, state, county, or local laws, regulations or ordinances; that Contractor shall indemnify and save harmless the Owner and all its officers, agents and employees from all suits or actions at law caused by the negligence, recklessness or intentional wrongful misconduct of the Contractor and persons employed or utilized by the Contractor in the performance of the construction contract and shall, if required by the Owner, produce evidence of settlement of any such action before final payment shall be made by the Owner.

1.19 CANCELLATION OF CONTRACT

As soon as practicable after the satisfactory execution of the Contract by both parties, written notice to proceed with the work will be given to the Contractor. If such notice is not given within thirty (30) days after contract execution, and the delay is not caused by the Contractor or accepted by him/her in writing, the Contract may be declared null and void by either party.

If the Contractor incurs any expense in furtherance of the Contract prior to receipt of the Notice to Proceed, he/she does so on his own responsibility.

1.20 COMPLETION TIME AND LIQUIDATED DAMAGES

The Bidder shall understand that the time limit indicated for completion of this Contract, and the amount of liquidated damages to be charged against the Contractor shall be declared in default in accordance with the provisions of the Specifications, shall be as stated in Article II of the Form of Agreement which is a part of these Contract Documents.

1.21 PAYMENT OF TAXES

The Contractor will be responsible for payment of all Excise, Sales and Use Taxes, and all other taxes required by law on all materials, tools, apparatus, equipment, fixtures, and incidentals which he purchases or uses for the purpose of fulfilling the work of this Contract, and he/she shall include all amounts required for such taxes with the item prices bid in his Proposal. No additional payment will be made to cover such taxes. Each Bidder shall thoroughly familiarize himself before submitting a Proposal, with all laws requiring the payment of taxes.

1.22 PUBLIC ENTITY CRIMES INFORMATION STATEMENT

A person or affiliate who has been place on the convicted vendor list following a conviction for a public entity crime may not submit a bid on a contract to provide any goods or services to a public entity, may not submit a bid on a contract with a public entity for the construction or repair of a public building or public work, may not submit bids 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 Section 287.017, for CATEGORY TWO for a period of 36 months from the date of being placed on the convicted vendor list.

END OF SECTION

SECTION 00 11 00
CITY OF HOLLY HILL
LOCAL BIDDER PREFERENCE

To account for the financial advantages accruing to the City by the award of a contract to a local business or county business, the City has adopted through Ordinance 2920 a local bidder preference, Code of Ordinances Section 30-78. A bid/proposal from a local business shall receive bid preference in an amount not to exceed five percent of the local business' total bid price if the cost differential does not exceed \$25,000.00 for procurement activities in amounts over \$25,000.00. A bid/proposal from a county business shall receive bid preference in an amount not to exceed three percent of the local business' total bid price if the cost differential does not exceed \$15,000.00 for procurement activities in amounts over \$25,000.00. The City, when seeking bids or proposals for commodities or equipment, will notify bidders or proposers that bids or proposals will be evaluated on the basis of this local bidder preference.

A "local business" means a vendor or contractor which has a place of business (other than a post office box) within the City Limits and has a valid, current business tax receipt issued by the City. To qualify as a local business the vendor shall submit with its bid/proposal a completed City of Holly Hill affidavit that documents the following: the business has paid its City of Holly Hill local business tax at least 12 months prior to the opening of the bid/proposal, does business in the Holly Hill community, maintains a physical business address located within the jurisdictional limits of the City of Holly Hill. The affidavit is included in the bid/proposal solicitation or a copy can be obtained by accessing the Bidding Opportunities section of the City web site. In order to be considered under the Local Bidder Preference, this affidavit is required to be submitted each time a local business submits a bid/proposal.

A "county business" means a vendor or contractor which has a place of business (other than a post office box) within the County Limits and has a valid, current business tax receipt issued by the City of its permanent address. To qualify as a county business the vendor shall submit with its bid/proposal a completed City of Holly Hill affidavit that documents the following: the business has paid its local business tax to the City of its permanent residence at least 12 months prior to the opening of the bid/proposal, does business in the Volusia County community, maintains a physical business address located within the jurisdictional limits of Volusia County. The affidavit is included in the bid/proposal solicitation or a copy can be obtained by accessing the Bidding Opportunities section of the City web site. In order to be considered under the Local Bidder Preference, this affidavit is required to be submitted each time a county business submits a bid/proposal.

SECTION 00110
CITY OF HOLLY HILL
LOCAL BIDDER PREFERENCE

AFFIDAVIT OF ELIGIBILITY
LOCAL BUSINESS

All areas of this form are required to be completed. Incomplete forms may be rejected.

- LEGAL NAME OF BUSINESS: _____
Physical Address: _____ Mailing Address (if different) _____

- Year your business was established in the City of Holly Hill: _____
- Business Tax Receipt Number Issued by the City of Holly Hill
BTR Number: _____ Date Issued: _____
- Please provide a brief description of the nature of your business and how it relates to the community.

The undersigned states that the foregoing statements are true and correct. The City of Holly Hill reserves the right to verify all information submitted as part of this affidavit. The undersigned acknowledges that the application of Local Bidder Preference is subject to Section 30-78, Code of Ordinances.

By:

Sworn to and subscribed before me

Signature _____

This _____ day of _____ 20__

Name, Typed or Printed _____

Signature of Notary (& Stamp) _____

Title, Typed or Printed _____

Notary Public, State of _____

Mailing Address _____

Personally Known _____ or _____

City, State, Zip Code _____

Produced Identification _____

Telephone Number _____

(type of identification) _____

00 11 00-2

**SECTION 00 30 00
PROPOSAL**

FOR

**CITY OF HOLLY HILL
LIFT STATION #7 REHABILITATION
BID NO. 17WW07
(To be completed in Duplicate)**

Bidder's Name: _____

Submitted: _____, 20

City of Holly Hill
City Clerk
1065 Ridgewood Avenue
Holly Hill, FL 32117

Gentlemen:

The undersigned, as Bidder, hereby declares that the only person or persons interested in the Proposal, as principal or principals, is or are named herein and that no other persons than herein mentioned has any interest in the Proposal or the Contract to which the work pertains; that this Proposal is made without connection or arrangement with any other person, company, or parties making a bid or proposal and that the Proposal is in all respects fair and made in good faith without collusion or fraud.

The Bidder further declares that he has examined the site of the work and that from personal knowledge and experience, or that he/she has made sufficient test holes and/or other subsurface investigations to fully satisfy self that such site is a correct and suitable one for this work and he/she assumes full responsibility therefore; that he/she is familiar with all legal requirements (Federal, State and local laws, ordinances, rules and regulations) pertaining to the Work; that he/she has examined the Drawings and Specifications for the work and from his/her own experience or from professional advice that the Drawings and Specifications are sufficient for the work to be done and he/she has examined the other Contract Documents and all addenda relating thereto, and that he/she has satisfied himself/herself fully, relative to all matters and conditions with respect to the work to which this Proposal pertains.

The Bidder proposes and agrees, if this Proposal is accepted, to contract with the City of Holly Hill , (Owner) in the form of contract specified, to furnish all necessary materials, equipment, machinery, tools, apparatus, transportation, and labor and to perform all work necessary to complete the Work specified in the Proposal and other Contract Documents.

The Bidder further proposes and agrees to comply in all respects with the time limits for commencement and completion of the Work as stated in the Contract Form.

The Bidder further agrees that the deductions for liquidated damages, as stated in the Contract Form, constitute fixed and agreed liquidated damages to reimburse the Owner for additional costs to the Owner resulting from the Work not being completed within the time limit stated in the Contract Form.

The Bidder further agrees to execute a Contract and furnish satisfactory Performance and Payment Bonds, each in the amount of one-hundred percent of the Contract price, and the required Certificates of Insurance, within ten consecutive calendar days after written notice being given by the Owner of the award of the Contract, and the undersigned agrees that in case of failure on his/her part to execute the said Contract, Performance and Payment Bonds and Insurance Certificates within ten (10) consecutive calendar days after the award of the Contract, the bid guarantee accompanying his/her bid and the money payable thereon shall be paid to the Owner as liquidation of damages sustained by the Owner; otherwise, the bid guarantee shall be returned to the undersigned within fifteen days after the Contract is signed and the Performance and Payment Bonds and Insurance Certificates are filed.

The undersigned agrees to accept as full compensation for completion of the project in full compliance with the Contract Documents, the unit prices for the items named in Section 00 31 00, Schedule of Unit Prices, submitted herein with this Proposal.

The undersigned offers to furnish all materials, equipment and labor for construction of **"LIFT STATION #7 REHABILITATION"**, for the City of Holly Hill, Florida, complete in every respect in strict accordance with the drawings, specifications and any future changes therein. The Contractor shall perform these obligations for the prices listed in the "Schedule of Unit Prices: Section 00 31 00" attached and made a part of this Bid. **The bid total is:**

(In Words)

Dollars \$_____ (In Figures)

COMPLETION TIME OF CONTRACT

The Contractor agrees that the work shall be started not later than the date indicated in the Notice to Proceed and that the total work shall be substantially completed within **150 days** and final completion within **30 days** of substantial completion.

The Contractor further agrees that for each calendar day, with the exception of Sundays and legal holidays that any work shall remain uncompleted after the stations completion times stipulated above the sum of **\$1,000 (One Thousand Dollars)** per day shall be deducted from monies due the contractor, not as a penalty, but as liquidated damages. If the Contractor is declared in default in accordance with the provisions of the Specifications, liquidated damages shall be charged as provided herein, and such amounts shall be deducted from the final amount payable to the Contractor or his/her Surety. Should the total amount chargeable as liquidated damages exceed

the amount due or payable to the Contractor or his/her Surety, then such excess shall be paid to the Owner by the Contractor or his/her Surety.

SUPPLEMENTAL REQUIREMENTS

The following documents are attached to and made a condition of this bid:

Local Bidder Preference Affidavit 00 11 00
 Schedule of Unit Prices: Section 00 31 00
 Statement of Bidder's Qualifications: 00 32 00
 Listing of Subcontractors: Section 00 33 00
 Listing of Previous Experience: Section 00 33 10
 Bid Bond: Section 00 41 00
 Public Entity Crimes Statement: Section 00 47 00
 Anti-Collusion Statement: Section 00 48 00
 Drug Free/Tie Preference Statement: Section 00 48 50
 Trench Safety Affidavit: Section 00 49 00
 Certificate as to Corporate Principal: Section 00 62 00
 City of Holly Hill Insurance Requirements: Section 00 80 00A
 W9 Request for Taxpayer Identification Number and Certification

REQUIRED DISCLOSURE

At its sole discretion, the City of Holly Hill, Florida may reject any bidder the City finds to lack, or whose present or former executive employees, officers, directors, stockholders, partners or owners are found by the City to lack honesty, integrity, or moral responsibility. The discretion of the City may be exercised based on the City's own investigation, public records, or any other reliable sources of information. By submitting a bid, bidder recognizes and accepts that the City may reject the bid based upon the exercise of its sole discretion and bidder waives any claim it might have for damages or other relief resulting from the rejection of its bid based on these grounds.

SCHEDULE OF MAJOR MANUFACTURERS AND SUPPLIERS

The equipment manufacturers/suppliers on this project shall be as delineated in the following schedule. Bidders should note that the Owner and Engineer have made rigorous investigations of equipment performance and features, and as a result, Bidders are to note that the contract price for this project shall be based on Base Bid equipment. The Base Bid equipment for this project falls under one of two categories. The first category is equipment that the Owner and Engineer have determined will be supplied by a sole source of supply, for which no substitutions or alternates will be entertained or allowed. Bidder is advised that offering of any alternatives to the sole source supplied equipment will be grounds for rejection of his bid as not responsive. The second category of equipment includes those items where the Owner and Engineer deem there to be more than one acceptable supplier of the particular item listed. The equipment which falls under these two categories is shown on the subsequent pages of this Schedule of Major Manufacturers and Suppliers. Bidder is advised that the award of this Contract will be based solely on the use of Base Bid equipment.

The following comments relate only to the second category of equipment, where the Contract Documents are based upon the equipment or products available from the suppliers denoted as A, B, C, etc. below. These equipment manufacturers, along with the sole source suppliers constitute the Base Bid.

Provision is made in the Contract Documents for alternate manufacturers and suppliers whose equipment or product may be deemed equivalent in quality (see General Conditions). However, the Bidder must indicate in his Bid which Base Bid supplier he intends to use for each item of equipment listed by circling one of the listed manufacturers/suppliers. If the Bidder fails to indicate which listed manufacturer/supplier he intends to use if an alternate is rejected, he must use the supplier listed as "A". Also, if the Bidder circles more than one listed supplier, he must use the first supplier circled (unless an alternate is approved).

If the Bidder desires to propose one or more alternate manufacturers/suppliers, he may write in the name of such alternates in the spaces provided on the Alternate Manufactures/Suppliers page following the schedule. He must, nevertheless, also circle one of the listed manufacturers/suppliers because Bidders' Bid price must be based upon this Base Bid list. Wherever an alternate supplier is proposed, the Bidder must insert the amount to be deducted from the Contract Price (either lump sum or unit price) if the alternate supplier is eventually approved. If the proposed alternate supplier is determined "not equivalent" by the Engineer, the Bidder must use the circled supplier.

For any alternate supplier accepted by the Owner, the Contract Price will be reduced by the deductive amount stated in the Bid. However, the Contract Price will not be adjusted for any alternate supplier rejected.

Each proposed alternate will be evaluated in accordance with the General Conditions.

The deductive amount specified for alternate manufacturers/suppliers will not be used in determining the successful Bidder. Alternates will be considered only after award of the contract.

The Contractor shall reimburse the Owner for any costs directly attributable to the change in suppliers, such as additional field trips for the Engineer, additional redesign costs, additional review and inspection costs, etc.

The Owner may request and the Bidder shall supply complete information on proposed alternates prior to the Notice of Award.

SCHEDULE OF MAJOR MANUFACTURERS
AND SUPPLIERS

Category I - Sole Source Equipment Items:

Item No.	Spec. No.	Equipment/Material	Manufacturer or Supplier
1	333220	Collection System Submersible Pumps	A) ABS

Category II - Major Equipment Items:

NONE

ALTERNATE MANUFACTURERS/SUPPLIERS

EQUIPMENT ITEM MATERIAL	SPEC. SECTION	ALTERNATIVE MANUFACTURER / SUPPLIER (LIST ONE ONLY)	DEDUCTIBLE AMOUNT (indicate whether lump sum or unit price) ALTERNATE
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____

Name (signature)

Date

Name (typed and printed)

Title

Attachment: HH121_LS7 Rehabilitation_Bid Set Specs (1716 : Lift Station #7 Rehabilitation 17WW07)

ACKNOWLEDGMENT OF ADDENDA

Addenda will be issued via email and it is the Bidder's responsibility to confirm that all addenda have been received prior to submitting a bid for the project. Acknowledgment is hereby made of the following Addenda received since issuance of Drawings and Specifications:

Addendum No. _____ Dated: _____
 Addendum No. _____ Dated: _____
 Addendum No. _____ Dated: _____

Addendum No. _____ Dated: _____
 Addendum No. _____ Dated: _____
 Addendum No. _____ Dated: _____

Attached hereto is a cashier's check on the _____ Bank of
 _____ or Bid Bond for the sum of
 _____ Dollars (_____),
 made payable to _____ (Owner).

 (Name of Bidder) (Affix Seal)

 (Signature of Officer)

 (Title of Officer)

 Name of Bidder

 Address

 City/State/Zip

 Telephone

 Contractor's Florida License Number

The full names and residences of persons and firms interested in the foregoing bid, as principals, are as follows:

END OF SECTION

**SECTION 00 31 00
SCHEDULE OF UNIT PRICES**

**CITY OF HOLLY HILL
LIFT STATION #7 REHABILITATION
BID# 17WW07**

<i>ITEM NO.</i>	<i>DESCRIPTION</i>	<i>QTY</i>	<i>UNIT</i>	<i>UNIT COST</i>	<i>TOTAL</i>
1	Preconstruction Video	1	LS		
2	Demolition	1	LS		
3	Bypass Pumping	1	LS		
4	Complete Lift Station	1	LS		
5	Electrical	1	LS		
6	Tie-Ins				
	a) Tie-In to Existing Force Main	1	LS		
7	DIP Fittings Add or Delete	1000	LBS		
8	Cap and Abandon Existing Old Force Main	1	LS		
9	Permits and Allowances	1	LS	\$10,000.00	
10	As-Built Plans	1	LS		
11	MOT	1	LS		
12	Restoration	1	LS		
				BID TOTAL	

Submitted by: _____

Contractor: _____

Address: _____

Telephone: _____ Fax: _____

State of Florida Certified General Contractor or Underground Contractor (Required Information)

Licensee: _____ License No: _____

Attachment: HH121_LS7 Rehabilitation_Bid Set Specs (1716 : Lift Station #7 Rehabilitation 17WW07)

SECTION 00 32 00

STATEMENT OF BIDDER'S QUALIFICATIONS

All questions must be answered and the data given must be clear and comprehensive. This statement must be notarized. If necessary, questions may be answered on separate attached sheets. The bidder may submit any additional information he desires.

- A. Name of bidder.
- B. Permanent main office address.
- C. When organized.
- D. If a corporation, where incorporated.
- E. How many years have you been engaged in the contracting business under your present firm or trade name?
- F. Contracts on hand: (Schedule these, showing amount of each contract and the appropriate anticipated dates of completion.)
- G. General character of work performed by your company.
- H.⁽¹⁾ Have you ever failed to complete any work awarded to you? If so, where and why?
- H.⁽²⁾ Provide list of any lawsuits or judgments filed by or against your company in the last three years, indicating the nature and outcome.
- I. Have you ever defaulted on a contract? If so, where and why?
- J. List the more important projects recently completed by your company, stating the approximate cost for each and the month and year completed.
- K. List your major equipment _____.
- L. Experience in construction work similar in type to this project.
- M. Background and experience of the principal members of your organization, including the officers.
- N. Credit available: \$_____.
- O. Give bank reference: _____.
- P. Will you, upon request, fill out a detailed financial statement and furnish any other information that may be required by the Owner?

- Q. The undersigned hereby authorizes and requests any person, firm, or corporation to furnish any information requested by the Owner in verification of the recitals comprising this Statement of Bidder's Qualifications.

Dated at _____ this _____ day of _____, 20____.

Name of Bidder

By: _____
Title

State of _____

County of _____

_____ being duly sworn deposes and says that

he is the _____ of _____ and that

the answers to the _____ foregoing questions
Name of Organization

and all statements therein contained are true and correct.

Subscribed and sworn to before me this _____ day of _____, 20____.

Notary Public

Notary Public (Print or Type)

My commission expires: _____

SECTION 00 33 00
LISTING OF SUBCONTRACTORS

The Bidder proposes that the following subcontractors are qualified to perform the referenced work and have successfully done so on recent projects similar in nature and size. Upon approval of subcontractors listed the successful bidder shall not substitute subcontractors without approval from the Engineer. Bidder shall attach additional sheets as necessary.

SUBCONTRACTOR	COMPANY NAME	REFERENCES
		1) 2) 3)
		1) 2) 3)
		1) 2) 3)
		1) 2) 3)

END OF SECTION

SECTION 00 33 10
LISTING OF PREVIOUS EXPERIENCE

The bidder proposes that he/she is qualified to perform the referenced work and has successfully done so on recent projects similar in nature and size. A minimum of three (3) projects must be listed below. The Owner reserves the right to check references and confirm information provided herein.

NO.	PROJECT	OWNER	DESCRIPTION/COST	REFERENCE	DATE WORK STARTED & FINISHED MM/YR TO MM/YR
1					
2					
3					

END OF SECTION

Attachment: HH121_LS7 Rehabilitation_Bid Set Specs (1716 : Lift Station #7 Rehabilitation 17WW07)

**SECTION 00 41 00
BID BOND**

KNOW ALL MEN BY THESE PRESENTS, that we, _____ as Principal and _____ of the City of _____ State of _____, a corporation existing under the laws of the State of Florida, as Surety, are held and firmly bound unto the _____ hereinafter called the Owner, in the sum of _____ Dollars (\$ _____) lawful money of the United States of America, for the payment of which sum well and truly to be made, we bind ourselves our heirs, executors, administrators and successors, jointly and severally, firmly by these presents.

The condition of this obligation is such that whereas the Principal has submitted the accompanying Proposal or Bid, for the construction of:

LIFT STATION #7 REHABILITATION

NOW, THEREFORE, if the Principal shall not withdraw said Bid within ninety (90) days after the opening of the same and in the event of the acceptance of his proposal by the Owner, shall, within the period specified therefore, enter into a written contract with the Owner in accordance with the Bid as accepted, and give bond with good and sufficient surety or sureties, as may be required, for the faithful performance and proper fulfillment of such contract, or in the event of the withdrawal of said Bid within the period specified, of the failure to enter into such contract and give bonds within the time specified, if the Principal shall pay the Owner the difference between the amount specified in said Bid and the amount for which the Owner may procure the required work, if the latter amount be in excess of the former, then the above obligation shall be void and of no effect, otherwise to remain in full force and virtue.

Attachment: HH121_LS7 Rehabilitation_Bid Set Specs (1716 : Lift Station #7 Rehabilitation 17WW07)

IN WITNESS WHEREOF, the above bounden parties have executed this instrument under their several seals this ____ day of _____, 20__, the name and corporate seal of each corporate body being hereto affixed and these presents duly signed by its undersigned representative, pursuant to authority of its governing body.

IN PRESENCE OF:

_____(Seal)
 _____(Seal)
 _____(Seal)
 Individual or Partner

Witness

ATTEST:

 Address

 Corporate Principal

 President AFFIX
 CORPORATE SEAL

ATTEST:

 Address
 By _____
 AFFIX
 CORPORATE SEAL

 Corporate Surety

 Title

END OF SECTION

SECTION 00 47 00

SWORN STATEMENT UNDER SECTION 287.133(3)(a), FLORIDA STATUTES, ON PUBLIC ENTITY CRIMES:

This sworn statement is submitted with Bid, Proposal **or** Contract No. _____ for _____.

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: _____.)

My name is _____ any my relationship to the entity named above is _____.

I understand that a "public entity crime" as defined in Paragraph 287.133(g), Florida Statutes, means a violation of any state or federal law by a person with respect to and directly related to the transaction of business with any public entity or with an agency or political subdivision of any other state or with the United States, including, but not limited to, any bid or contract for goods or services to be provided to any public entity or an agency or political subdivision of any other state or of the United States and involving antitrust, fraud, theft, bribery, collusion, racketeering, conspiracy, or material misrepresentation.

I understand that "convicted" or "conviction" as defined in Paragraph 287.133(i)(b), Florida Statutes, means a finding of guilt or a conviction of a public entity crime, with or without an adjudication of guilt, in any federal or state trial court of record relating to charges brought by indictment or information after July 1, 1989, as a result of a jury verdict, nonjury trial, or entry of a plea of guilty or nolo contendere.

I understand that an "affiliate" as defined in Paragraph **287.133(l)(a)**, Florida Statutes, means:

1. A predecessor or successor of a person convicted of a public entity crime: or
2. An entity under the control of any natural person who is active in the management of the entity and who has been convicted of a public entity crime. The term "affiliate" includes those officers, directors, executives, partners, shareholders, employees, members, and agents who are active in the management of an affiliate. The ownership by one person of shares constituting a controlling interest in another person, or a pooling of equipment or income among persons when not for fair market value under an arm's length agreement, shall be a prima facie that one person controls another person. A person who knowingly enters into a joint venture with a

person who has been convicted of a public entity crime in Florida during the preceding 36 months shall be considered an affiliate.

I understand that a "person" as defined in Paragraph 287.133(i)(e), Florida Statutes, means any natural person or entity organized under the laws of any state or of the United States with the legal power to enter into a binding contract and which bids or applies to bid on contracts for the provision of goods or services let by a public entity, or which otherwise transacts or applies to transact business with a public entity. The term "person" includes those officers, directors, executives, partners, shareholders, employees, members, and agents who are active in management of an entity.

Based on information and belief, the statement which I have marked below is true in relation to the entity submitting this sworn statement. (Please indicate which statement applies).

- _____ Neither the entity submitting this sworn statement, nor any officers, directors, executives, partners, shareholders, employees, members or agents who are active in management of the entity, nor any affiliate of the entity have been charged with and convicted of a public entity crime subsequent to July 1, 1989.
- _____ The entity submitting this sworn statement, or one or more of the officers, directors, executives, partners, shareholders, employees, members, or agents who are active in management of the entity, or an affiliate of the entity has been charged with and convicted of a public entity crime subsequent to July 1, 1989, AND (Please indicate which additional statement applies.)
- _____ There has been a proceeding concerning the conviction before a hearing officer of the State of Florida, Division of Administrative Hearings. The final order entered by the hearing officer did not place the person or affiliate on the convicted vendor list. (Please attach a copy of the final order.)
- _____ The person or affiliate was placed on the convicted vendor list. There has been a subsequent proceeding before a hearing officer of the State of Florida, Division of Administrative Hearings. The final order entered by the hearing officer determined that it was in the public interest to remove the person or affiliate from the convicted vendor list. (Please attach a copy of the final order).

(Signature) _____ Date: _____

State of _____ County of _____

PERSONALLY APPEARED BEFORE ME, the undersigned authority, _____
 who, after first being sworn by me, affixed his/her signature in the space provided above on this
 _____ day of _____, 20__.

 Notary Public

My Commission Expires:

Attachment: HH121_LS7 Rehabilitation_Bid Set Specs (1716 : Lift Station #7 Rehabilitation 17WW07)

SECTION 00 48 00
ANTI-COLLUSION STATEMENT

By signing this form, the bidder agrees that this is made without any other understanding, agreement, or connection with any person, corporation, or firm submitting a proposal for the same purpose and that the proposal is in all respects fair and without collusion or fraud.

SIGN in ink in the space provided below. Unsigned bids will be considered incomplete, and will be disqualified, and rejected.

IT IS AGREED BY THE UNDERSIGNED BIDDER THAT THE SIGNING AND DELIVERY OF THE BID REPRESENTS THE BIDDER'S ACCEPTANCE OF THE TERMS AND CONDITIONS OF THE FORGOING SPECIFICATIONS, CONTRACT AND PROVISIONS, AND IF AWARDED, THIS CONTRACT WILL REPRESENT THE AGREEMENT BETWEEN EACH OF THE GOVERNMENTAL PARTIES.

NAME OF FIRM: _____

SIGNED BY: _____
(MUST BE SIGNED BY A COMPANY OFFICER OR AUTHORIZED AGENT)

TITLE: _____

ADDRESS: _____

CITY AND STATE: _____

TELEPHONE: _____

COMPLETION TIME: _____

NO proposals will be withdrawn for a period of ninety (90) days subsequent to the opening of the proposals, without the consent of the City of Holly Hill.

NO BID (REASON) _____

END OF SECTION

SECTION 00 48 50
DRUG FREE/TIE PREFERENCE STATEMENT

In the event of a tie bid a preference is given to vendors submitting a certification with their bid/proposal certifying they have a drug-free workplace in accordance with Section 287.087, Florida Statutes. This requirement affects all public entities of the State and becomes effective January 1, 1991. The special conditions are as follow:

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

1. Publish a statement notifying employees that the unlawful manufacture, distribution, dispensing, possession, or use of a controlled substance is prohibited in the workplace and specifying the actions that will be taken against employees for violations of such prohibition.
2. Inform employees about the dangers of drug abuse in the workplace, the business's policy of maintaining a drug-free workplace, any available drug counseling, rehabilitation and employee assistance programs, and the penalties that may be imposed upon employees for drug abuse violations.
3. Give each employee engaged in providing the commodities or contractual services that are under bid a copy of the statement specified in subsection (1).
4. In the statement specified in subsection (1), notify the employees that, as a condition of working on the commodities or contractual services that are under bid, the employee will abide by the terms of the statement and will notify the employer of any conviction or, or plea of guilty or nolo contendere to, any violation of chapter 893 or of any controlled substance law of the United States or any state, for a violation occurring in the workplace no later than five (5) days after such conviction.
5. Impose a sanction on, or require the satisfaction participation in a drug abuse assistance or rehabilitation program if such is available in the employee's community, by any employee who is so convicted.
6. Make a good faith effort to continue to maintain a drug-free workplace through implementation of this section.

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

 VENDOR'S SIGNATURE

END OF SECTION

SECTION 00 49 00
TRENCH SAFETY AFFIDAVIT

Trench excavations on this Project are expected to be in excess of 5 feet deep. The Occupational Safety and Health Administration excavation safety standards, 29 CFR 1926.650 Subpart P trench safety standards will be in effect during the period of construction of the Project.

Bidder acknowledges that included in the Bid Price are costs for complying with the Florida Trench Safety Act (90-096, Laws of FL) effective October 1, 1990, and hereby gives assurance that, if awarded the Contract, the Contractor or Subcontractor performing trench excavation work on the Project will comply with the applicable trench safety standards. The Bidder further identifies the costs as follows:

<u>Trench Safety Item (Description)</u>	<u>Cost</u>
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

(Cost in Words)

TOTAL \$ _____

FAILURE TO COMPLETE THE ABOVE SHALL RESULT IN THE BID BEING DECLARED NON-RESPONSIVE

COMPANY NAME: _____

DATE: _____ BY: _____

(Additional sheets shall be attached, as needed and, items shall be organized to correspond with the bid format)

Attachment: HH121_LS7 Rehabilitation_Bid Set Specs (1716 : Lift Station #7 Rehabilitation 17WW07)

SECTION 00 50 00

AGREEMENT

THIS AGREEMENT, entered into this ____ day of _____, 20__, by the City of Holly Hill, Florida, hereinafter called the OWNER, Party of the First Part, and a CORPORATION known as _____ organized and existing under the laws of the State of _____; PARTNERSHIP known as _____ consisting of the following members: _____ an INDIVIDUAL _____ trading as _____ of _____ City _____ State of _____ Zip Code _____, hereinafter called the CONTRACTOR, Party of the Second Part.

WITNESSETH: That the parties hereto do mutually agree as follows:

ARTICLE I.

- A. The Contractor agrees to furnish all labor, superintendence, materials, plant and other utilities for, perform all work necessary for or incidental to, and to perform all other obligations imposed by this Contract for the Construction of

LIFT STATION #7 REHABILITATION

herein called for, in strict accordance with the Drawings and Specifications prepared by Quentin L. Hampton Associates, Inc., Engineers, which Contract include, but is not limited to, the following Contract Documents:

- | | |
|---------------------|------------------------------------|
| a. Invitation | f. Labor and Material Payment Bond |
| b. Instructions | g. Insurance |
| c. Proposal | h. Specifications |
| d. This Agreement | i. Addenda (if any) |
| e. Performance Bond | j. Drawings |

ARTICLE II.

- A. The Contractor agrees that the work shall be started not later than the date indicated in the Notice to Proceed and that all work shall be completed within **150 days with an additional 30 days for final completion.**
- B. The Contractor further agrees that for each calendar day, with the exception of Sundays and legal holidays, which any work shall remain uncompleted after the stations completion times stipulated above, the sum of **\$1000 (ONE THOUSAND DOLLARS)** shall be deducted from monies due the Contractor, not as a penalty, but as liquidated damages. If the Contractor is declared in default in accordance with the provisions of the Specifications, liquidated damages shall be charged as provided herein, and such amounts shall be deducted

from the final amount payable to the Contractor or his Surety. Should the total amount chargeable as liquidated damages exceed the amount due or payable to the Contractor or his Surety, then such excess shall be paid to the Owner by the Contractor or his Surety.

ARTICLE III.

- A. The Contractor shall receive and accept the compensation for the performance of the Contract (subject to additions or deductions noted therein) in accordance with the prices stipulated in the Proposal, and in the manner provided in Article IV for the Contract Price of \$_____ and for additions or revisions approved in Change Orders at Unit Prices.

ARTICLE IV.

- A. Payment to the Contractor shall be made as follows:
1. Not later than the fifteenth (15th) day of each calendar month, the Owner will make a partial payment to the Contractor on the basis of a duly certified and approved estimate by the Engineer of the work performed during the preceding calendar month under this Contract, and (at the option of the City) an amount equal to 90% of materials and equipment not incorporated in the work but delivered and suitably stored. When payment to the Contractor is made for stored materials and equipment, Contractor shall submit invoices marked paid by the supplier with the next month's request for payment to document that Contractor has paid for said materials and equipment or the previously paid amount for stored materials shall be deducted from any remaining payment(s) for any stored materials not so properly documented. To insure the proper performance of this Contract, the Owner will retain ten percent (10%) of the amount of each estimate until the work is fifty percent (50%) complete.
 2. When work is fifty percent (50%) complete, the Owner may allow the reduction of the withholding to five percent (5%) of the dollar value of all work satisfactorily completed to date, provided that the Contractor is making satisfactory progress and there is no specific cause for greater withholding.
 3. Upon completion of the entire work under Contract, the Engineer shall make a final inspection and certify such completion to the Owner. Upon approval of the completion certificate by the Owner, the Owner shall notify the Contractor and the Surety of the satisfactory completion of the work and except as otherwise provided in the Specifications, final payment therefore shall be made to the Contractor within thirty (30) days after written acceptance by the Contractor of the final certificate computation.

ARTICLE V.

- A. The Contract shall not sublet, sell, transfer, assign, or otherwise dispose of the Contract or any portion thereof, or his right, title or interest therein, without written consent of the Owner.

ARTICLE VI.

- A. The work shall be subject at all times to the supervision of the Engineer and his authorized assistants. The Engineer shall decide all questions which may arise relative to the Drawings, Specifications, and the performance of the work. Any doubt concerning the meaning of the Specifications and the Drawings, or any ambiguity or obscurity as to wording or intent of them shall be decided by the Engineer, and such decisions shall be binding upon both parties hereto, and shall not be subject to arbitration.

ARTICLE VII.

- A. The Contractor shall guarantee his work and shall remedy, without cost to the Owner, any defects which may develop therein during a period of one (1) year from the date of the Owner's approval of the Completion Certificate issued by the Engineer.

ARTICLE VIII.

- A. In the event of conflict between any of the Contract Documents, the provisions of this Agreement shall govern.

IN WITNESS WHEREOF, the Parties hereto have signed this Contract in quintuplicate the day and year first above written.

ATTEST:

CITY OF HOLLY HILL, FLORIDA

Valerie Manning

By _____
Joseph A. Forte

Title City Clerk

Title City Manager

WITNESS:

CONTRACTOR

By _____

END OF SECTION

SECTION 00 62 00
CERTIFICATE AS TO CORPORATE PRINCIPAL

I, _____, certify that I am the _____
of the corporation named as Principal in the within Bid Bond; that _____
who signed the said Bid Bond on behalf of the Principal was then _____
of said corporation; that I know his signature, and his signature thereto is genuine; and that said
Bid Bond was duly signed, sealed and attested for in behalf of said corporation by authority of its
governing body.

AFFIX CORPORATE SEAL

END OF SECTION

Return Recorded Document to:
City Clerk
1065 Ridgewood Avenue
Holly Hill, FL 32117

LIFT STATION #7 REHABILITATION

Name of Project

City Project No. 17WW07

Bond No. _____

Space Reserved for Recording Data

COMBINATION PAYMENT AND PERFORMANCE BOND

FOR

PUBLIC CONSTRUCTION

*per Section 255.05, Florida Statutes (2010)
Guaranty for Construction of Public Improvements*

BY THIS BOND, We, _____, as Principal, and _____, a corporation, as Surety, are bound to **CITY OF HOLLY HILL, FLORIDA**, a municipal corporation, herein called Owner or sometimes referred to as "City," in the sum of _____ and /100 Dollars (\$ _____), for payment of which we bind ourselves, our heirs, personal representatives, successors, and assigns, jointly and severally.

THE CONDITION OF THIS BOND is that if Principal:

1. Performs the terms of that certain Contract having an effective date of _____, entered into by and between the Principal and the City, hereinafter sometimes referred to as the Contract, entered into between Principal and Owner for construction of improvements reflected on the plans approved by the City Council, as prepared by Kevin A. Lee, P.E., Florida Registration No. 71501, of the engineering firm Quentin L. Hampton Associates, Inc., the "Contract," being made a part of this bond by reference, at 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 (the "Work"); and
3. Pays Owner all losses, damages, delay damages (including contractually authorized liquidated damages), expenses, costs, and attorney's fees, including appellate proceedings, that Owner sustains because of a breach or material breach by Principal under the Contract Documents; 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.

Notice of Nonpayment and Time Limitations

Pursuant to Florida Statutes Section 255.05, as amended from time to time, a claimant, except a laborer, who is not in privity with the Principal, shall, before commencing or not later than forty-five (45) days after commencing to furnish labor, materials, or supplies for the prosecution of the Work, furnish the Principal with a notice that he or she intends to look to this bond for protection. A claimant who is not in privity with the Principal and who has not received payment for his or her labor, materials, or supplies shall deliver to the Principal and to the Surety written notice of the performance of the labor or delivery of the materials or supplies and of the nonpayment. The notice of nonpayment may be served at any time during the progress of the Work or thereafter but not before forty-five (45) days after the first furnishing of labor, services, or materials by the claimant or,

with respect to rental equipment, not later than ninety (90) days after the date that the rental equipment was last on the job site available for use. No action for the labor, materials, or supplies may be instituted against the Principal or the Surety unless both notices have been given. Notices required or permitted under this section may be served in accordance with Section 713.18, Florida Statutes. An action, except for an action exclusively for recovery of retainage, must be instituted against the Principal or the Surety on this bond within one (1) year after the performance of the labor or completion of delivery of the materials or supplies. An action exclusively for recovery of retainage must be instituted against the Principal or the Surety within one (1) year after the performance of the labor or completion of delivery of the materials or supplies, or within ninety (90) days after receipt of final payment (or the payment estimate containing the Owner's final reconciliation of quantities if no further payment is earned and due as a result of deductive adjustments) by the Principal or Surety, whichever comes last.

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.

IN WITNESS WHEREOF, this performance and payment bond is executed in duplicate originals, each of which shall be deemed an original, this _____, day of _____, 20____.

Attest:

(As to Corporate Principal) Secretary

(Name of Principal)

By: _____

Name/Title: _____

(Witness to Principal)

(Corporate Seal)

(Surety)

(Witness to Surety)

By: _____

(Attorney-In-Fact)

(Corporate Seal)

NOTE: Date of BOND must not be prior to date of Contract. If Developer/Principal is Partnership, all partners should execute BOND. All BONDS signed by an agent must be accompanied by a certified copy of the authority to act.

IMPORTANT: Surety companies executing BONDS must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the State of Florida.

Attachment: HH121_LS7 Rehabilitation_Bid Set Specs (1716 : Lift Station #7 Rehabilitation 17WW07)

SECTION 00 64 00

Front Page for Bond required by Section 255.05, F.S

PAYMENT AND PERFORMANCE BOND

(Public Works)

Notice and Time Limitations Must Be In Accordance
With Section 255.05 Florida Statutes (2010)**BOND No.** _____**PRINCIPAL:**

Name of Developer/Contractor: _____

Address: _____

Contact Person: _____

Phone Number: () - _____

SURETY:Address: _____

Contact Person: _____

Phone Number: () - _____

OWNER:City of Holly Hill, Florida, a chartered municipal corporation
1065 Ridgewood Avenue
Holly Hill, FL 32117

Contact Person: City Manager

Phone Number: (386) 248-9463

Amount: \$ _____**City Case/Project No.** 17WW07

Description of Work: *This project includes the rehabilitation of the City of Holly Hill Lift Station #7. Includes the conversion of the can lift station into a submersible station. Work includes bypass pumping, demolition of (2) existing pumps, piping, and valves to abandon pump can. Installation of two (2) new submersible pumps, new wet well, top slab, piping, valves, and valve vaults.*

Project Location: Holly Hill, Volusia County, Florida**Legal Description:** City Right-of-Way or Easement.Front Page

All other pages are subsequent to this page regardless of any numbers that may be printed thereon.

Certificate for Filing in Public Records**PAYMENT AND PERFORMANCE BOND**

(Public Works)

In Compliance with Section 255.05(1)(a) Florida Statutes (2010)

Bond No. _____

The Principal, _____
 by and through its undersigned representative, does hereby certify that the attached:

Payment and Performance Bond No. _____,
 is a true and correct copy of the fully executed financial guarantee delivered to:

CITY OF HOLLY HILL, FLORIDA

pursuant to Section 255.05, Florida Statutes (2010); as Owner/Holder of the subject property in trust for the public, for the public construction project known as:

LIFT STATION #7 REHABILITATION

located in Holly Hill, Volusia County, Florida, and identified by the City of Holly Hill as Case No. 17WW07.

All claimants are called upon to take notice of the notice requirements and time limitations prescribed by Section 255.05(2), Florida Statutes (2010).

_____ a Florida _____
 Mailing Address: _____

By: _____
 Name/Title: _____

STATE OF FLORIDA
 COUNTY OF VOLUSIA

The foregoing Certificate of Filing was acknowledged before me this _____ day of _____, 20____, by _____ as a duly authorized representative of _____ a Florida _____, the Principal named in the attached **Payment and Performance Bond No.** _____.

Notary, please check one:

_____ Personally known to me
 _____ Produced identification

 Notary Public, State of Florida

My Commission Expires: _____

Printed Name: _____

SECTION 00 65 00
CERTIFICATE OF INSURANCE
FOR
PUBLIC LIABILITY AND PROPERTY DAMAGE

This is to certify _____ Company has
issued to _____, of the City of _____, State of _____,
the following policy or policies; Public Liability Policy No. _____ effective on _____,
_____, 20____, limits _____,
Property Damage Policy No. _____ effective on _____, 20____, and expiring
on _____, 20____, limits _____.

If at any time this coverage is to be canceled, the undersigned will notify the insured and _____,
_____, in writing thirty (30) days prior to cancellation of
the policy.

(This certificate must be made by a duly authorized official of the Insurance Company carrying the risk, or a separate certificate of similar context executed on Insurance Company's Standard Form may be attached hereto.)

END OF SECTION

SECTION 00 66 00
AFFIDAVIT REGARDING WORKMEN'S COMPENSATION

State of _____

County of _____

_____ being duly sworn according to law, deposes and says (it, he, they) ha__ accepted the Workmen's Compensation laws of the State of Florida, with its supplements and amendments and has insured (its, his, their) liability there under in accordance with the terms of said Laws with the _____ Company, under the terms of Policy No. _____ for a period from _____, 20 _____ to _____, 20 ____.

WITNESS:

CONTRACTOR:

By _____

Title _____

Sworn to and subscribed before me this ____ day of _____, 20____.

Notary Public

Notary Public (Print or Type)

My Commission Expires: _____

END OF SECTION

**SECTION 00 66 50
CERTIFICATE OF INSURANCE
FOR
WORKMEN'S COMPENSATION**

This is to certify that _____, Company has issued
to _____, of the City of _____, State of _____,
the following policy or policies: Workmen's Compensation and Employer's Liability Policy No. _____
effective on _____, 20 _____.
re _____ Policy No. _____
effective on _____, 20 ____ and expiring on _____, 20 ____
re _____ limits _____.

If at any time this coverage is to be canceled, the undersigned will notify the insured and
the _____ in writing thirty (30) days
prior to cancellation of policy.

(This certificate must be made by a duly authorized official of the Insurance Company carrying
the risk, or a separate certificate of similar context executed on Insurance Company's Standard
Form may be attached hereto.)

END OF SECTION

SECTION 00 67 00
CONTRACTOR'S STATEMENT UNDER OATH, TO OWNER

To: _____

The undersigned as Contractor has heretofore, on the ____ day of _____, 20 __, has been awarded a Contract by you, as Owner, to furnish all the materials and labor in the construction of a project entitled: _____
 for the Contract Price of _____ in accordance with plans and specifications therefore as prepared by Quentin L. Hampton Associates, Inc., P.O. Drawer 290247, 4401 Eastport Parkway, Holly Hill, Florida 32129-0247.

Said project has been completed and the Contract and Plans therefore fully complied with and all of the Contract Price has been paid by you, except the Final Payment thereon, which is now due, but is being withheld until a sworn statement is furnished, as required by _____ showing whether there are any unpaid and outstanding bills in connection with said Project.

The undersigned hereby certified, under oath, that all lienors contracting directly with or directly employed by the undersigned, on said Contract, have been paid in full, and further certifies, under oath, that there are no outstanding or unpaid bills for labor performed, or materials furnished in connection with said work or improvements.

Dated at _____ this ____ day of _____, 20__.

By _____
 Contractor

Title _____

State of _____

County of _____

Sworn to and subscribed before me this _____ day of _____, 20 ____.

 Notary Public

My Commission Expires: _____

END OF SECTION

SECTION 00 68 00
RECEIPT AND RELEASE

KNOW ALL MEN BY THESE PRESENTS:

That the undersigned _____ of _____ was heretofore, on _____, 20 __, award a Contract by _____ for the Contract Price of _____ to furnish all the materials and labor in the construction of a project entitled: **LIFT STATION #7 REHABILITATION** in accordance with the plans and specifications therefore, as prepared by Quentin L. Hampton Associates, Inc., Engineers, and the undersigned has completed said work and fully complied with said Contract and has heretofore received the sum of \$ _____ as payment thereon.

That the undersigned has this date received from _____ the sum of \$ _____, representing the full balance due _____, as Contractor, under the terms of said Contract, and certified that said Contract has been fully performed in accordance with the terms thereof, and that _____ has paid in full all persons furnishing labor and/or materials in connection therewith, including all subcontractors and suppliers, and that there are no unpaid bills for labor performed or materials furnished in connection with said work or improvements.

That the undersigned, for value received, does hereby forever release and discharge the said _____ as described in the said Contract, from any and all liens, claims or demands whatsoever that _____ has or may have for work performed or materials furnished thereon by any subcontractor or supplier and that will hold harmless the _____ from any and all loss and liability arising or to arise by reason of any unpaid bills for labor performed or materials furnished on said project in connection with said work or improvements. This document is only binding upon receipt of a check for the above balance due.

IN WITNESS WHEREOF, the undersigned has hereto set ____ hand and seal this _____ day of _____, 20 ____.

Witnessed by:

CONTRACTOR

By _____

Title _____

State of _____

County of _____

Before me, the undersigned authority, personally appeared _____, to me well known and known to me to be the person described in and who executed the foregoing instrument, and he acknowledged before me that he executed the same.

IN WITNESS WHEREOF, I have hereunto set my hand and official seal this ____ day of _____, 20 ____.

My Commission Expires:

Notary Public, State of Florida

END OF SECTION

Attachment: HH121_LS7 Rehabilitation_Bid Set Specs (1716 : Lift Station #7 Rehabilitation 17WW07)

**SECTION 00 69 00
CONSENT OF SURETY
For Final Payment**

Project Name: **LIFT STATION #7 REHABILITATION**

Location _____

Project No. _____ Contract No. _____

Type of Contract _____

Amount of Contract _____

In accordance with the provisions of the above-named contract between the Owner and the Contractor, the following named surety: _____
on the Payment Bond of the following named Contractor: _____
hereby approves of final payment to the Contractor, and further agrees that said final payment to the Contractor shall not relieve the Surety Company named herein of any of its obligations to the following named Owner, as set forth in said Surety company's bond: _____.

IN WITNESS WHEREOF, the Surety Company has hereunto set its hand and seal this day of _____, 20 ____.

(Name of Surety Company)

(Signature of Authorized Representative)

(Affix Corporate Seal)

TITLE

END OF SECTION

00 69 00-1

This document has important legal consequences; consultation with an attorney is encouraged with respect to its use or modification. This document should be adapted to the particular circumstances of the contemplated Project and the controlling Laws and Regulations.

STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

Prepared by

ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

and

Issued and Published Jointly by



AMERICAN COUNCIL OF ENGINEERING COMPANIES

ASSOCIATED GENERAL CONTRACTORS OF AMERICA

AMERICAN SOCIETY OF CIVIL ENGINEERS

PROFESSIONAL ENGINEERS IN PRIVATE PRACTICE
A Practice Division of the
NATIONAL SOCIETY OF PROFESSIONAL ENGINEERS

Endorsed by



CONSTRUCTION SPECIFICATIONS INSTITUTE

These General Conditions have been prepared for use with the Suggested Forms of Agreement Between Owner and Contractor (EJCDC C-520 or C-525, 2007 Editions). Their provisions are interrelated and a change in one may necessitate a change in the other. Comments concerning their usage are contained in the Narrative Guide to the EJCDC Construction Documents (EJCDC C-001, 2007 Edition). For guidance in the preparation of Supplementary Conditions, see Guide to the Preparation of Supplementary Conditions (EJCDC C-800, 2007 Edition).

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 1420 King Street, Alexandria, VA 22314-2794
 (703) 684-2882
www.nspe.org

American Council of Engineering Companies
 1015 15th Street N.W., Washington, DC 20005
 (202) 347-7474
www.acec.org

American Society of Civil Engineers
 1801 Alexander Bell Drive, Reston, VA 20191-4400
 (800) 548-2723
www.asce.org

Associated General Contractors of America
 2300 Wilson Boulevard, Suite 400, Arlington, VA 22201-3308
 (703) 548-3118
www.agc.org

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STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

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ARTICLE 1 – DEFINITIONS AND TERMINOLOGY

1.01 *Defined Terms*

- A. Wherever used in the Bidding Requirements or Contract Documents and printed with initial capital letters, the terms listed below will have the meanings indicated which are applicable to both the singular and plural thereof. In addition to terms specifically defined, terms with initial capital letters in the Contract Documents include references to identified articles and paragraphs, and the titles of other documents or forms.
1. Addenda—Written or graphic instruments issued prior to the opening of Bids which clarify, correct, or change the Bidding Requirements or the proposed Contract Documents.
 2. Agreement—The written instrument which is evidence of the agreement between Owner and Contractor covering the Work.
 3. Application for Payment—The form acceptable to Engineer which is to be used by Contractor during the course of the Work in requesting progress or final payments and which is to be accompanied by such supporting documentation as is required by the Contract Documents.
 4. Asbestos—Any material that contains more than one percent asbestos and is friable or is releasing asbestos fibers into the air above current action levels established by the United States Occupational Safety and Health Administration.
 5. Bid—The offer or proposal of a Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.
 6. Bidder—The individual or entity who submits a Bid directly to Owner.
 7. Bidding Documents—The Bidding Requirements and the proposed Contract Documents (including all Addenda).
 8. Bidding Requirements—The advertisement or invitation to bid, Instructions to Bidders, Bid security of acceptable form, if any, and the Bid Form with any supplements.
 9. Change Order—A document recommended by Engineer 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 Times, issued on or after the Effective Date of the Agreement.

10. Claim—A demand or assertion by Owner or Contractor seeking an adjustment of Contract Price or Contract Times, or both, or other relief with respect to the terms of the Contract. A demand for money or services by a third party is not a Claim.
11. Contract—The entire and integrated written agreement between the Owner and Contractor concerning the Work. The Contract supersedes prior negotiations, representations, or agreements, whether written or oral.
12. Contract Documents—Those items so designated in the Agreement. Only printed or hard copies of the items listed in the Agreement are Contract Documents. Approved Shop Drawings, other Contractor submittals, and the reports and drawings of subsurface and physical conditions are not Contract Documents.
13. Contract Price—The moneys payable by Owner to Contractor for completion of the Work in accordance with the Contract Documents as stated in the Agreement (subject to the provisions of Paragraph 11.03 in the case of Unit Price Work).
14. Contract Times—The number of days or the dates stated in the Agreement to: (i) achieve Milestones, if any; (ii) achieve Substantial Completion; and (iii) complete the Work so that it is ready for final payment as evidenced by Engineer's written recommendation of final payment.
15. Contractor—The individual or entity with whom Owner has entered into the Agreement.
16. Cost of the Work—See Paragraph 11.01 for definition.
17. Drawings—That part of the Contract Documents prepared or approved by Engineer which graphically shows the scope, extent, and character of the Work to be performed by Contractor. Shop Drawings and other Contractor submittals are not Drawings as so defined.
18. Effective Date of the Agreement—The date indicated in the Agreement on which it becomes effective, but if no such date is indicated, it means the date on which the Agreement is signed and delivered by the last of the two parties to sign and deliver.
19. Engineer—The individual or entity named as such in the Agreement.
20. Field Order—A written order issued by Engineer which requires minor changes in the Work but which does not involve a change in the Contract Price or the Contract Times.
21. General Requirements—Sections of Division 1 of the Specifications.

22. Hazardous Environmental Condition—The presence at the Site of Asbestos, PCBs, Petroleum, Hazardous Waste, or Radioactive Material in such quantities or circumstances that may present a substantial danger to persons or property exposed thereto.
23. Hazardous Waste—The term Hazardous Waste shall have the meaning provided in Section 1004 of the Solid Waste Disposal Act (42 USC Section 6903) as amended from time to time.
24. Laws and Regulations; Laws or Regulations—Any and all applicable laws, rules, regulations, ordinances, codes, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.
25. Liens—Charges, security interests, or encumbrances upon Project funds, real property, or personal property.
26. Milestone—A principal event specified in the Contract Documents relating to an intermediate completion date or time prior to Substantial Completion of all the Work.
27. Notice of Award—The written notice by Owner to the Successful Bidder stating that upon timely compliance by the Successful Bidder with the conditions precedent listed therein, Owner will sign and deliver the Agreement.
28. Notice to Proceed—A written notice given by Owner to Contractor fixing the date on which the Contract Times will commence to run and on which Contractor shall start to perform the Work under the Contract Documents.
29. Owner—The individual or entity with whom Contractor has entered into the Agreement and for whom the Work is to be performed.
30. PCBs—Polychlorinated biphenyls.
31. Petroleum—Petroleum, including crude oil or any fraction thereof which is liquid at standard conditions of temperature and pressure (60 degrees Fahrenheit and 14.7 pounds per square inch absolute), such as oil, petroleum, fuel oil, oil sludge, oil refuse, gasoline, kerosene, and oil mixed with other non-Hazardous Waste and crude oils.
32. Progress Schedule—A schedule, prepared and maintained by Contractor, describing the sequence and duration of the activities comprising the Contractor's plan to accomplish the Work within the Contract Times.
33. Project—The total construction of which the Work to be performed under the Contract Documents may be the whole, or a part.

34. Project Manual—The bound documentary information prepared for bidding and constructing the Work. A listing of the contents of the Project Manual, which may be bound in one or more volumes, is contained in the table(s) of contents.
35. Radioactive Material—Source, special nuclear, or byproduct material as defined by the Atomic Energy Act of 1954 (42 USC Section 2011 et seq.) as amended from time to time.
36. Resident Project Representative—The authorized representative of Engineer who may be assigned to the Site or any part thereof.
37. Samples—Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and which establish the standards by which such portion of the Work will be judged.
38. Schedule of Submittals—A schedule, prepared and maintained by Contractor, of required submittals and the time requirements to support scheduled performance of related construction activities.
39. Schedule of Values—A schedule, prepared and maintained by Contractor, allocating portions of the Contract Price to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.
40. Shop Drawings—All drawings, diagrams, illustrations, schedules, and other data or information which are specifically prepared or assembled by or for Contractor and submitted by Contractor to illustrate some portion of the Work.
41. Site—Lands or areas indicated in the Contract Documents as being furnished by Owner upon which the Work is to be performed, including rights-of-way and easements for access thereto, and such other lands furnished by Owner which are designated for the use of Contractor.
42. Specifications—That part of the Contract Documents consisting of written requirements for materials, equipment, systems, standards and workmanship as applied to the Work, and certain administrative requirements and procedural matters applicable thereto.
43. Subcontractor—An individual or entity having a direct contract with Contractor or with any other Subcontractor for the performance of a part of the Work at the Site.
44. Substantial Completion—The time at which the Work (or a specified part thereof) has progressed to the point where, in the opinion of Engineer, the Work (or a specified part thereof) is sufficiently complete, in accordance with the Contract Documents, so that the Work (or a specified part thereof) can be utilized for the purposes for which it is intended. The terms "substantially complete" and

“substantially completed” as applied to all or part of the Work refer to Substantial Completion thereof.

45. Successful Bidder—The Bidder submitting a responsive Bid to whom Owner makes an award.
46. Supplementary Conditions—That part of the Contract Documents which amends or supplements these General Conditions.
47. Supplier—A manufacturer, fabricator, supplier, distributor, material man, or vendor having a direct contract with Contractor or with any Subcontractor to furnish materials or equipment to be incorporated in the Work by Contractor or Subcontractor.
48. Underground Facilities—All underground pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or attachments, and any encasements containing such facilities, including those that convey electricity, gases, steam, liquid petroleum products, telephone or other communications, cable television, water, wastewater, storm water, other liquids or chemicals, or traffic or other control systems.
49. Unit Price Work—Work to be paid for on the basis of unit prices.
50. Work—The entire construction or the various separately identifiable parts thereof required to be provided under the Contract Documents. Work includes and is the result of performing or providing all labor, services, and documentation necessary to produce such construction, and furnishing, installing, and incorporating all materials and equipment into such construction, all as required by the Contract Documents.
51. Work Change Directive—A written statement to Contractor issued on or after the Effective Date of the Agreement and signed by Owner and recommended by Engineer ordering an addition, deletion, or revision in the Work, or responding to differing or unforeseen subsurface or physical conditions under which the Work is to be performed or to emergencies. A Work Change Directive will not change the Contract Price or the Contract Times but is evidence that the parties expect that the change ordered or documented by a Work Change Directive 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 Times.

1.02 Terminology

- A. The words and terms discussed in Paragraph 1.02.B through F are not defined but, when used in the Bidding Requirements or Contract Documents, have the indicated meaning.
- B. Intent of Certain Terms or Adjectives:

1. The Contract Documents include the terms “as allowed,” “as approved,” “as ordered,” “as directed” or terms of like effect or import to authorize an exercise of professional judgment by Engineer. In addition, the adjectives “reasonable,” “suitable,” “acceptable,” “proper,” “satisfactory,” or adjectives of like effect or import are used to describe an action or determination of Engineer as to the Work. It is intended that such exercise of professional judgment, action, or determination will be solely to evaluate, in general, the Work for compliance with the information in the Contract Documents and with the design concept of the Project as a functioning whole as shown or indicated in the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective is not intended to and shall not be effective to assign to Engineer any duty or authority to supervise or direct the performance of the Work, or any duty or authority to undertake responsibility contrary to the provisions of Paragraph 9.09 or any other provision of the Contract Documents.
- C. Day:
1. The word “day” means a calendar day of 24 hours measured from midnight to the next midnight.
- D. Defective:
1. The word “defective,” when modifying the word “Work,” refers to Work that is unsatisfactory, faulty, or deficient in that it:
 - a. Does not conform to the Contract Documents; or
 - b. Does not meet the requirements of any applicable inspection, reference standard, test, or approval referred to in the Contract Documents; or
 - c. Has been damaged prior to Engineer’s recommendation of final payment (unless responsibility for the protection thereof has been assumed by Owner at Substantial Completion in accordance with Paragraph 14.04 or 14.05).
- E. Furnish, Install, Perform, And Provide:
1. The word “furnish,” when used in connection with services, materials, or equipment, shall mean to supply and deliver said services, materials, or equipment to the Site (or some other specified location) ready for use or installation and in usable or operable condition.
 2. The word “install,” when used in connection with services, materials, or equipment, shall mean to put into use or place in final position said services, materials, or equipment complete and ready for intended use.

3. The words “perform” or “provide,” when used in connection with services, materials, or equipment, shall mean to furnish and install said services, materials, or equipment complete and ready for intended use.
 4. When “furnish,” “install,” “perform,” or “provide” is not used in connection with services, materials, or equipment in a context clearly requiring an obligation of Contractor, “provide” is implied.
- F. Unless stated otherwise in the Contract Documents, words or phrases that have a well-known technical or construction industry or trade meaning are used in the Contract Documents in accordance with such recognized meaning.

ARTICLE 2 – PRELIMINARY MATTERS

2.01 *Delivery of Bonds and Evidence of Insurance*

- A. When Contractor delivers the executed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner such bonds as Contractor may be required to furnish.
- B. Evidence of Insurance: Before any Work at the Site is started, Contractor and Owner shall each deliver to the other, with copies to each additional insured identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance which either of them or any additional insured may reasonably request) which Contractor and Owner respectively are required to purchase and maintain in accordance with Article 5.

2.02 *Copies of Documents*

- A. Owner shall furnish to Contractor up to ten printed or hard copies of the Drawings and Project Manual. Additional copies will be furnished upon request at the cost of reproduction.

2.03 *Commencement of Contract Times; Notice to Proceed*

- A. The Contract Times will commence to run on the thirtieth day after the Effective Date of the Agreement or, if a Notice to Proceed is given, on the day indicated in the Notice to Proceed. A Notice to Proceed may be given at any time within 30 days after the Effective Date of the Agreement. In no event will the Contract Times commence to run later than the sixtieth day after the day of Bid opening or the thirtieth day after the Effective Date of the Agreement, whichever date is earlier.

2.04 *Starting the Work*

- A. Contractor shall start to perform the Work on the date when the Contract Times commence to run. No Work shall be done at the Site prior to the date on which the Contract Times commence to run.

2.05 *Before Starting Construction*

- A. Preliminary Schedules: Within 10 days after the Effective Date of the Agreement (unless otherwise specified in the General Requirements), Contractor shall submit to Engineer for timely review:
1. A preliminary Progress Schedule indicating the times (numbers of days or dates) for starting and completing the various stages of the Work, including any Milestones specified in the Contract Documents;
 2. A preliminary Schedule of Submittals; and
 3. A preliminary Schedule of Values for all of the Work which includes quantities and prices of items which when added together equal the Contract Price and subdivides the Work into component parts in sufficient detail to serve as the basis for progress payments during performance of the Work. Such prices will include an appropriate amount of overhead and profit applicable to each item of Work.

2.06 *Preconstruction Conference; Designation of Authorized Representatives*

- A. Before any Work at the Site is started, a conference attended by Owner, Contractor, Engineer, and others as appropriate will be held to establish a working understanding among the parties as to the Work and to discuss the schedules referred to in Paragraph 2.05.A, procedures for handling Shop Drawings and other submittals, processing Applications for Payment, and maintaining required records.
- B. At this conference Owner and Contractor each shall designate, in writing, a specific individual to act as its authorized representative with respect to the services and responsibilities under the Contract. Such individuals shall have the authority to transmit instructions, receive information, render decisions relative to the Contract, and otherwise act on behalf of each respective party.

2.07 *Initial Acceptance of Schedules*

- A. At least 10 days before submission of the first Application for Payment a conference attended by Contractor, Engineer, and others as appropriate will be held to review for acceptability to Engineer as provided below the schedules submitted in accordance with Paragraph 2.05.A. Contractor shall have an additional 10 days to make corrections and adjustments and to complete and resubmit the schedules. No progress payment shall be made to Contractor until acceptable schedules are submitted to Engineer.
1. The Progress Schedule will be acceptable to Engineer if it provides an orderly progression of the Work to completion within the Contract Times. Such acceptance will not impose on Engineer responsibility for the Progress Schedule, for

sequencing, scheduling, or progress of the Work, nor interfere with or relieve Contractor from Contractor's full responsibility therefore.

2. Contractor's Schedule of Submittals will be acceptable to Engineer if it provides a workable arrangement for reviewing and processing the required submittals.
3. Contractor's Schedule of Values will be acceptable to Engineer as to form and substance if it provides a reasonable allocation of the Contract Price to component parts of the Work.

ARTICLE 3 – CONTRACT DOCUMENTS: INTENT, AMENDING, REUSE

3.01 *Intent*

- A. The Contract Documents are complementary; what is required by one is as binding as if required by all.
- B. 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 labor, documentation, services, materials, or equipment that reasonably may be inferred from the Contract Documents or from prevailing custom or trade usage as being required to produce the indicated result will be provided whether or not specifically called for, at no additional cost to Owner.
- C. Clarifications and interpretations of the Contract Documents shall be issued by Engineer as provided in Article 9.

3.02 *Reference Standards*

- A. Standards, Specifications, Codes, Laws, and Regulations
 1. Reference to standards, specifications, manuals, or codes of any technical society, organization, or association, or to Laws or Regulations, whether such reference be specific or by implication, shall mean the standard, specification, manual, code, or Laws or Regulations in effect at the time of opening of Bids (or on the Effective Date of the Agreement if there were no Bids), except as may be otherwise specifically stated in the Contract Documents.
 2. No provision of any such standard, specification, manual, or code, or any instruction of a Supplier, shall be effective to change the duties or responsibilities of Owner, Contractor, or Engineer, or any of their subcontractors, consultants, agents, or employees, from those set forth in the Contract Documents. No such provision or instruction shall be effective to assign to Owner, Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, any duty or authority to supervise or direct the performance of the Work or any duty or

authority to undertake responsibility inconsistent with the provisions of the Contract Documents.

3.03 *Reporting and Resolving Discrepancies*

A. Reporting Discrepancies:

1. Contractor's Review of Contract Documents Before Starting Work: Before undertaking each part of the Work, Contractor shall carefully study and compare the Contract Documents and check and verify pertinent figures therein and all applicable field measurements. Contractor shall promptly report in writing to Engineer any conflict, error, ambiguity, or discrepancy which Contractor discovers, or has actual knowledge of, and shall obtain a written interpretation or clarification from Engineer before proceeding with any Work affected thereby.
2. Contractor's Review of Contract Documents During Performance of Work: If, during the performance of the Work, Contractor discovers any conflict, error, ambiguity, or discrepancy within the Contract Documents, or between the Contract Documents and (a) any applicable Law or Regulation, (b) any standard, specification, manual, or code, or (c) any instruction of any Supplier, then Contractor shall promptly report it to Engineer in writing. Contractor shall not proceed with the Work affected thereby (except in an emergency as required by Paragraph 6.16.A) until an amendment or supplement to the Contract Documents has been issued by one of the methods indicated in Paragraph 3.04.
3. Contractor shall not be liable to Owner or Engineer for failure to report any conflict, error, ambiguity, or discrepancy in the Contract Documents unless Contractor had actual knowledge thereof.

B. Resolving Discrepancies:

1. Except as may be otherwise specifically stated in the Contract Documents, the provisions of the Contract Documents shall take precedence in resolving any conflict, error, ambiguity, or discrepancy between the provisions of the Contract Documents and:
 - a. The provisions of any standard, specification, manual, or code, or the instruction of any Supplier (whether or not specifically incorporated by reference in the Contract Documents); or
 - b. The provisions of any Laws or Regulations applicable to the performance of the Work (unless such an interpretation of the provisions of the Contract Documents would result in violation of such Law or Regulation).

3.04 *Amending and Supplementing Contract Documents*

- A. The Contract Documents may be amended to provide for additions, deletions, and revisions in the Work or to modify the terms and conditions thereof by either a Change Order or a Work Change Directive.
- B. The requirements of the Contract Documents may be supplemented and minor variations and deviations in the Work may be authorized, by one or more of the following ways:
 - 1. A Field Order;
 - 2. Engineer's approval of a Shop Drawing or Sample (subject to the provisions of Paragraph 6.17.D.3); or
 - 3. Engineer's written interpretation or clarification.

3.05 *Reuse of Documents*

- A. Contractor and any Subcontractor or Supplier shall not:
 - 1. Have or acquire any title to or ownership rights in any of the Drawings, Specifications, or other documents (or copies of any thereof) prepared by or bearing the seal of Engineer or its consultants, including electronic media editions; or
 - 2. Reuse any such Drawings, Specifications, other documents, or copies thereof on extensions of the Project or any other project without written consent of Owner and Engineer and specific written verification or adaptation by Engineer.
- B. The prohibitions of this Paragraph 3.05 will survive final payment, or termination of the Contract. Nothing herein shall preclude Contractor from retaining copies of the Contract Documents for record purposes.

3.06 *Electronic Data*

- A. Unless otherwise stated in the Supplementary Conditions, the data furnished by Owner or Engineer to Contractor, or by Contractor to Owner or Engineer, that may be relied upon are limited to the printed copies (also known as hard copies). Files in electronic media format of text, data, graphics, or other types are furnished only for the convenience of the receiving party. Any conclusion or information obtained or derived from such electronic files will be at the user's sole risk. If there is a discrepancy between the electronic files and the hard copies, the hard copies govern.
- B. Because data stored in electronic media format can deteriorate or be modified inadvertently or otherwise without authorization of the data's creator, the party receiving electronic files agrees that it will perform acceptance tests or procedures within 60 days, after which the

receiving party shall be deemed to have accepted the data thus transferred. Any errors detected within the 60-day acceptance period will be corrected by the transferring party.

- C. When transferring documents in electronic media format, the transferring party makes no representations as to long term compatibility, usability, or readability of documents resulting from the use of software application packages, operating systems, or computer hardware differing from those used by the data's creator.

ARTICLE 4 – AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS; REFERENCE POINTS

4.01 *Availability of Lands*

- A. Owner shall furnish the Site. Owner shall notify Contractor of any encumbrances or restrictions not of general application but specifically related to use of the Site with which Contractor must comply in performing the Work. Owner will obtain in a timely manner and pay for easements for permanent structures or permanent changes in existing facilities. If Contractor and Owner are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, as a result of any delay in Owner's furnishing the Site or a part thereof, Contractor may make a Claim therefore as provided in Paragraph 10.05.
- B. Upon reasonable written request, Owner shall furnish Contractor with a current statement of record legal title and legal description of the lands upon which the Work is to be performed and Owner's interest therein as necessary for giving notice of or filing a mechanic's or construction lien against such lands in accordance with applicable Laws and Regulations.
- C. Contractor shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

4.02 *Subsurface and Physical Conditions*

- A. Reports and Drawings: The Supplementary Conditions identify:
 - 1. Those reports known to Owner of explorations and tests of subsurface conditions at or contiguous to the Site; and
 - 2. Those drawings known to Owner of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities).
- B. Limited Reliance by Contractor on Technical Data Authorized: Contractor may rely upon the accuracy of the "technical data" contained in such reports and drawings, but such reports and drawings are not Contract Documents. Such "technical data" is identified in the Supplementary Conditions. Except for such reliance on such "technical data," Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers,

directors, members, partners, employees, agents, consultants, or subcontractors with respect to:

1. The completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, and safety precautions and programs incident thereto; or
2. Other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings; or
3. Any Contractor interpretation of or conclusion drawn from any "technical data" or any such other data, interpretations, opinions, or information.

4.03 *Differing Subsurface or Physical Conditions*

- A. Notice: If Contractor believes that any subsurface or physical condition that is uncovered or revealed either:
 1. Is of such a nature as to establish that any "technical data" on which Contractor is entitled to rely as provided in Paragraph 4.02 is materially inaccurate; or
 2. Is of such a nature as to require a change in the Contract Documents; or
 3. Differs materially from that shown or indicated in the Contract Documents; or
 4. Is of an unusual nature, and differs materially from conditions ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents;
 5. Then Contractor shall, promptly after becoming aware thereof and before further disturbing the subsurface or physical conditions or performing any Work in connection therewith (except in an emergency as required by Paragraph 6.16.A), notify Owner and Engineer in writing about such condition. Contractor shall not further disturb such condition or perform any Work in connection therewith (except as aforesaid) until receipt of written order to do so.
- B. Engineer's Review: After receipt of written notice as required by Paragraph 4.03.A, Engineer will promptly review the pertinent condition, determine the necessity of Owner's obtaining additional exploration or tests with respect thereto, and advise Owner in writing (with a copy to Contractor) of Engineer's findings and conclusions.
- C. Possible Price and Times Adjustments:

1. The Contract Price or the Contract Times, or both, will be equitably adjusted to the extent that the existence of such differing subsurface or physical condition causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:
 - a. Such condition must meet any one or more of the categories described in Paragraph 4.03.A; and
 - b. With respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraphs 9.07 and 11.03.
2. Contractor shall not be entitled to any adjustment in the Contract Price or Contract Times if:
 - a. Contractor knew of the existence of such conditions at the time Contractor made a final commitment to Owner with respect to Contract Price and Contract Times by the submission of a Bid or becoming bound under a negotiated contract; or
 - b. The existence of such condition could reasonably have been discovered or revealed as a result of any examination, investigation, exploration, test, or study of the Site and contiguous areas required by the Bidding Requirements or Contract Documents to be conducted by or for Contractor prior to Contractor's making such final commitment; or
 - c. Contractor failed to give the written notice as required by Paragraph 4.03.A.
3. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, a Claim may be made therefore as provided in Paragraph 10.05. However, neither Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors shall be liable to Contractor for any claims, costs, losses, or damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Contractor on or in connection with any other project or anticipated project.

4.04 *Underground Facilities*

- A. Shown or Indicated: The information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or contiguous to the Site is based on information and data furnished to Owner or Engineer by the owners of such Underground Facilities, including Owner, or by others. Unless it is otherwise expressly provided in the Supplementary Conditions:

1. Owner and Engineer shall not be responsible for the accuracy or completeness of any such information or data provided by others; and
 2. The cost of all of the following will be included in the Contract Price, and Contractor shall have full responsibility for:
 - a. Reviewing and checking all such information and data;
 - b. Locating all Underground Facilities shown or indicated in the Contract Documents;
 - c. Coordination of the Work with the owners of such Underground Facilities, including Owner, during construction; and
 - d. The safety and protection of all such Underground Facilities and repairing any damage thereto resulting from the Work.
- B. Not Shown or Indicated:
1. If an Underground Facility is uncovered or revealed at or contiguous to the Site which was not shown or indicated, or not shown or indicated with reasonable accuracy in the Contract Documents, Contractor shall, promptly after becoming aware thereof and before further disturbing conditions affected thereby or performing any Work in connection therewith (except in an emergency as required by Paragraph 6.16.A), identify the owner of such Underground Facility and give written notice to that owner and to Owner and Engineer. Engineer will promptly review the Underground Facility and determine the extent, if any, to which a change is required in the Contract Documents to reflect and document the consequences of the existence or location of the Underground Facility. During such time, Contractor shall be responsible for the safety and protection of such Underground Facility.
 2. If Engineer concludes that a change in the Contract Documents is required, a Work Change Directive or a Change Order will be issued to reflect and document such consequences. An equitable adjustment shall be made in the Contract Price or Contract Times, or both, to the extent that they are attributable to the existence or location of any Underground Facility that was not shown or indicated or not shown or indicated with reasonable accuracy in the Contract Documents and that Contractor did not know of and could not reasonably have been expected to be aware of or to have anticipated. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment in Contract Price or Contract Times, Owner or Contractor may make a Claim therefore as provided in Paragraph 10.05.

4.05 *Reference Points*

- A. Owner shall provide engineering surveys to establish reference points for construction which in Engineer's judgment are necessary to enable Contractor to proceed with the Work. Contractor shall be responsible for laying out the Work, shall protect and preserve the established reference points and property monuments, and shall make no changes or relocations without the prior written approval of Owner. Contractor shall report to Engineer whenever any reference point or property monument is lost or destroyed or requires relocation because of necessary changes in grades or locations, and shall be responsible for the accurate replacement or relocation of such reference points or property monuments by professionally qualified personnel.

4.06 *Hazardous Environmental Condition at Site*

- A. Reports and Drawings: The Supplementary Conditions identify those reports and drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at the Site.
- B. Limited Reliance by Contractor on Technical Data Authorized: Contractor may rely upon the accuracy of the "technical data" contained in such reports and drawings, but such reports and drawings are not Contract Documents. Such "technical data" is identified in the Supplementary Conditions. Except for such reliance on such "technical data," Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors with respect to:
 - 1. The completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences and procedures of construction to be employed by Contractor and safety precautions and programs incident thereto; or
 - 2. Other data, interpretations, opinions and information contained in such reports or shown or indicated in such drawings; or
 - 3. Any Contractor interpretation of or conclusion drawn from any "technical data" or any such other data, interpretations, opinions or information.
- C. Contractor shall not be responsible for any Hazardous Environmental Condition uncovered or revealed at the Site which was not shown or indicated in Drawings or Specifications or identified in the Contract Documents to be within the scope of the Work. Contractor shall be responsible for a Hazardous Environmental Condition created with any materials brought to the Site by Contractor, Subcontractors, Suppliers, or anyone else for whom Contractor is responsible.
- D. If Contractor encounters a Hazardous Environmental Condition or if Contractor or anyone for whom Contractor is responsible creates a Hazardous Environmental Condition,

- Contractor shall immediately: (i) secure or otherwise isolate such condition; (ii) stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by Paragraph 6.16.A); and (iii) notify Owner and Engineer (and promptly thereafter confirm such notice in writing). Owner shall promptly consult with Engineer concerning the necessity for Owner to retain a qualified expert to evaluate such condition or take corrective action, if any. Promptly after consulting with Engineer, Owner shall take such actions as are necessary to permit Owner to timely obtain required permits and provide Contractor the written notice required by Paragraph 4.06.E.
- E. Contractor shall not be required to resume Work in connection with such condition or in any affected area until after Owner has obtained any required permits related thereto and delivered written notice to Contractor: (i) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work; or (ii) specifying any special conditions under which such Work may be resumed safely. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times, or both, as a result of such Work stoppage or such special conditions under which Work is agreed to be resumed by Contractor, either party may make a Claim therefore as provided in Paragraph 10.05.
- F. If after receipt of such written notice Contractor does not agree to resume such Work based on a reasonable belief it is unsafe, or does not agree to resume such Work under such special conditions, then Owner may order the portion of the Work that is in the area affected by such condition to be deleted from the Work. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of an adjustment in Contract Price or Contract Times as a result of deleting such portion of the Work, then either party may make a Claim therefore as provided in Paragraph 10.05. Owner may have such deleted portion of the Work performed by Owner's own forces or others in accordance with Article 7.
- G. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition, provided that such Hazardous Environmental Condition: (i) was not shown or indicated in the Drawings or Specifications or identified in the Contract Documents to be included within the scope of the Work, and (ii) was not created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 4.06.G shall obligate Owner to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.
- H. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and

against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 4.06.H shall obligate Contractor to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.

- I. The provisions of Paragraphs 4.02, 4.03, and 4.04 do not apply to a Hazardous Environmental Condition uncovered or revealed at the Site.

ARTICLE 5 – BONDS AND INSURANCE

5.01 *Performance, Payment, and Other Bonds*

- A. Contractor shall furnish performance and payment bonds, each in an amount at least equal to the Contract Price as security for the faithful performance and payment of all of Contractor's obligations under the Contract Documents. These bonds shall remain in effect until one year after the date when final payment becomes due or until completion of the correction period specified in Paragraph 13.07, whichever is later, except as provided otherwise by Laws or Regulations or by the Contract Documents. Contractor shall also furnish such other bonds as are required by the Contract Documents.
- B. All bonds shall be in the form prescribed by the Contract Documents except as provided otherwise by Laws or Regulations, and shall be executed by such sureties as are named in the list of "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (amended) by the Financial Management Service, Surety Bond Branch, U.S. Department of the Treasury. All bonds signed by an agent or attorney-in-fact must be accompanied by a certified copy of that individual's authority to bind the surety. The evidence of authority shall show that it is effective on the date the agent or attorney-in-fact signed each bond.
- C. If the surety on any bond furnished by Contractor is declared bankrupt or becomes insolvent or its right to do business is terminated in any state where any part of the Project is located or it ceases to meet the requirements of Paragraph 5.01.B, Contractor shall promptly notify Owner and Engineer and shall, within 20 days after the event giving rise to such notification, provide another bond and surety, both of which shall comply with the requirements of Paragraphs 5.01.B and 5.02.

5.02 *Licensed Sureties and Insurers*

- A. All bonds and insurance required by the Contract Documents to be purchased and maintained by Owner or Contractor shall be obtained from surety or insurance companies that are duly licensed or authorized in the jurisdiction in which the Project is located to issue bonds or insurance policies for the limits and coverage so required. Such surety and insurance companies shall also meet such additional requirements and qualifications as may be provided in the Supplementary Conditions.

5.03 *Certificates of Insurance*

- A. Contractor shall deliver to Owner, with copies to each additional insured and loss payee identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance requested by Owner or any other additional insured) which Contractor is required to purchase and maintain.
- B. Owner shall deliver to Contractor, with copies to each additional insured and loss payee identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance requested by Contractor or any other additional insured) which Owner is required to purchase and maintain.
- C. Failure of Owner to demand such certificates or other evidence of Contractor's full compliance with these insurance requirements or failure of Owner to identify a deficiency in compliance from the evidence provided shall not be construed as a waiver of Contractor's obligation to maintain such insurance.
- E. Owner does not represent that insurance coverage and limits established in this Contract necessarily will be adequate to protect Contractor.
- F. The insurance and insurance limits required herein shall not be deemed as a limitation on Contractor's liability under the indemnities granted to Owner in the Contract Documents.

5.04 *Contractor's Insurance*

- A. Contractor shall purchase and maintain such insurance as is appropriate for the Work being performed and as will provide protection from claims set forth below which may arise out of or result from Contractor's performance of the Work and Contractor's other obligations under the Contract Documents, whether it is to be performed by Contractor, any Subcontractor or Supplier, or by anyone directly or indirectly employed by any of them to perform any of the Work, or by anyone for whose acts any of them may be liable:
 - 1. Claims under workers' compensation, disability benefits, and other similar employee benefit acts;

2. Claims for damages because of bodily injury, occupational sickness or disease, or death of Contractor's employees;
 3. Claims for damages because of bodily injury, sickness or disease, or death of any person other than Contractor's employees;
 4. Claims for damages insured by reasonably available personal injury liability coverage which are sustained:
 - a. By any person as a result of an offense directly or indirectly related to the employment of such person by Contractor, or
 - b. By any other person for any other reason;
 5. Claims for damages, other than to the Work itself, because of injury to or destruction of tangible property wherever located, including loss of use resulting there from; and
 6. Claims for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance or use of any motor vehicle.
- B. The policies of insurance required by this Paragraph 5.04 shall:
1. With respect to insurance required by Paragraphs 5.04.A.3 through 5.04.A.6 inclusive, be written on an occurrence basis, include as additional insureds (subject to any customary exclusion regarding professional liability) Owner and Engineer, and any other individuals or entities identified in the Supplementary Conditions, all of whom shall be listed as additional insureds, and include coverage for the respective officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of all such additional insureds, and the insurance afforded to these additional insureds shall provide primary coverage for all claims covered thereby;
 2. Include at least the specific coverage and be written for not less than the limits of liability provided in the Supplementary Conditions or required by Laws or Regulations, whichever is greater;
 3. Include contractual liability insurance covering Contractor's indemnity obligations under Paragraphs 6.11 and 6.20;
 4. Contain a provision or endorsement that the coverage afforded will not be canceled, materially changed or renewal refused until at least 30 days prior written notice has been given to Owner and Contractor and to each other additional insured identified in the Supplementary Conditions to whom a certificate of insurance has been issued

(and the certificates of insurance furnished by the Contractor pursuant to Paragraph 5.03 will so provide);

5. Remain in effect at least until final payment and at all times thereafter when Contractor may be correcting, removing, or replacing defective Work in accordance with Paragraph 13.07; and
6. Include completed operations coverage:
 - a. Such insurance shall remain in effect for two years after final payment.
 - b. Contractor shall furnish Owner and each other additional insured identified in the Supplementary Conditions, to whom a certificate of insurance has been issued, evidence satisfactory to Owner and any such additional insured of continuation of such insurance at final payment and one year thereafter.

5.05 *Owner's Liability Insurance*

- A. In addition to the insurance required to be provided by Contractor under Paragraph 5.04, Owner, at Owner's option, may purchase and maintain at Owner's expense Owner's own liability insurance as will protect Owner against claims which may arise from operations under the Contract Documents.

5.06 *Property Insurance*

- A. Unless otherwise provided in the Supplementary Conditions, Owner shall purchase and maintain property insurance upon the Work at the Site in the amount of the full replacement cost thereof (subject to such deductible amounts as may be provided in the Supplementary Conditions or required by Laws and Regulations). This insurance shall:
 1. Include the interests of Owner, Contractor, Subcontractors, and Engineer, and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, each of whom is deemed to have an insurable interest and shall be listed as a loss payee;
 2. Be written on a Builder's Risk "all-risk" policy form that shall at least include insurance for physical loss or damage to the Work, temporary buildings, false work, and materials and equipment in transit, and shall insure against at least the following perils or causes of loss: fire, lightning, extended coverage, theft, vandalism and malicious mischief, earthquake, collapse, debris removal, demolition occasioned by enforcement of Laws and Regulations, water damage (other than that caused by flood), and such other perils or causes of loss as may be specifically required by the Supplementary Conditions.

3. Include expenses incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers and architects);
 4. Cover materials and equipment stored at the Site or at another location that was agreed to in writing by Owner prior to being incorporated in the Work, provided that such materials and equipment have been included in an Application for Payment recommended by Engineer;
 5. Allow for partial utilization of the Work by Owner;
 6. Include testing and startup; and
 7. Be maintained in effect until final payment is made unless otherwise agreed to in writing by Owner, Contractor, and Engineer with 30 days written notice to each other loss payee to whom a certificate of insurance has been issued.
- B. Owner shall purchase and maintain such equipment breakdown insurance or additional property insurance as may be required by the Supplementary Conditions or Laws and Regulations which will include the interests of Owner, Contractor, Subcontractors, and Engineer, and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, each of whom is deemed to have an insurable interest and shall be listed as a loss payee.
- C. All the policies of insurance (and the certificates or other evidence thereof) required to be purchased and maintained in accordance with this Paragraph 5.06 will contain a provision or endorsement that the coverage afforded will not be canceled or materially changed or renewal refused until at least 30 days prior written notice has been given to Owner and Contractor and to each other loss payee to whom a certificate of insurance has been issued and will contain waiver provisions in accordance with Paragraph 5.07.
- D. Owner shall not be responsible for purchasing and maintaining any property insurance specified in this Paragraph 5.06 to protect the interests of Contractor, Subcontractors, or others in the Work to the extent of any deductible amounts that are identified in the Supplementary Conditions. The risk of loss within such identified deductible amount will be borne by Contractor, Subcontractors, or others suffering any such loss, and if any of them wishes property insurance coverage within the limits of such amounts, each may purchase and maintain it at the purchaser's own expense.
- E. If Contractor requests in writing that other special insurance be included in the property insurance policies provided under this Paragraph 5.06, Owner shall, if possible, include such insurance, and the cost thereof will be charged to Contractor by appropriate Change Order. Prior to commencement of the Work at the Site, Owner shall advise Contractor in writing whether or not such other insurance has been procured by Owner.

5.07 *Waiver of Rights*

- A. Owner and Contractor intend that all policies purchased in accordance with Paragraph 5.06 will protect Owner, Contractor, Subcontractors, and Engineer, and all other individuals or entities identified in the Supplementary Conditions as loss payees (and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them) in such policies and will provide primary coverage for all losses and damages caused by the perils or causes of loss covered thereby. All such policies shall contain provisions to the effect that in the event of payment of any loss or damage the insurers will have no rights of recovery against any of the insureds or loss payees there under. Owner and Contractor waive all rights against each other and their respective officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them for all losses and damages caused by, arising out of or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work; and, in addition, waive all such rights against Subcontractors and Engineer, and all other individuals or entities identified in the Supplementary Conditions as loss payees (and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them) under such policies for losses and damages so caused. None of the above waivers shall extend to the rights that any party making such waiver may have to the proceeds of insurance held by Owner as trustee or otherwise payable under any policy so issued.

- B. Owner waives all rights against Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them for:
 1. Loss due to business interruption, loss of use, or other consequential loss extending beyond direct physical loss or damage to Owner's property or the Work caused by, arising out of, or resulting from fire or other perils whether or not insured by Owner; and
 2. Loss or damage to the completed Project or part thereof caused by, arising out of, or resulting from fire or other insured peril or cause of loss covered by any property insurance maintained on the completed Project or part thereof by Owner during partial utilization pursuant to Paragraph 14.05, after Substantial Completion pursuant to Paragraph 14.04, or after final payment pursuant to Paragraph 14.07.

- C. Any insurance policy maintained by Owner covering any loss, damage or consequential loss referred to in Paragraph 5.07.B shall contain provisions to the effect that in the event of payment of any such loss, damage, or consequential loss, the insurers will have no rights of recovery against Contractor, Subcontractors, or Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them.

5.08 *Receipt and Application of Insurance Proceeds*

- A. Any insured loss under the policies of insurance required by Paragraph 5.06 will be adjusted with Owner and made payable to Owner as fiduciary for the loss payees, as their interests may appear, subject to the requirements of any applicable mortgage clause and of Paragraph 5.08.B. Owner shall deposit in a separate account any money so received and shall distribute it in accordance with such agreement as the parties in interest may reach. If no other special agreement is reached, the damaged Work shall be repaired or replaced, the moneys so received applied on account thereof, and the Work and the cost thereof covered by an appropriate Change Order.
- B. Owner as fiduciary shall have power to adjust and settle any loss with the insurers unless one of the parties in interest shall object in writing within 15 days after the occurrence of loss to Owner's exercise of this power. If such objection be made, Owner as fiduciary shall make settlement with the insurers in accordance with such agreement as the parties in interest may reach. If no such agreement among the parties in interest is reached, Owner as fiduciary shall adjust and settle the loss with the insurers and, if required in writing by any party in interest, Owner as fiduciary shall give bond for the proper performance of such duties.

5.09 *Acceptance of Bonds and Insurance; Option to Replace*

- A. If either Owner or Contractor has any objection to the coverage afforded by or other provisions of the bonds or insurance required to be purchased and maintained by the other party in accordance with Article 5 on the basis of non-conformance with the Contract Documents, the objecting party shall so notify the other party in writing within 10 days after receipt of the certificates (or other evidence requested) required by Paragraph 2.01.B. Owner and Contractor shall each provide to the other such additional information in respect of insurance provided as the other may reasonably request. If either party does not purchase or maintain all of the bonds or insurance required of such party by the Contract Documents, such party shall notify the other party in writing of such failure to purchase prior to the start of the Work, or of such failure to maintain prior to any change in the required coverage. Without prejudice to any other right or remedy, the other party may elect to obtain equivalent bonds or insurance to protect such other party's interests at the expense of the party who was required to provide such coverage, and a Change Order shall be issued to adjust the Contract Price accordingly.

5.10 *Partial Utilization, Acknowledgment of Property Insurer*

- A. If Owner finds it necessary to occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work as provided in Paragraph 14.05, no such use or occupancy shall commence before the insurers providing the property insurance pursuant to Paragraph 5.06 have acknowledged notice thereof and in writing effected any changes in coverage necessitated thereby. The insurers providing the property insurance shall consent

by endorsement on the policy or policies, but the property insurance shall not be canceled or permitted to lapse on account of any such partial use or occupancy.

ARTICLE 6 – CONTRACTOR’S RESPONSIBILITIES

6.01 *Supervision and Superintendence*

- A. Contractor shall supervise, inspect, and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents. Contractor shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction. Contractor shall not be responsible for the negligence of Owner or Engineer in the design or specification of a specific means, method, technique, sequence, or procedure of construction which is shown or indicated in and expressly required by the Contract Documents.
- B. At all times during the progress of the Work, Contractor shall assign a competent resident superintendent who shall not be replaced without written notice to Owner and Engineer except under extraordinary circumstances.

6.02 *Labor; Working Hours*

- A. Contractor shall provide competent, suitably 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.
- B. Except as otherwise required for the safety or protection of persons or the Work or property at the Site or adjacent thereto, and except as otherwise stated in the Contract Documents, all Work at the Site shall be performed during regular working hours. Contractor will not permit the performance of Work on a Saturday, Sunday, or any legal holiday without Owner’s written consent (which will not be unreasonably withheld) given after prior written notice to Engineer.

6.03 *Services, Materials, and Equipment*

- A. Unless otherwise specified in the Contract Documents, Contractor shall provide and assume full responsibility for all services, 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 performance, testing, start-up, and completion of the Work.
- B. All materials and equipment incorporated into the Work shall be as specified or, if not specified, shall be of good quality and new, except as otherwise provided in the Contract Documents. All special warranties and guarantees required by the Specifications shall expressly run to the benefit of Owner. If required by Engineer, Contractor shall furnish

satisfactory evidence (including reports of required tests) as to the source, kind, and quality of materials and equipment.

- C. All materials and equipment shall be stored, applied, installed, connected, erected, protected, used, cleaned, and conditioned in accordance with instructions of the applicable Supplier, except as otherwise may be provided in the Contract Documents.

6.04 *Progress Schedule*

- A. Contractor shall adhere to the Progress Schedule established in accordance with Paragraph 2.07 as it may be adjusted from time to time as provided below.
 - 1. Contractor shall submit to Engineer for acceptance (to the extent indicated in Paragraph 2.07) proposed adjustments in the Progress Schedule that will not result in changing the Contract Times. Such adjustments will comply with any provisions of the General Requirements applicable thereto.
 - 2. Proposed adjustments in the Progress Schedule that will change the Contract Times shall be submitted in accordance with the requirements of Article 12. Adjustments in Contract Times may only be made by a Change Order.

6.05 *Substitutes and “Or-Equals”*

- A. Whenever an item of material or equipment is specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular Supplier, the specification or description is intended to establish the type, function, appearance, and quality required. Unless the specification or description contains or is followed by words reading that no like, equivalent, or “or-equal” item or no substitution is permitted, other items of material or equipment or material or equipment of other Suppliers may be submitted to Engineer for review under the circumstances described below.
 - 1. “Or-Equal” Items: If in Engineer’s sole discretion an item of material or equipment proposed by Contractor is functionally equal to that named and sufficiently similar so that no change in related Work will be required, it may be considered by Engineer as an “or-equal” item, in which case review and approval of the proposed item may, in Engineer’s sole discretion, be accomplished without compliance with some or all of the requirements for approval of proposed substitute items. For the purposes of this Paragraph 6.05.A.1, a proposed item of material or equipment will be considered functionally equal to an item so named if:
 - a. In the exercise of reasonable judgment Engineer determines that:
 - 1) It is at least equal in materials of construction, quality, durability, appearance, strength, and design characteristics;

- 2) It will reliably perform at least equally well the function and achieve the results imposed by the design concept of the completed Project as a functioning whole; and
 - 3) It has a proven record of performance and availability of responsive service.
- b. Contractor certifies that, if approved and incorporated into the Work:
- 1) There will be no increase in cost to the Owner or increase in Contract Times; and
 - 2) It will conform substantially to the detailed requirements of the item named in the Contract Documents.
2. Substitute Items:
- a. If in Engineer's sole discretion an item of material or equipment proposed by Contractor does not qualify as an "or-equal" item under Paragraph 6.05.A.1, it will be considered a proposed substitute item.
 - b. Contractor shall submit sufficient information as provided below to allow Engineer to determine if the item of material or equipment proposed is essentially equivalent to that named and an acceptable substitute therefore. Requests for review of proposed substitute items of material or equipment will not be accepted by Engineer from anyone other than Contractor.
 - c. The requirements for review by Engineer will be as set forth in Paragraph 6.05.A.2.d, as supplemented by the General Requirements, and as Engineer may decide is appropriate under the circumstances.
 - d. Contractor shall make written application to Engineer for review of a proposed substitute item of material or equipment that Contractor seeks to furnish or use. The application:
 - 1) Shall certify that the proposed substitute item will:
 - a) Perform adequately the functions and achieve the results called for by the general design,
 - b) Be similar in substance to that specified, and
 - c) Be suited to the same use as that specified;
 - 2) Will state:

- a) The extent, if any, to which the use of the proposed substitute item will prejudice Contractor's achievement of Substantial Completion on time,
 - b) Whether use of the proposed substitute item in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with Owner for other work on the Project) to adapt the design to the proposed substitute item, and
 - c) Whether incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty;
 - 3) Will identify:
 - a) All variations of the proposed substitute item from that specified, and
 - b) Available engineering, sales, maintenance, repair, and replacement services; and
 - 4) Shall contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including costs of redesign and claims of other contractors affected by any resulting change.
- B. Substitute Construction Methods or Procedures: If a specific means, method, technique, sequence, or procedure of construction is expressly required by the Contract Documents, Contractor may furnish or utilize a substitute means, method, technique, sequence, or procedure of construction approved by Engineer. Contractor shall submit sufficient information to allow Engineer, in Engineer's sole discretion, to determine that the substitute proposed is equivalent to that expressly called for by the Contract Documents. The requirements for review by Engineer will be similar to those provided in Paragraph 6.05.A.2.
- C. Engineer's Evaluation: Engineer will be allowed a reasonable time within which to evaluate each proposal or submittal made pursuant to Paragraphs 6.05.A and 6.05.B. Engineer may require Contractor to furnish additional data about the proposed substitute item. Engineer will be the sole judge of acceptability. No "or equal" or substitute will be ordered, installed or utilized until Engineer's review is complete, which will be evidenced by a Change Order in the case of a substitute and an approved Shop Drawing for an "or equal." Engineer will advise Contractor in writing of any negative determination.

- D. **Special Guarantee:** Owner may require Contractor to furnish at Contractor's expense a special performance guarantee or other surety with respect to any substitute.
- E. **Engineer's Cost Reimbursement:** Engineer will record Engineer's costs in evaluating a substitute proposed or submitted by Contractor pursuant to Paragraphs 6.05.A.2 and 6.05.B. Whether or not Engineer approves a substitute so proposed or submitted by Contractor, Contractor shall reimburse Owner for the reasonable charges of Engineer for evaluating each such proposed substitute. Contractor shall also reimburse Owner for the reasonable charges of Engineer for making changes in the Contract Documents (or in the provisions of any other direct contract with Owner) resulting from the acceptance of each proposed substitute.
- F. **Contractor's Expense:** Contractor shall provide all data in support of any proposed substitute or "or-equal" at Contractor's expense.

6.06 *Concerning Subcontractors, Suppliers, and Others*

- A. Contractor shall not employ any Subcontractor, Supplier, or other individual or entity (including those acceptable to Owner as indicated in Paragraph 6.06.B), whether initially or as a replacement, against whom Owner may have reasonable objection. Contractor shall not be required to employ any Subcontractor, Supplier, or other individual or entity to furnish or perform any of the Work against whom Contractor has reasonable objection.
- B. If the Supplementary Conditions require the identity of certain Subcontractors, Suppliers, or other individuals or entities to be submitted to Owner in advance for acceptance by Owner by a specified date prior to the Effective Date of the Agreement, and if Contractor has submitted a list thereof in accordance with the Supplementary Conditions, Owner's acceptance (either in writing or by failing to make written objection thereto by the date indicated for acceptance or objection in the Bidding Documents or the Contract Documents) of any such Subcontractor, Supplier, or other individual or entity so identified may be revoked on the basis of reasonable objection after due investigation. Contractor shall submit an acceptable replacement for the rejected Subcontractor, Supplier, or other individual or entity, and the Contract Price will be adjusted by the difference in the cost occasioned by such replacement, and an appropriate Change Order will be issued. No acceptance by Owner of any such Subcontractor, Supplier, or other individual or entity, whether initially or as a replacement, shall constitute a waiver of any right of Owner or Engineer to reject defective Work.
- C. Contractor shall be fully responsible to Owner and Engineer for all acts and omissions of the Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work just as Contractor is responsible for Contractor's own acts and omissions. Nothing in the Contract Documents:

1. Shall create for the benefit of any such Subcontractor, Supplier, or other individual or entity any contractual relationship between Owner or Engineer and any such Subcontractor, Supplier or other individual or entity; nor
 2. Shall create any obligation on the part of Owner or Engineer to pay or to see to the payment of any moneys due any such Subcontractor, Supplier, or other individual or entity except as may otherwise be required by Laws and Regulations.
- D. Contractor shall be solely responsible for scheduling and coordinating the Work of Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work under a direct or indirect contract with Contractor.
- E. Contractor shall require all Subcontractors, Suppliers, and such other individuals or entities performing or furnishing any of the Work to communicate with Engineer through Contractor.
- F. The divisions and sections of the Specifications and the identifications of any Drawings shall not control Contractor in dividing the Work among Subcontractors or Suppliers or delineating the Work to be performed by any specific trade.
- G. All Work performed for Contractor by a Subcontractor or Supplier will be pursuant to an appropriate agreement between Contractor and the Subcontractor or Supplier which specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract Documents for the benefit of Owner and Engineer. Whenever any such agreement is with a Subcontractor or Supplier who is listed as a loss payee on the property insurance provided in Paragraph 5.06, the agreement between the Contractor and the Subcontractor or Supplier will contain provisions whereby the Subcontractor or Supplier waives all rights against Owner, Contractor, Engineer, and all other individuals or entities identified in the Supplementary Conditions to be listed as insureds or loss payees (and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them) for all losses and damages caused by, arising out of, relating to, or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work. If the insurers on any such policies require separate waiver forms to be signed by any Subcontractor or Supplier, Contractor will obtain the same.

6.07 *Patent Fees and Royalties*

- A. Contractor shall pay all license fees and royalties and assume all costs incident to the use in the performance of the Work or the incorporation in the Work of any invention, design, process, product, or device which is the subject of patent rights or copyrights held by others. If a particular invention, design, process, product, or device is specified in the Contract Documents for use in the performance of the Work and if, to the actual knowledge of Owner or Engineer, its use is subject to patent rights or copyrights calling for the payment

of any license fee or royalty to others, the existence of such rights shall be disclosed by Owner in the Contract Documents.

- B. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, and its officers, directors, members, partners, employees, agents, consultants, and subcontractors from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals, and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device specified in the Contract Documents, but not identified as being subject to payment of any license fee or royalty to others required by patent rights or copyrights.
- C. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device not specified in the Contract Documents.

6.08 *Permits*

- A. Unless otherwise provided in the Supplementary Conditions, 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 which are applicable at the time of opening of Bids, or, if there are no Bids, on the Effective Date of the Agreement. Owner shall pay all charges of utility owners for connections for providing permanent service to the Work.

6.09 *Laws and Regulations*

- A. Contractor shall give all notices required by and shall comply with all Laws and Regulations applicable to the performance of the Work. Except where otherwise expressly required by applicable Laws and Regulations, neither Owner nor Engineer shall be responsible for monitoring Contractor's compliance with any Laws or Regulations.
- B. If Contractor performs any Work knowing or having reason to know that it is contrary to Laws or Regulations, Contractor shall bear all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other

professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such Work. However, it shall not be Contractor's responsibility to make certain that the Specifications and Drawings are in accordance with Laws and Regulations, but this shall not relieve Contractor of Contractor's obligations under Paragraph 3.03.

- C. Changes in Laws or Regulations not known at the time of opening of Bids (or, on the Effective Date of the Agreement if there were no Bids) having an effect on the cost or time of performance of the Work shall be the subject of an adjustment in Contract Price or Contract Times. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment, a Claim may be made therefore as provided in Paragraph 10.05.

6.10 Taxes

- A. Contractor shall pay all sales, consumer, use, and other similar taxes required to be paid by Contractor in accordance with the Laws and Regulations of the place of the Project which are applicable during the performance of the Work.

6.11 Use of Site and Other Areas

- A. Limitation on Use of Site and Other Areas:
 1. Contractor shall confine construction equipment, the storage of materials and equipment, and the operations of workers to the Site and other areas permitted by Laws and Regulations, and shall not unreasonably encumber the Site and other areas with construction equipment or other materials or equipment. Contractor shall assume full responsibility for any damage to any such land or area, or to the owner or occupant thereof, or of any adjacent land or areas resulting from the performance of the Work.
 2. Should any claim be made by any such owner or occupant because of the performance of the Work, Contractor shall promptly settle with such other party by negotiation or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law.
 3. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any claim or action, legal or equitable, brought by any such owner or occupant against Owner, Engineer, or any other party indemnified hereunder to the extent caused by or based upon Contractor's performance of the Work.

- B. Removal of Debris During Performance of the Work: During the progress of the Work Contractor shall keep the Site and other areas free from accumulations of waste materials, rubbish, and other debris. Removal and disposal of such waste materials, rubbish, and other debris shall conform to applicable Laws and Regulations.
- C. Cleaning: Prior to Substantial Completion of the Work Contractor shall clean the Site and the Work and make it ready for utilization by Owner. At the completion of the Work Contractor shall remove from the Site all tools, appliances, construction equipment and machinery, and surplus materials and shall restore to original condition all property not designated for alteration by the Contract Documents.
- D. Loading Structures: 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.

6.12 *Record Documents*

- A. Contractor shall maintain in a safe place at the Site one record copy of all Drawings, Specifications, Addenda, Change Orders, Work Change Directives, Field Orders, and written interpretations and clarifications in good order and annotated to show changes made during construction. These record documents together with all approved Samples and a counterpart of all approved Shop Drawings will be available to Engineer for reference. Upon completion of the Work, these record documents, Samples, and Shop Drawings will be delivered to Engineer for Owner.

6.13 *Safety and Protection*

- A. Contractor shall be solely responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Work. Such responsibility does not relieve Subcontractors of their responsibility for the safety of persons or property in the performance of their work, nor for compliance with applicable safety Laws and Regulations. Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury or loss to:
 1. All persons on the Site or who may be affected by the Work;
 2. All the Work and materials and equipment to be incorporated therein, whether in storage on or off the Site; and
 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.

- B. Contractor shall comply with all applicable Laws and Regulations relating to the safety of persons or property, or to the protection of persons or property from damage, injury, or loss; and shall erect and maintain all necessary safeguards for such safety and protection. Contractor shall notify owners of adjacent property and of Underground Facilities and other utility owners when prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property.
- C. Contractor shall comply with the applicable requirements of Owner's safety programs, if any. The Supplementary Conditions identify any Owner's safety programs that are applicable to the Work.
- D. Contractor shall inform Owner and Engineer of the specific requirements of Contractor's safety program with which Owner's and Engineer's employees and representatives must comply while at the Site.
- E. All damage, injury, or loss to any property referred to in Paragraph 6.13.A.2 or 6.13.A.3 caused, directly or indirectly, in whole or in part, by Contractor, any Subcontractor, Supplier, or any other individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, shall be remedied by Contractor (except damage or loss attributable to the fault of Drawings or Specifications or to the acts or omissions of Owner or Engineer or anyone employed by any of them, or anyone for whose acts any of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of Contractor or any Subcontractor, Supplier, or other individual or entity directly or indirectly employed by any of them).
- F. Contractor's duties and responsibilities for safety and for protection of the Work shall continue until such time as all the Work is completed and Engineer has issued a notice to Owner and Contractor in accordance with Paragraph 14.07.B that the Work is acceptable (except as otherwise expressly provided in connection with Substantial Completion).

6.14 *Safety Representative*

- A. Contractor shall designate a qualified and experienced safety representative at the Site whose duties and responsibilities shall be the prevention of accidents and the maintaining and supervising of safety precautions and programs.

6.15 *Hazard Communication Programs*

- A. Contractor shall be responsible for coordinating any exchange of material safety data sheets or other hazard communication information required to be made available to or exchanged between or among employers at the Site in accordance with Laws or Regulations.

6.16 *Emergencies*

- A. In emergencies affecting the safety or protection of persons or the Work or property at the Site or adjacent thereto, Contractor is obligated to act to prevent threatened damage, injury, or loss. Contractor shall give Engineer prompt written notice if Contractor believes that any significant changes in the Work or variations from the Contract Documents have been caused thereby or are required as a result thereof. If Engineer determines that a change in the Contract Documents is required because of the action taken by Contractor in response to such an emergency, a Work Change Directive or Change Order will be issued.

6.17 *Shop Drawings and Samples*

- A. Contractor shall submit Shop Drawings and Samples to Engineer for review and approval in accordance with the accepted Schedule of Submittals (as required by Paragraph 2.07). Each submittal will be identified as Engineer may require.
 - 1. Shop Drawings:
 - a. Submit number of copies specified in the General Requirements.
 - b. Data shown on the Shop Drawings will be complete with respect to quantities, dimensions, specified performance and design criteria, materials, and similar data to show Engineer the services, materials, and equipment Contractor proposes to provide and to enable Engineer to review the information for the limited purposes required by Paragraph 6.17.D.
 - 2. Samples:
 - a. Submit number of Samples specified in the Specifications.
 - b. Clearly identify each Sample as to material, Supplier, pertinent data such as catalog numbers, the use for which intended, and other data as Engineer may require to enable Engineer to review the submittal for the limited purposes required by Paragraph 6.17.D.
- B. Where a Shop Drawing or Sample is required by the Contract Documents or the Schedule of Submittals, any related Work performed prior to Engineer's review and approval of the pertinent submittal will be at the sole expense and responsibility of Contractor.

C. Submittal Procedures:

1. Before submitting each Shop Drawing or Sample, Contractor shall have:
 - a. Reviewed and coordinated each Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents;
 - b. Determined and verified all field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information with respect thereto;
 - c. Determined and verified the suitability of all materials offered with respect to the indicated application, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work; and
 - d. Determined and verified all information relative to Contractor's responsibilities for means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incident thereto.
2. Each submittal shall bear a stamp or specific written certification that Contractor has satisfied Contractor's obligations under the Contract Documents with respect to Contractor's review and approval of that submittal.
3. With each submittal, Contractor shall give Engineer specific written notice of any variations that the Shop Drawing or Sample may have from the requirements of the Contract Documents. This notice shall be both a written communication separate from the Shop Drawings or Sample submittal; and, in addition, by a specific notation made on each Shop Drawing or Sample submitted to Engineer for review and approval of each such variation.

D. Engineer's Review:

1. Engineer will provide timely review of Shop Drawings and Samples in accordance with the Schedule of Submittals acceptable to Engineer. Engineer's review and approval will be only to determine if the items covered by the submittals will, after installation or incorporation in the Work, conform to the information given in the Contract Documents and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.
2. Engineer's review and approval will not extend to means, methods, techniques, sequences, or procedures of construction (except where a particular means, method, technique, sequence, or procedure of construction is specifically and expressly called for by the Contract Documents) or to safety precautions or programs incident

thereto. The review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.

3. Engineer's review and approval shall not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents unless Contractor has complied with the requirements of Paragraph 6.17.C.3 and Engineer has given written approval of each such variation by specific written notation thereof incorporated in or accompanying the Shop Drawing or Sample. Engineer's review and approval shall not relieve Contractor from responsibility for complying with the requirements of Paragraph 6.17.C.1.

E. Resubmittal Procedures:

1. Contractor shall make corrections required by Engineer and shall return the required number of corrected copies of Shop Drawings and submit, as required, new Samples for review and approval. Contractor shall direct specific attention in writing to revisions other than the corrections called for by Engineer on previous submittals.

6.18 *Continuing the Work*

- A. Contractor shall carry on the Work and adhere to the Progress Schedule during all disputes or disagreements with Owner. No Work shall be delayed or postponed pending resolution of any disputes or disagreements, except as permitted by Paragraph 15.04 or as Owner and Contractor may otherwise agree in writing.

6.19 *Contractor's General Warranty and Guarantee*

- A. Contractor warrants and guarantees to Owner that all Work will be in accordance with the Contract Documents and will not be defective. Engineer and its officers, directors, members, partners, employees, agents, consultants, and subcontractors shall be entitled to rely on representation of Contractor's warranty and guarantee.
- B. Contractor's warranty and guarantee hereunder excludes defects or damage caused by:
 1. Abuse, modification, or improper maintenance or operation by persons other than Contractor, Subcontractors, Suppliers, or any other individual or entity for whom Contractor is responsible; or
 2. Normal wear and tear under normal usage.
- C. Contractor's obligation to perform and complete the Work in accordance with the Contract Documents shall be absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents or a release of Contractor's obligation to perform the Work in accordance with the Contract Documents:

1. Observations by Engineer;
2. Recommendation by Engineer or payment by Owner of any progress or final payment;
3. The issuance of a certificate of Substantial Completion by Engineer or any payment related thereto by Owner;
4. Use or occupancy of the Work or any part thereof by Owner;
5. Any review and approval of a Shop Drawing or Sample submittal or the issuance of a notice of acceptability by Engineer;
6. Any inspection, test, or approval by others; or
7. Any correction of defective Work by Owner.

6.20 *Indemnification*

- A. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the performance of the Work, provided that any such claim, cost, loss, or damage is attributable to bodily injury, sickness, disease, or death, or to injury to or destruction of tangible property (other than the Work itself), including the loss of use resulting there from but only to the extent caused by any negligent act or omission of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work or anyone for whose acts any of them may be liable .
- B. In any and all claims against Owner or Engineer or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors by any employee (or the survivor or personal representative of such employee) of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, the indemnification obligation under Paragraph 6.20.A shall not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for Contractor or any such Subcontractor, Supplier, or other individual or entity under workers' compensation acts, disability benefit acts, or other employee benefit acts.
- C. The indemnification obligations of Contractor under Paragraph 6.20.A shall not extend to the liability of Engineer and Engineer's officers, directors, members, partners, employees, agents, consultants and subcontractors arising out of:

1. The preparation or approval of, or the failure to prepare or approve maps, Drawings, opinions, reports, surveys, Change Orders, designs, or Specifications; or
2. Giving directions or instructions, or failing to give them, if that is the primary cause of the injury or damage.

6.21 *Delegation of Professional Design Services*

- A. Contractor will not be required to provide professional design services unless such services are specifically required by the Contract Documents for a portion of the Work or unless such services are required to carry out Contractor's responsibilities for construction means, methods, techniques, sequences and procedures. Contractor shall not be required to provide professional services in violation of applicable law.
- B. If professional design services or certifications by a design professional related to systems, materials or equipment are specifically required of Contractor by the Contract Documents, Owner and Engineer will specify all performance and design criteria that such services must satisfy. Contractor shall cause such services or certifications to be provided by a properly licensed professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, Shop Drawings and other submittals prepared by such professional. Shop Drawings and other submittals related to the Work designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to Engineer.
- C. Owner and Engineer shall be entitled to rely upon the adequacy, accuracy and completeness of the services, certifications or approvals performed by such design professionals, provided Owner and Engineer have specified to Contractor all performance and design criteria that such services must satisfy.
- D. Pursuant to this Paragraph 6.21, Engineer's review and approval of design calculations and design drawings will be only for the limited purpose of checking for conformance with performance and design criteria given and the design concept expressed in the Contract Documents. Engineer's review and approval of Shop Drawings and other submittals (except design calculations and design drawings) will be only for the purpose stated in Paragraph 6.17.D.1.
- E. Contractor shall not be responsible for the adequacy of the performance or design criteria required by the Contract Documents.

ARTICLE 7 – OTHER WORK AT THE SITE

7.01 *Related Work at Site*

- A. Owner may perform other work related to the Project at the Site with Owner's employees or through other direct contracts therefore, or have other work performed by utility owners. If such other work is not noted in the Contract Documents, then:
 - 1. Written notice thereof will be given to Contractor prior to starting any such other work; and
 - 2. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times that should be allowed as a result of such other work, a Claim may be made therefore as provided in Paragraph 10.05.
- B. Contractor shall afford each other contractor who is a party to such a direct contract, each utility owner, and Owner, if Owner is performing other work with Owner's employees, proper and safe access to the Site, provide a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work, and properly coordinate the Work with theirs. Contractor shall do all cutting, fitting, and patching of the Work that may be required to properly connect or otherwise make its several parts come together and properly integrate with such other work. Contractor shall not endanger any work of others by cutting, excavating, or otherwise altering such work; provided, however, that Contractor may cut or alter others' work with the written consent of Engineer and the others whose work will be affected. The duties and responsibilities of Contractor under this Paragraph are for the benefit of such utility owners and other contractors to the extent that there are comparable provisions for the benefit of Contractor in said direct contracts between Owner and such utility owners and other contractors.
- C. If the proper execution or results of any part of Contractor's Work depends upon work performed by others under this Article 7, Contractor shall inspect such other work and promptly report to Engineer in writing any delays, defects, or deficiencies in such other work that render it unavailable or unsuitable for the proper execution and results of Contractor's Work. Contractor's failure to so report will constitute an acceptance of such other work as fit and proper for integration with Contractor's Work except for latent defects and deficiencies in such other work.

7.02 *Coordination*

- A. If Owner intends to contract with others for the performance of other work on the Project at the Site, the following will be set forth in Supplementary Conditions:
 - 1. The individual or entity who will have authority and responsibility for coordination of the activities among the various contractors will be identified;

2. The specific matters to be covered by such authority and responsibility will be itemized; and
 3. The extent of such authority and responsibilities will be provided.
- B. Unless otherwise provided in the Supplementary Conditions, Owner shall have sole authority and responsibility for such coordination.

7.03 *Legal Relationships*

- A. Paragraphs 7.01.A and 7.02 are not applicable for utilities not under the control of Owner.
- B. Each other direct contract of Owner under Paragraph 7.01.A shall provide that the other contractor is liable to Owner and Contractor for the reasonable direct delay and disruption costs incurred by Contractor as a result of the other contractor's wrongful actions or inactions.
- C. Contractor shall be liable to Owner and any other contractor under direct contract to Owner for the reasonable direct delay and disruption costs incurred by such other contractor as a result of Contractor's wrongful action or inactions.

ARTICLE 8 – OWNER'S RESPONSIBILITIES

8.01 *Communications to Contractor*

- A. Except as otherwise provided in these General Conditions, Owner shall issue all communications to Contractor through Engineer.

8.02 *Replacement of Engineer*

- A. In case of termination of the employment of Engineer, Owner shall appoint an engineer to whom Contractor makes no reasonable objection, whose status under the Contract Documents shall be that of the former Engineer.

8.03 *Furnish Data*

- A. Owner shall promptly furnish the data required of Owner under the Contract Documents.

8.04 *Pay When Due*

- A. Owner shall make payments to Contractor when they are due as provided in Paragraphs 14.02.C and 14.07.C.

8.05 *Lands and Easements; Reports and Tests*

- A. Owner's duties with respect to providing lands and easements and providing engineering surveys to establish reference points are set forth in Paragraphs 4.01 and 4.05. Paragraph 4.02 refers to Owner's identifying and making available to Contractor copies of reports of explorations and tests of subsurface conditions and drawings of physical conditions relating to existing surface or subsurface structures at the Site.

8.06 *Insurance*

- A. Owner's responsibilities, if any, with respect to purchasing and maintaining liability and property insurance are set forth in Article 5.

8.07 *Change Orders*

- A. Owner is obligated to execute Change Orders as indicated in Paragraph 10.03.

8.08 *Inspections, Tests, and Approvals*

- A. Owner's responsibility with respect to certain inspections, tests, and approvals is set forth in Paragraph 13.03.B.

8.09 *Limitations on Owner's Responsibilities*

- A. The Owner shall not supervise, direct, or have control or authority over, nor be responsible for, Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Owner will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

8.10 *Undisclosed Hazardous Environmental Condition*

- A. Owner's responsibility in respect to an undisclosed Hazardous Environmental Condition is set forth in Paragraph 4.06.

8.11 *Evidence of Financial Arrangements*

- A. Upon request of Contractor, Owner shall furnish Contractor reasonable evidence that financial arrangements have been made to satisfy Owner's obligations under the Contract Documents.

8.12 *Compliance with Safety Program*

- A. While at the Site, Owner's employees and representatives shall comply with the specific applicable requirements of Contractor's safety programs of which Owner has been informed pursuant to Paragraph 6.13.D.

ARTICLE 9 – ENGINEER'S STATUS DURING CONSTRUCTION

9.01 *Owner's Representative*

- A. Engineer will be Owner's representative during the construction period. The duties and responsibilities and the limitations of authority of Engineer as Owner's representative during construction are set forth in the Contract Documents.

9.02 *Visits to Site*

- A. Engineer will make visits to the Site at intervals appropriate to the various stages of construction as Engineer deems necessary in order to observe as an experienced and qualified design professional the progress that has been made and the quality of the various aspects of Contractor's executed Work. Based on information obtained during such visits and observations, Engineer, for the benefit of Owner, will determine, in general, if the Work is proceeding in accordance with the Contract Documents. Engineer will not be required to make exhaustive or continuous inspections on the Site to check the quality or quantity of the Work. Engineer's efforts will be directed toward providing for Owner a greater degree of confidence that the completed Work will conform generally to the Contract Documents. On the basis of such visits and observations, Engineer will keep Owner informed of the progress of the Work and will endeavor to guard Owner against defective Work.
- B. Engineer's visits and observations are subject to all the limitations on Engineer's authority and responsibility set forth in Paragraph 9.09. Particularly, but without limitation, during or as a result of Engineer's visits or observations of Contractor's Work, Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work.

9.03 *Project Representative*

- A. If Owner and Engineer agree, Engineer will furnish a Resident Project Representative to assist Engineer in providing more extensive observation of the Work. The authority and responsibilities of any such Resident Project Representative and assistants will be as provided in the Supplementary Conditions, and limitations on the responsibilities thereof will be as provided in Paragraph 9.09. If Owner designates another representative or agent to represent Owner at the Site who is not Engineer's consultant, agent or employee, the

responsibilities and authority and limitations thereon of such other individual or entity will be as provided in the Supplementary Conditions.

9.04 *Authorized Variations in Work*

- A. Engineer may authorize minor variations in the Work from the requirements of the Contract Documents which do not involve an adjustment in the Contract Price or the Contract Times and are compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. These may be accomplished by a Field Order and will be binding on Owner and also on Contractor, who shall perform the Work involved promptly. If Owner or Contractor believes that a Field Order justifies an adjustment in the Contract Price or Contract Times, or both, and the parties are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment, a Claim may be made therefore as provided in Paragraph 10.05.

9.05 *Rejecting Defective Work*

- A. Engineer will have authority to reject Work which Engineer believes to be defective, or that Engineer believes will not produce a completed Project that conforms to the Contract Documents or that will prejudice the integrity of the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. Engineer will also have authority to require special inspection or testing of the Work as provided in Paragraph 13.04, whether or not the Work is fabricated, installed, or completed.

9.06 *Shop Drawings, Change Orders and Payments*

- A. In connection with Engineer's authority, and limitations thereof, as to Shop Drawings and Samples, see Paragraph 6.17.
- B. In connection with Engineer's authority, and limitations thereof, as to design calculations and design drawings submitted in response to a delegation of professional design services, if any, see Paragraph 6.21.
- C. In connection with Engineer's authority as to Change Orders, see Articles 10, 11, and 12.
- D. In connection with Engineer's authority as to Applications for Payment, see Article 14.

9.07 *Determinations for Unit Price Work*

- A. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor. Engineer will review with Contractor the Engineer's preliminary determinations on such matters before rendering a written decision thereon (by recommendation of an Application for Payment or otherwise). Engineer's written decision thereon will be final and binding (except as modified by Engineer to reflect changed factual

conditions or more accurate data) upon Owner and Contractor, subject to the provisions of Paragraph 10.05.

9.08 *Decisions on Requirements of Contract Documents and Acceptability of Work*

- A. Engineer will be the initial interpreter of the requirements of the Contract Documents and judge of the acceptability of the Work there under. All matters in question and other matters between Owner and Contractor arising prior to the date final payment is due relating to the acceptability of the Work, and the interpretation of the requirements of the Contract Documents pertaining to the performance of the Work, will be referred initially to Engineer in writing within 30 days of the event giving rise to the question.
- B. Engineer will, with reasonable promptness, render a written decision on the issue referred. If Owner or Contractor believes that any such decision entitles them to an adjustment in the Contract Price or Contract Times or both, a Claim may be made under Paragraph 10.05. The date of Engineer's decision shall be the date of the event giving rise to the issues referenced for the purposes of Paragraph 10.05.B.
- C. Engineer's written decision on the issue referred will be final and binding on Owner and Contractor, subject to the provisions of Paragraph 10.05.
- D. When functioning as interpreter and judge under this Paragraph 9.08, Engineer will not show partiality to Owner or Contractor and will not be liable in connection with any interpretation or decision rendered in good faith in such capacity.

9.09 *Limitations on Engineer's Authority and Responsibilities*

- A. Neither Engineer's authority or responsibility under this Article 9 or under any other provision of the Contract Documents nor any decision made by Engineer in good faith either to exercise or not exercise such authority or responsibility or the undertaking, exercise, or performance of any authority or responsibility by Engineer shall create, impose, or give rise to any duty in contract, tort, or otherwise owed by Engineer to Contractor, any Subcontractor, any Supplier, any other individual or entity, or to any surety for or employee or agent of any of them.
- B. Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Engineer will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.
- C. Engineer will not be responsible for the acts or omissions of Contractor or of any Subcontractor, any Supplier, or of any other individual or entity performing any of the Work.

- D. Engineer's review of the final Application for Payment and accompanying documentation and all maintenance and operating instructions, schedules, guarantees, bonds, certificates of inspection, tests and approvals, and other documentation required to be delivered by Paragraph 14.07.A will only be to determine generally that their content complies with the requirements of, and in the case of certificates of inspections, tests, and approvals that the results certified indicate compliance with, the Contract Documents.
- E. The limitations upon authority and responsibility set forth in this Paragraph 9.09 shall also apply to the Resident Project Representative, if any, and assistants, if any.

9.10 *Compliance with Safety Program*

- A. While at the Site, Engineer's employees and representatives shall comply with the specific applicable requirements of Contractor's safety programs of which Engineer has been informed pursuant to Paragraph 6.13.D.

ARTICLE 10 – CHANGES IN THE WORK; CLAIMS

10.01 *Authorized Changes in the Work*

- A. Without invalidating the Contract and without notice to any surety, Owner may, at any time or from time to time, order additions, deletions, or revisions in the Work by a Change Order, or a Work Change Directive. 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).
- B. If Owner and Contractor are unable to agree on entitlement to, or on the amount or extent, if any, of an adjustment in the Contract Price or Contract Times, or both, that should be allowed as a result of a Work Change Directive, a Claim may be made therefore as provided in Paragraph 10.05.

10.02 *Unauthorized Changes in the Work*

- A. Contractor shall not be entitled to an increase in the Contract Price or an extension of the Contract Times with respect to any work performed that is not required by the Contract Documents as amended, modified, or supplemented as provided in Paragraph 3.04, except in the case of an emergency as provided in Paragraph 6.16 or in the case of uncovering Work as provided in Paragraph 13.04.D.

10.03 *Execution of Change Orders*

- A. Owner and Contractor shall execute appropriate Change Orders recommended by Engineer covering:

1. Changes in the Work which are: (i) ordered by Owner pursuant to Paragraph 10.01.A, (ii) required because of acceptance of defective Work under Paragraph 13.08.A or Owner's correction of defective Work under Paragraph 13.09, or (iii) agreed to by the parties;
2. Changes in the Contract Price or Contract Times which are agreed to by the parties, including any undisputed sum or amount of time for Work actually performed in accordance with a Work Change Directive; and
3. Changes in the Contract Price or Contract Times which embody the substance of any written decision rendered by Engineer pursuant to Paragraph 10.05; provided that, in lieu of executing any such Change Order, an appeal may be taken from any such decision in accordance with the provisions of the Contract Documents and applicable Laws and Regulations, but during any such appeal, Contractor shall carry on the Work and adhere to the Progress Schedule as provided in Paragraph 6.18.A.

10.04 *Notification to Surety*

- A. If the provisions of any bond require notice to be given to a surety of any change affecting the general scope of the Work or the provisions of the Contract Documents (including, but not limited to, Contract Price or Contract Times), the giving of any such notice will be Contractor's responsibility. The amount of each applicable bond will be adjusted to reflect the effect of any such change.

10.05 *Claims*

- A. **Engineer's Decision Required:** All Claims, except those waived pursuant to Paragraph 14.09, shall be referred to the Engineer for decision. A decision by Engineer shall be required as a condition precedent to any exercise by Owner or Contractor of any rights or remedies either may otherwise have under the Contract Documents or by Laws and Regulations in respect of such Claims.
- B. **Notice:** Written notice stating the general nature of each Claim shall be delivered by the claimant to Engineer and the other party to the Contract promptly (but in no event later than 30 days) after the start of the event giving rise thereto. The responsibility to substantiate a Claim shall rest with the party making the Claim. Notice of the amount or extent of the Claim, with supporting data shall be delivered to the Engineer and the other party to the Contract within 60 days after the start of such event (unless Engineer allows additional time for claimant to submit additional or more accurate data in support of such Claim). A Claim for an adjustment in Contract Price shall be prepared in accordance with the provisions of Paragraph 12.01.B. A Claim for an adjustment in Contract Times shall be prepared in accordance with the provisions of Paragraph 12.02.B. Each Claim shall be accompanied by claimant's written statement that the adjustment claimed is the entire adjustment to which the claimant believes it is entitled as a result of said event. The opposing party shall submit

any response to Engineer and the claimant within 30 days after receipt of the claimant's last submittal (unless Engineer allows additional time).

- C. Engineer's Action: Engineer will review each Claim and, within 30 days after receipt of the last submittal of the claimant or the last submittal of the opposing party, if any, take one of the following actions in writing:
 - 1. Deny the Claim in whole or in part;
 - 2. Approve the Claim; or
 - 3. Notify the parties that the Engineer is unable to resolve the Claim if, in the Engineer's sole discretion, it would be inappropriate for the Engineer to do so. For purposes of further resolution of the Claim, such notice shall be deemed a denial.
- D. In the event that Engineer does not take action on a Claim within said 30 days, the Claim shall be deemed denied.
- E. Engineer's written action under Paragraph 10.05.C or denial pursuant to Paragraphs 10.05.C.3 or 10.05.D will be final and binding upon Owner and Contractor, unless Owner or Contractor invoke the dispute resolution procedure set forth in Article 16 within 30 days of such action or denial.
- F. No Claim for an adjustment in Contract Price or Contract Times will be valid if not submitted in accordance with this Paragraph 10.05.

ARTICLE 11 – COST OF THE WORK; ALLOWANCES; UNIT PRICE WORK

11.01 *Cost of the Work*

- A. *Costs Included:* The term Cost of the Work means the sum of all costs, except those excluded in Paragraph 11.01.B, necessarily incurred and paid by Contractor in the proper performance of the Work. When the value of any Work covered by a Change Order or when a Claim for an adjustment in Contract Price is determined on the basis of Cost of the Work, the costs to be reimbursed to Contractor will be only those additional or incremental costs required because of the change in the Work or because of the event giving rise to the Claim. Except as otherwise may be agreed to in writing by Owner, such costs shall be in amounts no higher than those prevailing in the locality of the Project, shall not include any of the costs itemized in Paragraph 11.01.B, and shall include only the following items:
 - 1. Payroll costs for employees in the direct employ of Contractor in the performance of the Work under schedules of job classifications agreed upon by Owner and Contractor. Such employees shall include, without limitation, superintendents, foremen, and other personnel employed full time on the Work. Payroll costs for employees not employed full time on the Work shall be apportioned on the basis of

their time spent on the Work. Payroll costs shall include, but not be limited to, salaries and wages plus the cost of fringe benefits, which shall include social security contributions, unemployment, excise, and payroll taxes, workers' compensation, health and retirement benefits, bonuses, sick leave, vacation and holiday pay applicable thereto. The expenses of performing Work outside of regular working hours, on Saturday, Sunday, or legal holidays, shall be included in the above to the extent authorized by Owner.

2. Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage thereof, and Suppliers' field services required in connection therewith. All cash discounts shall accrue to Contractor unless Owner deposits funds with Contractor with which to make payments, in which case the cash discounts shall accrue to Owner. All trade discounts, rebates and refunds and returns from sale of surplus materials and equipment shall accrue to Owner, and Contractor shall make provisions so that they may be obtained.
3. Payments made by Contractor to Subcontractors for Work performed by Subcontractors. If required by Owner, Contractor shall obtain competitive bids from subcontractors acceptable to Owner and Contractor and shall deliver such bids to Owner, who will then determine, with the advice of Engineer, which bids, if any, will be acceptable. If any subcontract provides that the Subcontractor is to be paid on the basis of Cost of the Work plus a fee, the Subcontractor's Cost of the Work and fee shall be determined in the same manner as Contractor's Cost of the Work and fee as provided in this Paragraph 11.01.
4. Costs of special consultants (including but not limited to engineers, architects, testing laboratories, surveyors, attorneys, and accountants) employed for services specifically related to the Work.
5. Supplemental costs including the following:
 - a. The proportion of necessary transportation, travel, and subsistence expenses of Contractor's employees incurred in discharge of duties connected with the Work.
 - b. Cost, including transportation and maintenance, of all materials, supplies, equipment, machinery, appliances, office, and temporary facilities at the Site, and hand tools not owned by the workers, which are consumed in the performance of the Work, and cost, less market value, of such items used but not consumed which remain the property of Contractor.
 - c. Rentals of all construction equipment and machinery, and the parts thereof whether rented from Contractor or others in accordance with rental agreements approved by Owner with the advice of Engineer, and the costs of

transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs shall be in accordance with the terms of said rental agreements. The rental of any such equipment, machinery, or parts shall cease when the use thereof is no longer necessary for the Work.

- d. Sales, consumer, use, and other similar taxes related to the Work, and for which Contractor is liable, as imposed by Laws and Regulations.
- e. Deposits lost for causes other than negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, and royalty payments and fees for permits and licenses.
- f. Losses and damages (and related expenses) caused by damage to the Work, not compensated by insurance or otherwise, sustained by Contractor in connection with the performance of the Work (except losses and damages within the deductible amounts of property insurance established in accordance with Paragraph 5.06.D), provided such losses and damages have resulted from causes other than the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable. Such losses shall include settlements made with the written consent and approval of Owner. No such losses, damages, and expenses shall be included in the Cost of the Work for the purpose of determining Contractor's fee.
- g. The cost of utilities, fuel, and sanitary facilities at the Site.
- h. Minor expenses such as telegrams, long distance telephone calls, telephone service at the Site, express and courier services, and similar petty cash items in connection with the Work.
- i. The costs of premiums for all bonds and insurance Contractor are required by the Contract Documents to purchase and maintain.

B. Costs Excluded: The term Cost of the Work shall not include any of the following items:

- 1. Payroll costs and other compensation of Contractor's officers, executives, principals (of partnerships and sole proprietorships), general managers, safety managers, engineers, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expeditors, timekeepers, clerks, and other personnel employed by Contractor, whether at the Site or in Contractor's principal or branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in Paragraph 11.01.A.1 or specifically covered by Paragraph 11.01.A.4, all of which are to be considered administrative costs covered by the Contractor's fee.

2. Expenses of Contractor's principal and branch offices other than Contractor's office at the Site.
 3. Any part of Contractor's capital expenses, including interest on Contractor's capital employed for the Work and charges against Contractor for delinquent payments.
 4. Costs due to the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not limited to, the correction of defective Work, disposal of materials or equipment wrongly supplied, and making good any damage to property.
 5. Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in Paragraphs 11.01.A.
- C. Contractor's Fee: When all the Work is performed on the basis of cost-plus, Contractor's fee shall be determined as set forth in the Agreement. When the value of any Work covered by a Change Order or when a Claim for an adjustment in Contract Price is determined on the basis of Cost of the Work, Contractor's fee shall be determined as set forth in Paragraph 12.01.C.
- D. Documentation: Whenever the Cost of the Work for any purpose is to be determined pursuant to Paragraphs 11.01.A and 11.01.B, Contractor will establish and maintain records thereof in accordance with generally accepted accounting practices and submit in a form acceptable to Engineer an itemized cost breakdown together with supporting data.

11.02 Allowances

- A. It is understood that Contractor has included in the Contract Price all allowances so named in the Contract Documents and shall cause the Work so covered to be performed for such sums and by such persons or entities as may be acceptable to Owner and Engineer.
- B. Cash Allowances:
1. Contractor agrees that:
 - a. The cash allowances include the cost to Contractor (less any applicable trade discounts) of materials and equipment required by the allowances to be delivered at the Site, and all applicable taxes; and
 - b. Contractor's costs for unloading and handling on the Site, labor, installation, overhead, profit, and other expenses contemplated for the cash allowances have been included in the Contract Price and not in the allowances, and no demand for additional payment on account of any of the foregoing will be valid.

- C. Contingency Allowance:
 - 1. Contractor agrees that a contingency allowance, if any, is for the sole use of Owner to cover unanticipated costs.
- D. Prior to final payment, an appropriate Change Order will be issued as recommended by Engineer to reflect actual amounts due Contractor on account of Work covered by allowances, and the Contract Price shall be correspondingly adjusted.

11.03 Unit Price Work

- A. Where the Contract Documents provide that all or part of the Work is to be Unit Price Work, initially the Contract Price will be deemed to include for all Unit Price Work an amount equal to the sum of the unit price for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Agreement.
- B. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Price. Determinations of the actual quantities and classifications of Unit Price Work performed by Contractor will be made by Engineer subject to the provisions of Paragraph 9.07.
- C. Each unit price will be deemed to include an amount considered by Contractor to be adequate to cover Contractor's overhead and profit for each separately identified item.
- D. Owner or Contractor may make a Claim for an adjustment in the Contract Price in accordance with Paragraph 10.05 if:
 - 1. The quantity of any item of Unit Price Work performed by Contractor differs materially and significantly from the estimated quantity of such item indicated in the Agreement; and
 - 2. There is no corresponding adjustment with respect to any other item of Work; and
 - 3. Contractor believes that Contractor is entitled to an increase in Contract Price as a result of having incurred additional expense or Owner believes that Owner is entitled to a decrease in Contract Price and the parties are unable to agree as to the amount of any such increase or decrease.

ARTICLE 12 – CHANGE OF CONTRACT PRICE; CHANGE OF CONTRACT TIMES

12.01 Change of Contract Price

- A. The Contract Price may only be changed by a Change Order. Any Claim for an adjustment in the Contract Price shall be based on written notice submitted by the party making the

Claim to the Engineer and the other party to the Contract in accordance with the provisions of Paragraph 10.05.

- B. The value of any Work covered by a Change Order or of any Claim for an adjustment in the Contract Price will be determined as follows:
1. Where the Work involved is covered by unit prices contained in the Contract Documents, by application of such unit prices to the quantities of the items involved (subject to the provisions of Paragraph 11.03); or
 2. Where the Work involved is not covered by unit prices contained in the Contract Documents, by a mutually agreed lump sum (which may include an allowance for overhead and profit not necessarily in accordance with Paragraph 12.01.C.2); or
 3. Where the Work involved is not covered by unit prices contained in the Contract Documents and agreement to a lump sum is not reached under Paragraph 12.01.B.2, on the basis of the Cost of the Work (determined as provided in Paragraph 11.01) plus a Contractor's fee for overhead and profit (determined as provided in Paragraph 12.01.C).
- C. Contractor's Fee: The Contractor's fee for overhead and profit shall be determined as follows:
1. A mutually acceptable fixed fee; or
 2. If a fixed fee is not agreed upon, then a fee based on the following percentages of the various portions of the Cost of the Work:
 - a. For costs incurred under Paragraphs 11.01.A.1 and 11.01.A.2, the Contractor's fee shall be 15 percent;
 - b. For costs incurred under Paragraph 11.01.A.3, the Contractor's fee shall be five percent;
 - c. Where one or more tiers of subcontracts are on the basis of Cost of the Work plus a fee and no fixed fee is agreed upon, the intent of Paragraphs 12.01.C.2.a and 12.01.C.2.b is that the Subcontractor who actually performs the Work, at whatever tier, will be paid a fee of 15 percent of the costs incurred by such Subcontractor under Paragraphs 11.01.A.1 and 11.01.A.2 and that any higher tier Subcontractor and Contractor will each be paid a fee of five percent of the amount paid to the next lower tier Subcontractor;
 - d. No fee shall be payable on the basis of costs itemized under Paragraphs 11.01.A.4, 11.01.A.5, and 11.01.B;

- e. The amount of credit to be allowed by Contractor to Owner for any change which results in a net decrease in cost will be the amount of the actual net decrease in cost plus a deduction in Contractor's fee by an amount equal to five percent of such net decrease; and
- f. When both additions and credits are involved in any one change, the adjustment in Contractor's fee shall be computed on the basis of the net change in accordance with Paragraphs 12.01.C.2.a through 12.01.C.2.e, inclusive.

12.02 *Change of Contract Times*

- A. The Contract Times may only be changed by a Change Order. Any Claim for an adjustment in the Contract Times shall be based on written notice submitted by the party making the Claim to the Engineer and the other party to the Contract in accordance with the provisions of Paragraph 10.05.
- B. Any adjustment of the Contract Times covered by a Change Order or any Claim for an adjustment in the Contract Times will be determined in accordance with the provisions of this Article 12.

12.03 *Delays*

- A. Where Contractor is prevented from completing any part of the Work within the Contract Times due to delay beyond the control of Contractor, the Contract Times will be extended in an amount equal to the time lost due to such delay if a Claim is made therefore as provided in Paragraph 12.02.A. Delays beyond the control of Contractor shall include, but not be limited to, acts or neglect by Owner, acts or neglect of utility owners or other contractors performing other work as contemplated by Article 7, fires, floods, epidemics, abnormal weather conditions, or acts of God.
- B. If Owner, Engineer, or other contractors or utility owners performing other work for Owner as contemplated by Article 7, or anyone for whom Owner is responsible, delays, disrupts, or interferes with the performance or progress of the Work, then Contractor shall be entitled to an equitable adjustment in the Contract Price or the Contract Times, or both. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.
- C. If Contractor is delayed in the performance or progress of the Work by fire, flood, epidemic, abnormal weather conditions, acts of God, acts or failures to act of utility owners not under the control of Owner, or other causes not the fault of and beyond control of Owner and Contractor, then Contractor shall be entitled to an equitable adjustment in Contract Times, if such adjustment is essential to Contractor's ability to complete the Work within the Contract Times. Such an adjustment shall be Contractor's sole and exclusive remedy for the delays described in this Paragraph 12.03.C.

- D. Owner, Engineer, and their officers, directors, members, partners, employees, agents, consultants, or subcontractors shall not be liable to Contractor for any claims, costs, losses, or damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Contractor on or in connection with any other project or anticipated project.
- E. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for delays within the control of Contractor. Delays attributable to and within the control of a Subcontractor or Supplier shall be deemed to be delays within the control of Contractor.

ARTICLE 13 – TESTS AND INSPECTIONS; CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK

13.01 Notice of Defects

- A. Prompt notice of all defective Work of which Owner or Engineer has actual knowledge will be given to Contractor. Defective Work may be rejected, corrected, or accepted as provided in this Article 13.

13.02 Access to Work

- A. Owner, Engineer, their consultants and other representatives and personnel of Owner, independent testing laboratories, and governmental agencies with jurisdictional interests will have access to the Site and the Work at reasonable times for their observation, inspection, and testing. Contractor shall provide them proper and safe conditions for such access and advise them of Contractor's safety procedures and programs so that they may comply therewith as applicable.

13.03 Tests and Inspections

- A. Contractor shall give Engineer timely notice of readiness of the Work for all required inspections, tests, or approvals and shall cooperate with inspection and testing personnel to facilitate required inspections or tests.
- B. Owner shall employ and pay for the services of an independent testing laboratory to perform all inspections, tests, or approvals required by the Contract Documents except:
 1. For inspections, tests, or approvals covered by Paragraphs 13.03.C and 13.03.D below;
 2. That costs incurred in connection with tests or inspections conducted pursuant to Paragraph 13.04.B shall be paid as provided in Paragraph 13.04.C; and
 3. As otherwise specifically provided in the Contract Documents.

- C. If Laws or Regulations of any public body having jurisdiction require any Work (or part thereof) specifically to be inspected, tested, or approved by an employee or other representative of such public body, Contractor shall assume full responsibility for arranging and obtaining such inspections, tests, or approvals, pay all costs in connection therewith, and furnish Engineer the required certificates of inspection or approval.
- D. Contractor shall be responsible for arranging and obtaining and shall pay all costs in connection with any inspections, tests, or approvals required for Owner's and Engineer's acceptance of materials or equipment to be incorporated in the Work; or acceptance of materials, mix designs, or equipment submitted for approval prior to Contractor's purchase thereof for incorporation in the Work. Such inspections, tests, or approvals shall be performed by organizations acceptable to Owner and Engineer.
- E. If any Work (or the work of others) that is to be inspected, tested, or approved is covered by Contractor without written concurrence of Engineer, Contractor shall, if requested by Engineer, uncover such Work for observation.
- F. Uncovering Work as provided in Paragraph 13.03.E 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.

13.04 *Uncovering Work*

- A. If any Work is covered contrary to the written request of Engineer, it must, if requested by Engineer, be uncovered for Engineer's observation and replaced at Contractor's expense.
- B. If Engineer considers it necessary or advisable that covered Work be observed by Engineer or inspected or tested by others, Contractor, at Engineer's request, shall uncover, expose, or otherwise make available for observation, inspection, or testing as Engineer may require, that portion of the Work in question, furnishing all necessary labor, material, and equipment.
- C. If it is found that the uncovered Work is defective, Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such uncovering, exposure, observation, inspection, and testing, and of satisfactory replacement or reconstruction (including but not limited to all costs of repair or replacement of work of others); and Owner shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount thereof, Owner may make a Claim therefore as provided in Paragraph 10.05.
- D. If the uncovered Work is not found to be defective, Contractor shall be allowed an increase in the Contract Price or an extension of the Contract Times, or both, directly attributable to such uncovering, exposure, observation, inspection, testing, replacement, and

reconstruction. If the parties are unable to agree as to the amount or extent thereof, Contractor may make a Claim therefore as provided in Paragraph 10.05.

13.05 *Owner May Stop the Work*

- A. If the Work is defective, or Contractor fails to supply sufficient skilled workers or suitable materials or equipment, or fails to 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, until the cause for such order has been eliminated; however, this right of Owner to stop the Work shall not give rise to any duty on the part of Owner to exercise this right for the benefit of Contractor, any Subcontractor, any Supplier, any other individual or entity, or any surety for, or employee or agent of any of them.

13.06 *Correction or Removal of Defective Work*

- A. Promptly after receipt of written notice, Contractor shall correct all defective Work, whether or not fabricated, installed, or completed, or, if the Work has been rejected by Engineer, remove it from the Project and replace it with Work that is not defective. Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or removal (including but not limited to all costs of repair or replacement of work of others).
- B. When correcting defective Work under the terms of this Paragraph 13.06 or Paragraph 13.07, Contractor shall take no action that would void or otherwise impair Owner's special warranty and guarantee, if any, on said Work.

13.07 *Correction Period*

- A. If within one year after the date of Substantial Completion (or such longer period of time as may be prescribed by the terms of any applicable special guarantee required by the Contract Documents) or by any specific provision of the Contract Documents, any Work is found to be defective, or if the repair of any damages to the land or areas made available for Contractor's use by Owner or permitted by Laws and Regulations as contemplated in Paragraph 6.11.A is found to be defective, Contractor shall promptly, without cost to Owner and in accordance with Owner's written instructions:
 1. Repair such defective land or areas; or
 2. Correct such defective Work; or
 3. If the defective Work has been rejected by Owner, remove it from the Project and replace it with Work that is not defective, and

4. Satisfactorily correct or repair or remove and replace any damage to other Work, to the work of others or other land or areas resulting there from.
- B. If Contractor does not promptly comply with the terms of Owner's written instructions, or in an emergency where delay would cause serious risk of loss or damage, Owner may have the defective Work corrected or repaired or may have the rejected Work removed and replaced. All claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or repair or such removal and replacement (including but not limited to all costs of repair or replacement of work of others) will be paid by Contractor.
 - C. In special circumstances where a particular item of equipment is placed in continuous service before Substantial Completion of all the Work, the correction period for that item may start to run from an earlier date if so provided in the Specifications.
 - D. Where defective Work (and damage to other Work resulting there from) has been corrected or removed and replaced under this Paragraph 13.07, the correction period hereunder with respect to such Work will be extended for an additional period of one year after such correction or removal and replacement has been satisfactorily completed.
 - E. Contractor's obligations under this Paragraph 13.07 are in addition to any other obligation or warranty. The provisions of this Paragraph 13.07 shall not be construed as a substitute for, or a waiver of, the provisions of any applicable statute of limitation or repose.

13.08 *Acceptance of Defective Work*

- A. If, instead of requiring correction or removal and replacement of defective Work, Owner (and, prior to Engineer's recommendation of final payment, Engineer) prefers to accept it, Owner may do so. Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) attributable to Owner's evaluation of and determination to accept such defective Work (such costs to be approved by Engineer as to reasonableness) and for the diminished value of the Work to the extent not otherwise paid by Contractor pursuant to this sentence. If any such acceptance occurs prior to Engineer's recommendation of final payment, a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work, and Owner shall be entitled to an appropriate decrease in the Contract Price, reflecting the diminished value of Work so accepted. If the parties are unable to agree as to the amount thereof, Owner may make a Claim therefore as provided in Paragraph 10.05. If the acceptance occurs after such recommendation, an appropriate amount will be paid by Contractor to Owner.

13.09 *Owner May Correct Defective Work*

- A. If Contractor fails within a reasonable time after written notice from Engineer to correct defective Work, or to remove and replace rejected Work as required by Engineer in accordance with Paragraph 13.06.A, or if Contractor fails to perform the Work in accordance with the Contract Documents, or if Contractor fails to comply with any other provision of the Contract Documents, Owner may, after seven days written notice to Contractor, correct, or remedy any such deficiency.
- B. In exercising the rights and remedies under this Paragraph 13.09, Owner shall proceed expeditiously. In connection with such corrective or remedial action, Owner may exclude Contractor from all or part of the Site, take possession of all or part of the Work and suspend Contractor's services related thereto, take possession of Contractor's tools, appliances, construction equipment and machinery at the Site, and incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere. Contractor shall allow Owner, Owner's representatives, agents and employees, Owner's other contractors, and Engineer and Engineer's consultants access to the Site to enable Owner to exercise the rights and remedies under this Paragraph.
- C. All claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) incurred or sustained by Owner in exercising the rights and remedies under this Paragraph 13.09 will be charged against Contractor, and a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work; and Owner shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount of the adjustment, Owner may make a Claim therefore as provided in Paragraph 10.05. Such claims, costs, losses and damages will include but not be limited to all costs of repair, or replacement of work of others destroyed or damaged by correction, removal, or replacement of Contractor's defective Work.
- D. Contractor shall not be allowed an extension of the Contract Times because of any delay in the performance of the Work attributable to the exercise by Owner of Owner's rights and remedies under this Paragraph 13.09.

ARTICLE 14 – PAYMENTS TO CONTRACTOR AND COMPLETION

14.01 *Schedule of Values*

- A. The Schedule of Values established as provided in Paragraph 2.07.A will serve as the basis for progress payments and will be incorporated into a form of Application for Payment acceptable to Engineer. Progress payments on account of Unit Price Work will be based on the number of units completed.

14.02 Progress Payments

A. Applications for Payments:

1. At least 20 days before the date established in the Agreement for each progress payment (but not more often than once a month), Contractor shall submit to Engineer for review an Application for Payment filled out and signed by Contractor covering the Work completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at the Site or at another location agreed to in writing, the Application for Payment shall also be accompanied by a bill of sale, invoice, or other documentation warranting that Owner has received the materials and equipment free and clear of all Liens and evidence that the materials and equipment are covered by appropriate property insurance or other arrangements to protect Owner's interest therein, all of which must be satisfactory to Owner.
2. Beginning with the second Application for Payment, each Application shall include an affidavit of Contractor stating that all previous progress payments received on account of the Work have been applied on account to discharge Contractor's legitimate obligations associated with prior Applications for Payment.
3. The amount of retainage with respect to progress payments will be as stipulated in the Agreement.

B. Review of Applications:

1. Engineer will, within 10 days after receipt of each Application for Payment, either indicate in writing a recommendation of payment and present the Application to Owner or return the Application to Contractor indicating in writing Engineer's reasons for refusing to recommend payment. In the latter case, Contractor may make the necessary corrections and resubmit the Application.
2. Engineer's recommendation of any payment requested in an Application for Payment will constitute a representation by Engineer to Owner, based on Engineer's observations of the executed Work as an experienced and qualified design professional, and on Engineer's review of the Application for Payment and the accompanying data and schedules, that to the best of Engineer's knowledge, information and belief:
 - a. The Work has progressed to the point indicated;
 - b. The quality of the Work is generally in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon Substantial Completion, the results of any subsequent tests

called for in the Contract Documents, a final determination of quantities and classifications for Unit Price Work under Paragraph 9.07, and any other qualifications stated in the recommendation); and

- c. The conditions precedent to Contractor's being entitled to such payment appear to have been fulfilled in so far as it is Engineer's responsibility to observe the Work.
3. By recommending any such payment Engineer will not thereby be deemed to have represented that:
 - a. Inspections made to check the quality or the quantity of the Work as it has been performed have been exhaustive, extended to every aspect of the Work in progress, or involved detailed inspections of the Work beyond the responsibilities specifically assigned to Engineer in the Contract Documents; or
 - b. There may not be other matters or issues between the parties that might entitle Contractor to be paid additionally by Owner or entitle Owner to withhold payment to Contractor.
 4. Neither Engineer's review of Contractor's Work for the purposes of recommending payments nor Engineer's recommendation of any payment, including final payment, will impose responsibility on Engineer:
 - a. To supervise, direct, or control the Work, or
 - b. For the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or
 - c. For Contractor's failure to comply with Laws and Regulations applicable to Contractor's performance of the Work, or
 - d. To make any examination to ascertain how or for what purposes Contractor has used the moneys paid on account of the Contract Price, or
 - e. To determine that title to any of the Work, materials, or equipment has passed to Owner free and clear of any Liens.
 5. Engineer may refuse to recommend the whole or any part of any payment if, in Engineer's opinion, it would be incorrect to make the representations to Owner stated in Paragraph 14.02.B.2. Engineer may also refuse to recommend any such payment or, because of subsequently discovered evidence or the results of subsequent inspections or tests, revise or revoke any such payment recommendation

previously made, to such extent as may be necessary in Engineer's opinion to protect Owner from loss because:

- a. The Work is defective, or completed Work has been damaged, requiring correction or replacement;
- b. The Contract Price has been reduced by Change Orders;
- c. Owner has been required to correct defective Work or complete Work in accordance with Paragraph 13.09; or
- d. Engineer has actual knowledge of the occurrence of any of the events enumerated in Paragraph 15.02.A.

C. Payment Becomes Due:

- 1. Ten days after presentation of the Application for Payment to Owner with Engineer's recommendation, the amount recommended will (subject to the provisions of Paragraph 14.02.D) become due, and when due will be paid by Owner to Contractor.

D. Reduction in Payment:

- 1. Owner may refuse to make payment of the full amount recommended by Engineer because:
 - a. claims have been made against Owner on account of Contractor's performance or furnishing of the Work;
 - b. Liens have been filed in connection with the Work, except where Contractor has delivered a specific bond satisfactory to Owner to secure the satisfaction and discharge of such Liens;
 - c. There are other items entitling Owner to a set-off against the amount recommended; or
 - d. Owner has actual knowledge of the occurrence of any of the events enumerated in Paragraphs 14.02.B.5.a through 14.02.B.5.c or Paragraph 15.02.A.
- 2. If Owner refuses to make payment of the full amount recommended by Engineer, Owner will give Contractor immediate written notice (with a copy to Engineer) stating the reasons for such action and promptly pay Contractor any amount remaining after deduction of the amount so withheld. Owner shall promptly pay

Contractor the amount so withheld, or any adjustment thereto agreed to by Owner and Contractor, when Contractor remedies the reasons for such action.

3. Upon a subsequent determination that Owner's refusal of payment was not justified, the amount wrongfully withheld shall be treated as an amount due as determined by Paragraph 14.02.C.1 and subject to interest as provided in the Agreement.

14.03 *Contractor's Warranty of Title*

- A. 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 Owner no later than the time of payment free and clear of all Liens.

14.04 *Substantial Completion*

- A. When Contractor considers the entire Work ready for its intended use Contractor shall notify Owner and Engineer in writing that the entire Work is substantially complete (except for items specifically listed by Contractor as incomplete) and request that Engineer issue a certificate of Substantial Completion.
- B. Promptly after Contractor's notification, Owner, Contractor, and Engineer shall make an inspection of the Work to determine the status of completion. If Engineer does not consider the Work substantially complete, Engineer will notify Contractor in writing giving the reasons therefore.
- C. If Engineer considers the Work substantially complete, Engineer will deliver to Owner a tentative certificate of Substantial Completion which shall fix the date of Substantial Completion. There shall be attached to the certificate a tentative list of items to be completed or corrected before final payment. Owner shall have seven days after receipt of the tentative certificate during which to make written objection to Engineer as to any provisions of the certificate or attached list. If, after considering such objections, Engineer concludes that the Work is not substantially complete, Engineer will, within 14 days after submission of the tentative certificate to Owner, notify Contractor in writing, stating the reasons therefore. If, after consideration of Owner's objections, Engineer considers the Work substantially complete, Engineer will, within said 14 days, execute and deliver to Owner and Contractor a definitive certificate of Substantial Completion (with a revised tentative list of items to be completed or corrected) reflecting such changes from the tentative certificate as Engineer believes justified after consideration of any objections from Owner.
- D. At the time of delivery of the tentative certificate of Substantial Completion, Engineer will deliver to Owner and Contractor a written recommendation as to division of responsibilities pending final payment between Owner and Contractor with respect to security, operation, safety, and protection of the Work, maintenance, heat, utilities, insurance, and warranties and guarantees. Unless Owner and Contractor agree otherwise in writing and so inform

Engineer in writing prior to Engineer's issuing the definitive certificate of Substantial Completion, Engineer's aforesaid recommendation will be binding on Owner and Contractor until final payment.

- E. Owner shall have the right to exclude Contractor from the Site after the date of Substantial Completion subject to allowing Contractor reasonable access to remove its property and complete or correct items on the tentative list.

14.05 *Partial Utilization*

- A. Prior to Substantial Completion of all the Work, Owner may use or occupy any substantially completed part of the Work which has specifically been identified in the Contract Documents, or which Owner, Engineer, and Contractor agree constitutes a separately functioning and usable part of the Work that can be used by Owner for its intended purpose without significant interference with Contractor's performance of the remainder of the Work, subject to the following conditions:
 1. Owner at any time may request Contractor in writing to permit Owner to use or occupy any such part of the Work which Owner believes to be ready for its intended use and substantially complete. If and when Contractor agrees that such part of the Work is substantially complete, Contractor, Owner, and Engineer will follow the procedures of Paragraph 14.04.A through D for that part of the Work.
 2. Contractor at any time may notify Owner and Engineer in writing that Contractor considers any such part of the Work ready for its intended use and substantially complete and request Engineer to issue a certificate of Substantial Completion for that part of the Work.
 3. Within a reasonable time after either such request, Owner, Contractor, and Engineer shall make an inspection of that part of the Work to determine its status of completion. If Engineer does not consider that part of the Work to be substantially complete, Engineer will notify Owner and Contractor in writing giving the reasons therefore. If Engineer considers that part of the Work to be substantially complete, the provisions of Paragraph 14.04 will apply with respect to certification of Substantial Completion of that part of the Work and the division of responsibility in respect thereof and access thereto.
 4. No use or occupancy or separate operation of part of the Work may occur prior to compliance with the requirements of Paragraph 5.10 regarding property insurance.

14.06 *Final Inspection*

- A. Upon written notice from Contractor that the entire Work or an agreed portion thereof is complete, Engineer will promptly make a final inspection with Owner and Contractor and will notify Contractor in writing of all particulars in 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.

14.07 *Final Payment*

A. Application for Payment:

1. After Contractor has, in the opinion of Engineer, satisfactorily completed all corrections identified during the final inspection and has delivered, in accordance with the Contract Documents, all maintenance and operating instructions, schedules, guarantees, bonds, certificates or other evidence of insurance, certificates of inspection, marked up record documents (as provided in Paragraph 6.12), and other documents, Contractor may make application for final payment following the procedure for progress payments.
2. The final Application for Payment shall be accompanied (except as previously delivered) by:
 - a. All documentation called for in the Contract Documents, including but not limited to the evidence of insurance required by Paragraph 5.04.B.6;
 - b. Consent of the surety, if any, to final payment;
 - c. A list of all Claims against Owner that Contractor believes are unsettled; and
 - d. Complete and legally effective releases or waivers (satisfactory to Owner) of all Lien rights arising out of or Liens filed in connection with the Work.
3. In lieu of the releases or waivers of Liens specified in Paragraph 14.07.A.2 and as approved by Owner, Contractor may furnish receipts or releases in full and an affidavit of Contractor that: (i) the releases and receipts include all labor, services, material, and equipment for which a Lien could be filed; and (ii) all payrolls, material and equipment bills, and other indebtedness connected with the Work for which Owner might in any way be responsible, or which might in any way result in liens or other burdens on Owner's property, have been paid or otherwise satisfied. If any Subcontractor or Supplier fails to furnish such a release or receipt in full, Contractor may furnish a bond or other collateral satisfactory to Owner to indemnify Owner against any Lien.

B. Engineer's Review of Application and Acceptance:

1. If, on the basis of Engineer's observation of the Work during construction and final inspection, and Engineer's review of the final Application for Payment and accompanying documentation as required by the Contract Documents, Engineer is satisfied that the Work has been completed and Contractor's other obligations under

the Contract Documents have been fulfilled, Engineer will, within ten days after receipt of the final Application for Payment, indicate in writing Engineer's recommendation of payment and present the Application for Payment to Owner for payment. At the same time Engineer will also give written notice to Owner and Contractor that the Work is acceptable subject to the provisions of Paragraph 14.09. Otherwise, Engineer will return the Application for Payment to Contractor, indicating in writing the reasons for refusing to recommend final payment, in which case Contractor shall make the necessary corrections and resubmit the Application for Payment.

C. Payment Becomes Due:

1. Thirty days after the presentation to Owner of the Application for Payment and accompanying documentation, the amount recommended by Engineer, less any sum Owner is entitled to set off against Engineer's recommendation, including but not limited to liquidated damages, will become due and will be paid by Owner to Contractor.

14.08 *Final Completion Delayed*

- A. If, through no fault of Contractor, final completion of the Work is significantly delayed, and if Engineer so confirms, Owner shall, upon receipt of Contractor's final Application for Payment (for Work fully completed and accepted) and recommendation of Engineer, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed and accepted. If the remaining balance to be held by Owner for Work not fully completed or corrected is less than the retainage stipulated in the Agreement, and if bonds have been furnished as required in Paragraph 5.01, the written consent of the surety to the payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by Contractor to Engineer with the Application for such payment. Such payment shall be made under the terms and conditions governing final payment, except that it shall not constitute a waiver of Claims.

14.09 *Waiver of Claims*

- A. The making and acceptance of final payment will constitute:
1. A waiver of all Claims by Owner against Contractor, except Claims arising from unsettled Liens, from defective Work appearing after final inspection pursuant to Paragraph 14.06, from failure to comply with the Contract Documents or the terms of any special guarantees specified therein, or from Contractor's continuing obligations under the Contract Documents; and
 2. A waiver of all Claims by Contractor against Owner other than those previously made in accordance with the requirements herein and expressly acknowledged by Owner in writing as still unsettled.

ARTICLE 15 – SUSPENSION OF WORK AND TERMINATION

15.01 *Owner May Suspend Work*

- A. At any time and without cause, Owner may suspend the Work or any portion thereof for a period of not more than 90 consecutive days by notice in writing to Contractor and Engineer which will fix the date on which Work will be resumed. Contractor shall resume the Work on the date so fixed. Contractor shall be granted an adjustment in the Contract Price or an extension of the Contract Times, or both, directly attributable to any such suspension if Contractor makes a Claim therefore as provided in Paragraph 10.05.

15.02 *Owner May Terminate for Cause*

- A. The occurrence of any one or more of the following events will justify termination for cause:
1. Contractor's persistent failure to perform the Work in accordance with the Contract Documents (including, but not limited to, failure to supply sufficient skilled workers or suitable materials or equipment or failure to adhere to the Progress Schedule established under Paragraph 2.07 as adjusted from time to time pursuant to Paragraph 6.04);
 2. Contractor's disregard of Laws or Regulations of any public body having jurisdiction;
 3. Contractor's repeated disregard of the authority of Engineer; or
 4. Contractor's violation in any substantial way of any provisions of the Contract Documents.
- B. If one or more of the events identified in Paragraph 15.02.A occur, Owner may, after giving Contractor (and surety) seven days written notice of its intent to terminate the services of Contractor:
1. Exclude Contractor from the Site, and take possession of the Work and of all Contractor's tools, appliances, construction equipment, and machinery at the Site, and use the same to the full extent they could be used by Contractor (without liability to Contractor for trespass or conversion);
 2. 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
 3. Complete the Work as Owner may deem expedient.

- C. If Owner proceeds as provided in Paragraph 15.02.B, Contractor shall not be entitled to receive any further payment until the Work is completed. If the unpaid balance of the Contract Price exceeds all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Owner arising out of or relating to completing the Work, such excess will be paid to Contractor. If such claims, costs, losses, and damages exceed such unpaid balance, Contractor shall pay the difference to Owner. Such claims, costs, losses, and damages incurred by Owner will be reviewed by Engineer as to their reasonableness and, when so approved by Engineer, incorporated in a Change Order. When exercising any rights or remedies under this Paragraph, Owner shall not be required to obtain the lowest price for the Work performed.
- D. Notwithstanding Paragraphs 15.02.B and 15.02.C, Contractor's services will not be terminated if Contractor begins within seven days of receipt of notice of intent to terminate to correct its failure to perform and proceeds diligently to cure such failure within no more than 30 days of receipt of said notice.
- E. Where Contractor's services have been so terminated by Owner, the termination will not affect any rights or remedies of Owner against Contractor then existing or which may thereafter accrue. Any retention or payment of moneys due Contractor by Owner will not release Contractor from liability.
- F. If and to the extent that Contractor has provided a performance bond under the provisions of Paragraph 5.01.A, the termination procedures of that bond shall supersede the provisions of Paragraphs 15.02.B and 15.02.C.

15.03 *Owner May Terminate For Convenience*

- A. Upon seven days written notice to Contractor and Engineer, Owner may, without cause and without prejudice to any other right or remedy of Owner, terminate the Contract. In such case, Contractor shall be paid for (without duplication of any items):
 - 1. Completed and acceptable Work executed in accordance with the Contract Documents prior to the effective date of termination, including fair and reasonable sums for overhead and profit on such Work;
 - 2. Expenses sustained prior to the effective date of termination in performing services and furnishing labor, materials, or equipment as required by the Contract Documents in connection with uncompleted Work, plus fair and reasonable sums for overhead and profit on such expenses;
 - 3. All claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) incurred in settlement of terminated contracts with Subcontractors, Suppliers, and others; and

4. Reasonable expenses directly attributable to termination.
- B. Contractor shall not be paid on account of loss of anticipated profits or revenue or other economic loss arising out of or resulting from such termination.

15.04 *Contractor May Stop Work or Terminate*

- A. If, through no act or fault of Contractor, (i) the Work is suspended for more than 90 consecutive days by Owner or under an order of court or other public authority, or (ii) Engineer fails to act on any Application for Payment within 30 days after it is submitted, or (iii) Owner fails for 30 days to pay Contractor any sum finally determined to be due, then Contractor may, upon seven days written notice to Owner and Engineer, and provided Owner or Engineer do not remedy such suspension or failure within that time, terminate the Contract and recover from Owner payment on the same terms as provided in Paragraph 15.03.
- B. In lieu of terminating the Contract and without prejudice to any other right or remedy, if Engineer has failed to act on an Application for Payment within 30 days after it is submitted, or Owner has failed for 30 days to pay Contractor any sum finally determined to be due, Contractor may, seven days after written notice to Owner and Engineer, stop the Work until payment is made of all such amounts due Contractor, including interest thereon. The provisions of this Paragraph 15.04 are not intended to preclude Contractor from making a Claim under Paragraph 10.05 for an adjustment in Contract Price or Contract Times or otherwise for expenses or damage directly attributable to Contractor's stopping the Work as permitted by this Paragraph.

ARTICLE 16 – DISPUTE RESOLUTION

16.01 *Methods and Procedures*

- A. Either Owner or Contractor may request mediation of any Claim submitted to Engineer for a decision under Paragraph 10.05 before such decision becomes final and binding. The mediation will be governed by the Construction Industry Mediation Rules of the American Arbitration Association in effect as of the Effective Date of the Agreement. The request for mediation shall be submitted in writing to the American Arbitration Association and the other party to the Contract. Timely submission of the request shall stay the effect of Paragraph 10.05.E.
- B. Owner and Contractor shall participate in the mediation process in good faith. The process shall be concluded within 60 days of filing of the request. The date of termination of the mediation shall be determined by application of the mediation rules referenced above.
- C. If the Claim is not resolved by mediation, Engineer's action under Paragraph 10.05.C or a denial pursuant to Paragraphs 10.05.C.3 or 10.05.D shall become final and binding 30 days after termination of the mediation unless, within that time period, Owner or Contractor:

1. Elects in writing to invoke any dispute resolution process provided for in the Supplementary Conditions; or
2. Agrees with the other party to submit the Claim to another dispute resolution process; or
3. Gives written notice to the other party of the intent to submit the Claim to a court of competent jurisdiction.

ARTICLE 17 – MISCELLANEOUS

17.01 *Giving Notice*

- A. Whenever any provision of the Contract Documents requires the giving of written notice, it will be deemed to have been validly given if:
 1. Delivered in person to the individual or to a member of the firm or to an officer of the corporation for whom it is intended; or
 2. Delivered at or sent by registered or certified mail, postage prepaid, to the last business address known to the giver of the notice.

17.02 *Computation of Times*

- A. When any period of 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 on a day made a legal holiday by the law of the applicable jurisdiction, such day will be omitted from the computation.

17.03 *Cumulative Remedies*

- A. The duties and obligations imposed by these General Conditions and the rights and remedies available hereunder to the parties hereto are in addition to, and are not to be construed in any way as a limitation of, any rights and remedies available to any or all of them which are otherwise imposed or available by Laws or Regulations, by special warranty or guarantee, or by other provisions of the Contract Documents. The provisions of this Paragraph will be as effective as if repeated specifically in the Contract Documents in connection with each particular duty, obligation, right, and remedy to which they apply.

17.04 *Survival of Obligations*

- A. All representations, indemnifications, warranties, and guarantees made in, required by, or given in accordance with the Contract Documents, as well as all continuing obligations indicated in the Contract Documents, will survive final payment, completion, and

acceptance of the Work or termination or completion of the Contract or termination of the services of Contractor.

17.05 *Controlling Law*

- A. This Contract is to be governed by the law of the state in which the Project is located.

17.06 *Headings*

- A. Article and paragraph headings are inserted for convenience only and do not constitute parts of these General Conditions.

END OF SECTION

Attachment: HH121_LS7 Rehabilitation_Bid Set Specs (1716 : Lift Station #7 Rehabilitation 17WW07)

**SECTION 00 70 50
RELEASE OF ALL CLAIMS**

STATE OF _____

COUNTY OF _____

CITY OF _____

KNOW ALL MEN BY THESE PRESENTS, that the sum of: _____

Dollars (\$ _____) set out in the accompanying Estimate Statement No. _____

Final, the receipt of which is hereby acknowledged, is accepted as full and complete payment for all work done, materials furnished, and damages or claims arising under the City of Holly Hill Contract entitled _____.

WITNESSES:

Contractor

Title: _____

(SEAL)

Taken, sworn, and subscribed to before me this _____ day of _____, 20____.

Notary Public Signature

Notary Public (Print or Type)

(SEAL)

My commission Expires: _____

END OF SECTION

SECTION 00 80 00
SUPPLEMENTARY CONDITIONS

These Supplementary Conditions amend or supplement the Standard General Conditions of the Construction Contract (NSPE/ACEC Document No. C-700, 2007 edition) and other provisions of the Contract Documents as indicated below. All provisions which are not so amended or supplemented remain in full force and effect.

SC-1.01A.44 Delete the definition of *Substantial Completion* and insert the following in its place:

44. *Substantial Completion* - The Work (or a specified part thereof) has progressed to the point where, in the opinion of the ENGINEER as evidenced by ENGINEER's definitive certificate of Substantial Completion, it is sufficiently complete, in accordance with the Contract Documents and that all conditions precedent to Substantial Completion have been met in accordance with the Contract Documents, so that the Work (or specified part) can be utilized for the purposes for which it is intended. The terms "substantially complete" and "substantially completed" as applied to any Work refer to Substantial Completion thereof.

Add the following definitions at the end of Article 1 - definitions of the Standard General Conditions of the Constitutions Contracts:

- SC-1.01.A.52 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 the OWNER.
- SC-1.01.A.53 Correction Period - The time during which the CONTRACTOR must correct defective Work or remove defective Work from the site and replace it with non-defective Work, all at no cost to the OWNER, pursuant to paragraph 13.07 of the General Conditions, as supplemented.
- SC-1.01A.54 Final Completion - The date upon which final payment is due to be paid by OWNER to CONTRACTOR.
- SC-1.01A.55 Excusable Delay - Any delay beyond the control and without the fault or 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, acts of interveners, acts of the government, fires, floods, epidemics, quarantine restrictions, freight embargoes, and hurricanes, tornadoes, or new sink holes. Labor disputes and above average rainfall shall give rise only to Inexcusable Delays.
- SC-1.01A.56 Float or Slack Time - The time available in the progress schedule during which an unexpected activity can be completed without delaying the Substantial Completion of the Work.

- SC-1.01A.57 Initiation of Operation - The date when the OWNER actually begins to use the entire Work for the purposes for which it was planned, designed and built, thus commences the Correction Period. The OWNER shall not be deemed to have accepted the Work until Initiation of Operation.
- SC-1.01A.58 Modification - (a) A written amendment of the Contract Documents signed by both parties, (b) a Change Order, or (c) a Field Order. A modification may be issued after the Effective Date of the Agreement.
- SC-1.01A.59 Inexcusable Delay - Any delay caused either (i) 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, (ii) by weather conditions (other than hurricanes and tornadoes) or (iii) labor disputes.
- SC-1.01A.60 Non-prejudicial Delay - Any delay impacting a portion of the Work within the available total Float or Slack Time, as that term is used in Section 01310: Progress Schedules, and not necessarily preventing completion of the Work within the Contract Time.
- SC-1.01A.61 Prejudicial Delay - Any Excusable or Compensable Delay impacting the Work and exceeding the total Float Time available in the progress schedule, thus preventing completion of the Work within the Contract Time unless the Work is accelerated.
- SC-1.01A.62 Preoperational Testing (Check-Out-Testing) - All field inspections, installation checks, water tests, performance tests, and necessary corrections required of the CONTRACTOR as a condition or conditions to achieving Substantial Completion to demonstrate to the OWNER and ENGINEER that individual components of the Work have been properly constructed and operate in accordance with the Contract Documents for their intended purposes.
- SC-1.01A.63 Start-Up Testing (Demonstration Testing) - A predefined trial period required as a condition to Initiation of Operation during which CONTRACTOR is to operate the entire Work (or any part thereof agreed to by the OWNER) under actual and simulated operating conditions for the purpose (i) of making such minor adjustments and changes to the Work as may be necessary for the Work to comply with the Contract Documents and (ii) of complying with the final test requirements in the Contract Documents."
- SC-2.02 Modify paragraph 2.02A of the General Conditions:
- A. After the Agreement has been executed, the Engineer will furnish the CONTRACTOR five (5) complete sets of Contract Documents.
- SC-2.03 Delete paragraph 2.03 of the General Conditions in its entirety and insert the following in its place.

- A. A “Notice to Proceed” may be given to the Contractor at any time after the Effective date of the Agreement. The Contract Time will commence to run on the day indicated in the Notice to Proceed. In no event will the Contract Time commence to run later than the sixtieth (60th) day after the Effective Date of the Agreement.

SC-2.05 Add the following immediately after subparagraph 2.05A.3 of the Standard General Conditions:

- 4. The submittals required in subparagraphs 1, 2 and 3 shall be as specified in Section 01310, 01340 and 01370, respectively.

SC-3.01 Add the following immediately after paragraph 3.01C of the Standard General Conditions:

- D. When measurements are affected by conditions already established or where items are to be fitted into construction conditions, it shall be the CONTRACTOR's responsibility to verify all such dimensions at the site and the actual job dimensions shall take precedence over scale and figure dimensions on the Drawings.
- E. The CONTRACTOR shall carefully study and compare all Drawings, Specifications and other instructions; shall test all figures on the Drawings before laying out the Work; shall notify the ENGINEER of all errors, inconsistencies, or omissions which he may discover; and obtain specific instructions before proceeding with the Work. The CONTRACTOR shall not take advantage of any apparent error or omissions which may be found in the Drawings or Specifications, and the ENGINEER shall be entitled to make such corrections therein and interpretations thereof as may be deemed necessary for the fulfillment of their intent. The CONTRACTOR shall be responsible for all errors in construction which could have been avoided by such examination and notification and shall correct, at its own expense, all Work improperly constructed through failure to notify the ENGINEER and request specific instructions.

SC3.03 Add the following immediately after paragraph 3.03B of the Standard General Conditions:

C. Order of Precedence of Contract Documents:

1. In resolving differences resulting from conflicts, errors or discrepancies in any of the following Contract Documents, the order of precedence shall be as follows:

- a. Permits
- b. Change Orders
- c. Contract Agreement
- d. Specification
- e. Drawings

2. Within the Specifications, the order of precedence is as follows:

- a. Addenda
- b. Notice to Bidders
- c. Instructions to Bidders
- d. Supplementary General Conditions
- e. General Conditions
- f. Division 1, General Requirements
- g. Technical Specifications
- h. Referenced Standard Specifications

3. With reference to the Drawings, the order of precedence is as follows:

- a. Figures govern over Scaled Dimensions
- b. Detail Drawings govern over General Drawings
- c. Change Order Drawings govern over Contract Drawings
- d. Contract Drawings Govern over Standard or Shop Drawings

SC-4.03 Change the first sentence "Contractor shall promptly". Add "The CONTRACTOR shall, within three (3) days, after becoming aware thereof..."

SC-4.06 Add a new paragraph immediately after paragraph 4.06 I. of the Standard General Conditions which is to read as following:

- J. No claim of the CONTRACTOR under paragraphs 4.02, 4.04 and 4.06 shall be allowed unless, (1) the CONTRACTOR has given the notice required in sub-paragraph 4.06D, and (2) within thirty (30) days (but before final payment) after the CONTRACTOR has given written notice, the CONTRACTOR submits to the OWNER a detailed claim setting forth the CONTRACTOR's right to an increase in the Contract Price or extension of

the Contract Time as provided in Articles 11 and 12 of the Standard General Conditions.

SC-5.01 Add a new paragraph immediately after paragraph 5.01 B. Of the Standard General Conditions which is to read as follows:

1. The following requirements shall be met by all surety companies furnishing bid, performance, payment or other type of Bonds:
 - a. The Surety shall be rated as "A" or better as to General Policyholders Rating and Class X or better as to Financial Category by Best's Key Rating Guide, published by Alfred M. Best Company, Inc., 75 Fulton Street, New York, New York, 10038.

All Surety Companies are subject to approval and may be rejected by the OWNER without cause.

2. Limitations: Bonding limits or bonding capacity refers to the limit or amount of Bond acceptable on any one (1) risk.
 - a. The bonding limit of the Surety shall not exceed ten percent (10%) of the policyholder surplus (capital and surplus) as listed by the aforementioned Best's Key Rating Guide, on any one risk (penalty or amount of any one bond).
3. Requirements:
 - a. Policyholders surplus is required to be five (5) times the amount of any one bond.
 - b. The Agent countersigning the bond shall be resident in the County where the Project is located and/or other counties that are acceptable to the OWNER.

SC-5.01 Add a new paragraph immediately after paragraph 5.01C of the Standard General Conditions which read as follows:

- D. Contractor shall pay Owner all losses, damages, expenses, costs, and attorney's fees, including but not limited to any appellate proceedings, which the Owner sustains because of default by the Contractor under the contract.

SC-5.04A In the case of a conflict between paragraph 5.04A of Section 00700 and one or more of the provisions of Section 00800A, the provisions of 00800A shall prevail.

SC-5.05A Delete paragraph 5.05A of the Standard General Conditions in its entirety.

SC-5.06A Delete paragraph 5.06 of the Standard General Conditions in its entirety and insert the following in its place:

- A. CONTRACTOR shall purchase and maintain property insurance upon the Work at the site in the amount of the full replacement cost thereof (subject to such deductible amounts as may be provided in these Supplementary Conditions or required by Laws and Regulations). This insurance shall:
1. Include the interests of OWNER, CONTRACTOR, Subcontractors, ENGINEER, ENGINEER's Consultants and any other persons or entities identified in the Supplementary Conditions, each of whom is deemed to have an insurable interest and shall be listed as an insured or additional insured;
 2. Be written on a Builder's Risk "all-risk" or open peril or special causes of loss policy form that shall at least include insurance for physical loss and damage to the Work, temporary buildings, false work and Work in transit and shall insure against at least the following perils; fire, lightning, extended coverage, theft, vandalism and malicious mischief, earthquake, hurricanes, flood, tornadoes, collapse, debris removal, demolition occasioned by enforcement of Laws and Regulations, water damage, and such other perils as may be specifically required by the Supplementary Conditions.
 3. Include expenses incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers and architects);
 4. Cover materials and equipment in transit for incorporation in the Work or stored at the site or at another location provided that such materials and equipment are to be included in an Application for Payment.
 5. Allow for partial utilization of the Work by Owner;
 6. Include testing and startup; and
 7. Be maintained in effect until the later of the two; Initiation of Operation or Final Completion, unless otherwise agreed to in writing by OWNER, CONTRACTOR and ENGINEER with thirty (30) days written notice to each other additional insured to whom a certificate of insurance has been issued.

The policies of insurance required to be purchased and maintained by CONTRACTOR in accordance with this paragraph 5.06 shall comply with the requirements of Section 00800A.

- SC-5.06B Delete paragraph 5.06B of the Standard General Conditions in its entirety.
- SC-5.06D Delete paragraph 5.06D of the Standard General Conditions in its entirety.
- SC-5.06E Delete paragraph 5.06E of the Standard General Conditions in its entirety.
- SC-5.07 Delete paragraph 5.07 of the Standard General Conditions in its entirety.
- SC-5.10 Delete paragraph 5.10 of the Standard General Conditions in its entirety and insert the following in its place:
- A. The CONTRACTOR shall maintain all insurance as required in Paragraph 5.06A for the Work and allow OWNER to occupy or use a portion or portions of the Work prior to Substantial Completion. CONTRACTOR shall make appropriate provisions with insurers providing the proper endorsements, if required. The property insurance shall not be canceled or permitted to lapse on account of any such partial use or occupancy.
- SC-6.01 Add the following sub-paragraphs immediately after paragraph 6.01B of the Standard General Conditions which are to read as follow:
- C. The Owner reserves the right to review and approve the resident superintendent.
- SC-6.02 Add the following sub-paragraphs immediately after paragraph 6.02B of the Standard General Conditions which are to read as follow:
- C. Maintenance work may be performed during hours other than regular working hours. Regular working hours are defined as daylight hours between one-half hours after sunrise to one-half hour before sunset but not more than eight (8) hours per day at 5 days per week or ten (10) hours per day at 4 days per week totaling forty (40) hours per week during weekdays. Requests to Work during other regular working hours must be submitted to the OWNER at least seventy-two (72) hours in advance of the period proposed for such irregular working hours and shall set forth the proposed schedule for such hours to give the OWNER ample time to arrange for its personnel to be at the site of the Work.
 - D. The OWNER will pay for charges of ENGINEER and construction observation performed during regular working hours. The CONTRACTOR shall pay for additional engineering and construction observations charges required during irregular hours which may be authorized under the provisions of paragraph SC-6.02C. The rate paid to the OWNER by the CONTRACTOR for additional engineering and construction observation changes shall be in accordance with the existing Contract between the OWNER and ENGINEER.

- E. The CONTRACTOR shall also pay for the costs of additional engineering charges and construction observation required during the correction of defective Work. Such additional costs incurred during irregular working hours and during the correction of defective Work, shall be a subsidiary obligation of the CONTRACTOR and no extra payment shall be made by the OWNER on account of such Work.

SC-6.06 Delete paragraphs 6.06A and 6.06B of the Standard General Conditions and insert the following in its place:

- A. The CONTRACTOR shall not employ any Subcontractor, Supplier or other person or organization (including those who are to furnish the principal items of materials or equipment), whether initially or as a substitute, against whom OWNER may have reasonable objection and shall not be required to employ as a Subcontractor, Supplier or any person or organization against whom the CONTRACTOR has reasonable objection. A Subcontractor, Supplier or other person or organization identified in the CONTRACTOR's Bid and not objected to in writing by OWNER prior to the execution of the Agreement will be deemed acceptable to OWNER. All other Subcontractors shall be deemed to have been accepted if the OWNER delivers no written objection thereto within forty-five (45) days after CONTRACTOR's written identification of such Subcontractors.
- B. However, if the OWNER has reasonable objection to any Subcontractor identified in the Bid or subsequently, the CONTRACTOR shall submit an acceptable substitute without entitlement to any change in Contract Price. If the OWNER demands the substitution of a Subcontractor at any time without having reasonable objection to such Subcontractor, the CONTRACTOR shall comply and shall be entitled to change in Contract Price (by appropriate Change Order or Written Amendment) for the difference in cost occasioned by such substitution. After acceptance by the OWNER, the CONTRACTOR shall make no substitution without written approval of the OWNER, which may be granted or withheld at OWNER's sole discretion. No acceptance by the OWNER of any such Subcontractor, Supplier or other person or organization shall constitute a waiver of any right of the OWNER to reject defective work.

SC-6.08 Add the following to the end of paragraph 6.08 in the Standard General Conditions:

- B. "The OWNER, prior to the advertisement of the Project, has applied for or has secured permits and/or licenses for the Project as described in "Location, Scope and Special Requirements."

SC-6.11 Add new sub-paragraphs immediately after paragraph 6.11A.3 of the Standard General Conditions which are to read as follows:

- A. Use of OWNER's property by the CONTRACTOR for storage of materials and equipment will be negotiated.
- B. Use of the OWNER's existing washrooms, lavatories, sanitary facilities or plumbing fixtures by the CONTRACTOR or any of its employees or Subcontractors will not be permitted.

SC-6.13 Add the following at the end of Paragraph A:

The Engineer is not responsible for the safety of any person on the jobsite other than the Engineer's own employees. The Contractor is responsible for construction means, methods, sequences, testing, techniques and procedures necessary for performing, superintending or coordinating all portions of the work in accordance with the contract documents and any health or safety precautions required by the contract documents and/or any regulatory agencies. The Engineer has no authority to exercise any control over any construction contractor or other entity or their employees in connection with their work or any health or safety precautions. The Engineer does not have the authority to stop the work of any construction contractor. The Owner agrees that the Contractor is solely responsible for jobsite safety, and warrants that this intent shall be made evident in the Owner's agreement with the Contractor. The Owner agrees that the Engineer shall be entitled to indemnification from the Contractor for any loss incurred by the Engineer arising out of any claim brought by any person or personal injuries sustained on the jobsite and warrants that this intent shall be made evident in the Owner's agreement with the Contractor. The Engineer shall be made an additional insured under the Contractor's general liability insurance policy for personal injuries to any person sustained on the jobsite.

SC-6.13 The CONTRACTOR's obligations under paragraph 6.13 of the Standard General Conditions shall continue after the date of Substantial Completion until the Initiation of Operation.

Add the following paragraph after paragraph 6.13F of the Standard General Conditions:

- G. "The CONTRACTOR shall be completely responsible for any tanks, wet wells or similar structures that may become buoyant during the construction and modification operations due to the ground water or floods and before the structure is put into operation. If there is any possibility of buoyancy of a structure, the CONTRACTOR shall take the necessary steps to prevent its buoyancy either by increasing the structures weight, by filling it with approved material or other acceptable methods. The proposed final structures have been designed against buoyancy; however, during various construction stages, methods employed by the CONTRACTOR and other conditions which may affect the buoyancy, the CONTRACTOR shall take the necessary precautions against buoyancy. Damage to any structures due to floating or

flooding shall be repaired or the structures replaced at the CONTRACTOR's expense."

SC-6.17 Add the following paragraph after 6.17D.3 in the Standard General Conditions:

4. Shop Drawings and other submittal data shall be reviewed by the ENGINEER for each original submittal and first resubmittal; thereafter, the CONTRACTOR shall reimburse OWNER for services rendered by ENGINEER for review time of subsequent resubmittals.

SC-6.19 Add the following after paragraph 6.19C.

- D. Contractor warrants that (1) the supplies to be provided to the City pursuant to this Agreement are fit and sufficient for the purpose intended; (2) the supplies are merchantable, of good quality, and free from defects, whether patent or latent, in material or workmanship, and (3) the supplies sold to the City pursuant to this Agreement conform to the standards required by this Contract.

The Contractor further warrants that the Contractor has title to the supplies provided, in that the supplies are free and clear of all liens encumbrances, and other security interests. All warranties made in this Agreement, together with service warranties and guarantees, shall run to the City and its successors and assigns.

- E. Additional Warranties – Contractor further expressly warrants the manufacturer must provide a one (1) year Warranty on equipment. This shall cover 100% of all component failures due to defects in workmanship or repeated use. Routine maintenance is not included. Warranty claims shall be handled by manufacturer or distributor. This is a minimum acceptable warranty. Warranty will be considered in bid award.

SC-6.20A In the event of a conflict between this paragraph and other provisions of the Contract Documents, this paragraph shall control.

SC-6.20B Delete paragraph 6.20B of the Standard General Conditions in its entirety and insert the following in its place:

- B. The Contractor agrees not to bring any claim, suite, action or other legal proceeding against the engineer and its consultants that may arise out of or in connection with the Work or this agreement. The Engineer and its consultants are intended third-party beneficiaries of this covenant not to sue, and are entitled to enforce this covenant in law or in equity.

SC-7.02 Delete paragraph 7.02 of the Standard General Conditions in its entirety and insert the following in its place:

7.02 A. The parties expressly acknowledge that the Work to be done contractors.

1. The CONTRACTOR shall cooperate with all other contractors who may be performing Work on behalf of the OWNER in the vicinity of the Work to be done under this contract, and he shall conduct his operation as to interfere to the least possible extent with the Work of such contractor.
2. The CONTRACTOR shall promptly make good, at its own expense, any injury or damage that may be caused by it to other contractors, employees or subcontractors or suppliers thereof.
3. Any difference or conflict which may arise between the CONTRACTOR and other contractors in regard to their respective Work shall be adjusted and determined by the OWNER.
4. If the Work is delayed because of any acts of omissions of any other contractor, the CONTRACTOR shall have no claim against the OWNER on that account.

SC-8.06 Delete paragraph 8.06 of the Standard General Conditions in its entirety.

SC-9.08 Delete paragraphs 9.08A-C in their entirety and insert the following:

- A. ENGINEER will be the initial interpreter of the requirements of the Contract Documents and judge of the acceptability of the Work there under. Claims, disputes and other matters relating to requirements of the Contract Documents pertaining to the performance and furnishing of the Work and Claims under Articles 11 and 12 in respect of changes in the Contract Price or Contract Times will be referred initially to ENGINEER in writing with a request for a formal decision in accordance with this paragraph. Written notice of each such claim, dispute or other matter will be delivered by the claimant to ENGINEER and the other party to the Agreement promptly (but in no event later than thirty (30) days) after the start of the occurrence or event giving rise thereto, and written supporting data will be submitted to ENGINEER and the other party within sixty (60) days after the start of such occurrence or event unless ENGINEER allows an additional period of time for the submission of additional or more accurate data in support of such claim, dispute or other matter. The opposing party shall submit any response to ENGINEER and the claimant within thirty (30) days after receipt of the claimant's last submittal (unless ENGINEER allows additional time). ENGINEER will render a formal decision in writing within thirty (30) days after receipt of the opposing party's submittal, if any, in accordance with this paragraph. ENGINEER's written decision on such claim, dispute or other matter will be final and binding upon OWNER and CONTRACTOR unless a written notice of intention to appeal from ENGINEER's written decision is delivered by OWNER or CONTRACTOR to the other and to ENGINEER

within thirty (30) days after the date of such decision and a formal proceeding is instituted by the appealing party in a forum of competent jurisdiction to exercise such rights or remedies as the appealing party may have with respect to such claim, dispute or other matter in accordance with applicable Laws and Regulations within sixty (60) days of the date of such decision, unless otherwise agreed in writing by OWNER and CONTRACTOR.

- SC-9.08 Re-letter paragraph 9.08D as 9.08B.
- SC-9.08 Add the following sentences to the end of paragraph 9.08B of the Standard General Conditions:
- "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 the 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 upon the OWNER and 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."
- SC-9.09 Delete paragraph 9.09 of the Standard General Conditions in its entirety.
- SC-10.01 Delete paragraph 10.01 A of the Standard General Conditions in its entirety and insert the following in its place:
- A. Without invalidating the Agreement, and without notice to any Surety, OWNER may, at any time or from time to time, order additions, deletions or revisions in the Work; these will be authorized by Change Orders. The CONTRACTOR shall not proceed with any Change Order until the OWNER and Engineer have signed and delivered to the CONTRACTOR the written Change Order. Upon receipt of a Change Order, CONTRACTOR shall proceed with the Work involved. All such Work shall be executed under the applicable conditions of the Contract Documents. If any Change Order causes an increase or decrease in the Contract Price or an extension or shortening of the Contract Time, an equitable adjustment will be made as provided in Article 11 or Article 12 on the basis of a claim made by either party.
- SC-12.02 Delete paragraphs 12.02A and 12.02B of the Standard General Conditions in its entirety and insert the following in its place:
- A. The Contract Time may be changed only by a Change Order or a Written Amendment. Any claim for an extension or shortening in the Contract Time shall be based on written notice delivered to the OWNER and ENGINEER within fifteen (15) days from detection or the beginning of any event or

circumstance giving rise to an Excusable or Compensable Delay and setting forth the general nature of the cause of delay. Within thirty (30) days of any such detection or beginning of event, the CONTRACTOR shall provide the analysis and documentation required to ascertain the facts, as specified in Section 01310: Progress Schedules and shall provide a written statement that the adjustment claimed is the entire adjustment to which the CONTRACTOR has reason to believe it is entitled as a result of the occurrence of said event. No claim by the CONTRACTOR under this provision shall be allowed unless the CONTRACTOR has given the notice and the analysis and documentation required in this paragraph, or if asserted after final payment, as defined in paragraph 14.07 of the Standard General Conditions.

- B. No forfeiture due to delay shall be made because of any Excusable and Prejudicial Delays in the completion of the entire Work or a specified part thereof. Any such delays shall not entitle the CONTRACTOR to any change in Contract Price. The sole remedy of the CONTRACTOR shall be an extension of the Contract Time pursuant to this Article and the provisions of Section 01310: Progress Schedules.
- C. No forfeiture due to delay shall be made because of any Compensable and Prejudicial Delays in the completion of the Work or a specified part thereof. Any such delays will entitle the CONTRACTOR solely to an extension of the Contract Time pursuant to this Article and the provisions of Section 01310: Construction Progress Schedules, of the General Requirements.
- D. No extensions of Contract Time or increases in Contract Price shall be granted for Non-prejudicial Delays of any type or for Inexcusable Delays, unless otherwise agreed to by the OWNER at his sole discretion.

SC-12.06 Paragraph 12.06B is hereby revised to provide equitable adjustment in contract time only; not contract price.

SC-13.03 Delete Paragraph 13.03B and sub-paragraphs 1, 2 and 3 in their entirety and insert the following:

- B. Payment of testing and laboratory services is specified in Section 01410; Testing and Laboratory Services for inspections and tests required by the Contract Documents. CONTRACTOR shall pay for inspections, tests or approvals covered by paragraph 13.03C. Costs incurred in connection with tests or inspections conducted pursuant to paragraph 13.04B shall be paid as provided in said paragraph 13.04B.

SC-13.04 Amend paragraph 13.04C of the Standard General Conditions to read as follows:

“...replacement of Work of others), and any additional expenses experienced by OWNER due to delays to other contractors, an appropriate deductive Change Order

shall be issued. The CONTRACTOR shall further bear the responsibility for maintaining the schedule and will be excluded from a time extension and the recovery of delay damages due to the uncovering. If, the parties..."

SC-13.06 Add the following new paragraph immediately after paragraph 13.06B of the Standard General Conditions:

- C. CONTRACTOR warrants and guarantees to OWNER and ENGINEER that all Work will be in accordance with the Contract Documents and will not be defective. The CONTRACTOR shall not be entitled to an extension of Contract Time for correcting or removing defective Work.

SC-13.07 Add the following new sub-paragraph immediately after sub-paragraph 13.07A.4:

- 5. When deemed necessary by OWNER, CONTRACTOR shall furnish and install at no cost to OWNER, such temporary equipment and material necessary to maintain functionality of the Work while defective Work is being corrected or replaced.

Add the following new paragraphs immediately after paragraph 13.07E:

- F. Subject to adjustments as described in sub-paragraph 13.07G, the period during which the CONTRACTOR must correct defective Work or remove it from the site and replace it with non-defective Work, all at no cost to the OWNER (the "Correction Period"), shall be no more than one (1) year. If the date of Substantial Completion is not the same date as Initiation of Operation, such Correction Period shall commence upon Initiation of Operation, not upon the date of Substantial Completion. In such cases, the time between Substantial Completion and Initiation of Operation shall not exceed one hundred (100) days.
- G. No later than thirty (30) days before Initiation of Operation the OWNER shall notify the CONTRACTOR in writing of the date upon which Initiation of Operation is expected to occur, and the CONTRACTOR shall ensure that the Work is ready in its entirety by such date for use by the OWNER as contemplated in the Contract Documents.
- H. From the date of Substantial Completion until Initiation of Operation, the CONTRACTOR shall bear all risks of injury, loss, or damage to any part of the Work arising from the elements or from any other cause. The CONTRACTOR shall rebuild, repair, restore, and make good at no cost to the OWNER, all injuries, losses, or damage to any portion of the Work occasioned by any cause and shall, at no expense to the OWNER, provide suitable drainage and erect such temporary structures and take all other actions as are necessary for the protection of the Work. Suspension of the Work or the granting of an extension of the Contract Time for any cause shall

not relieve the CONTRACTOR of its responsibility for the Work as herein specified. The CONTRACTOR's responsibilities under this paragraph 13.07 are in addition to, not in lieu of, all other obligations imposed by these Contract Documents.

- I. At the OWNER's sole option, the Correction Period may be extended or shortened. The Contract Price shall be adjusted accordingly as provided in paragraphs 11 and 12 of the Standard General Conditions.

SC-14.02.A.1 Add the following sentence to end of paragraph 14.02 A.1:

Payment to Contractor for stored materials shall be the Owner's option and at the Owner's sole discretion.

SC-14.02 Add the new sub-paragraph immediately after sub-paragraph 14.02A.3:

4. Each monthly Application for Payment shall incorporate the corresponding "Monthly Progress Status Report" prepared per the requirements of Section 01310: Progress Schedules.

SC-14.02.C.1 This section is hereby deleted. The requirements of Florida Statute 218.735(a) of the Florida Prompt Payment Act shall apply.

SC-14.04.A Delete paragraph 14.04.A in its entirety and insert the following in its place:

- A. After all requirements of Section 01700: Contract Closeout have been met with respect to Substantial Completion, and when the CONTRACTOR considers the entire Work ready for its intended use, CONTRACTOR shall notify OWNER and ENGINEER in writing that the entire Work is substantially complete (except for items specifically listed by CONTRACTOR as incomplete) and request that ENGINEER issue a certificate of Substantial Completion.

SC-15.01 Add a new subparagraph immediately after paragraph 15.01A of the Standard General Conditions to read as follows:

1. Notwithstanding this paragraph 15.01A, if the OWNER stops Work under paragraph 13.05 or suspends the CONTRACTOR's services under paragraph 13.09 of the Standard General Conditions, or suspends the Work or any portion thereof because of the CONTRACTOR's failure to prosecute the Work without endangering persons and property, the CONTRACTOR shall not be entitled to an extension of Contract Time or increase in Contract Price.

SC-16 Delete Article 16 and all other references to "Dispute Resolution Agreement" in the Standard General Conditions. Disputes between OWNER and CONTRACTOR shall be arbitrated only if and to the extent agreed to by the parties at the time each dispute

arises. The CONTRACTOR shall carry on the Work and maintain the progress schedule during any dispute, regardless of how resolved, unless otherwise mutually agreed in writing. Venue for any litigation, at law or equity or arbitration, shall lie exclusively in the place of Volusia County, Florida. This Contract, or any provision hereof, shall be construed and interpreted, and any litigation arising there from, shall be governed by the laws of the State of Florida.

SC-17.06 Add the following paragraph immediately after paragraph 17.05 of the General Conditions which are to read as follows:

17.06 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 ENGINEER. The forms for Notice to Proceed, Notice of Award and others, which the ENGINEER may use, are contained in the subsequent pages of these Supplementary Conditions.

END OF SECTION

Attachment: HH121_LS7 Rehabilitation_Bid Set Specs (1716 : Lift Station #7 Rehabilitation 17WW07)

SECTION 00 80 00-A

CONTRACTORS STANDARD INSURANCE REQUIREMENTS
AND INDEMNIFICATION CLAUSE**I. INSURANCE**

- A. Prior to commencing work, the Contractor shall provide at his own cost and expense insurance to the City of HOLLY HILL as required below. The insurance companies must be licensed in the State of Florida and be rated by A.M. Best as A: Class X or better. The required insurance shall be evidenced by certificates and/or policies as determined by the City. All policies and certificates of insurance shall be approved by the City prior to inception of any work.
- B. It is required that each Certificate of Insurance and/or policy must give 30 days prior written notice of cancellation, non-renewal or adverse change to the City of HOLLY HILL Finance Department by registered mail, return receipt requested. All such notices shall name the Contractor and identify the contract number.
- C. The "City of HOLLY HILL," wherever used, shall be defined to include the City itself, elected officials, officers, employees, volunteers, representatives, agents and any affiliates.
- D. The "Contractor," wherever used, shall be defined to include the Contractor, any subsidiaries or affiliates, officers, employees, volunteers, representatives, agents, contractors and subcontractors.
- E. If at any time any of the required policies shall be or shall become unsatisfactory to the City as to form or substance, or if the insurance company becomes unsatisfactory to the City, the Contractor shall, upon written notice to that effect from the City, promptly obtain a new policy, submit the policy to the City for approval, and submit the Certificate of Insurance, as previously required.

If at any time the Contractor shall fail to furnish and/or maintain the required insurance, this contract may be declared suspended, discontinued or terminated, at the discretion of the City. Failure of the Contractor to take out and/or maintain any of the required insurances shall not relieve the Contractor from any liability under the contract, nor shall the insurance requirements be construed to conflict with or otherwise limit the obligations of the Contractor concerning indemnification.

- F. The Contractor is required to provide new Certificates of Insurance to the City at least 20 days prior to the coverage renewal dates. If any of the insurance requirements are not complied with at their renewal dates, the City may at their option, (1) withhold payments to the Contractor until those requirements have been met or, (2) pay the renewal premium and withhold such payments from any monies due the Contractor.
- G. In the event of any claims having been filed due to any operation under this contract that are in excess of the insured amounts, the excess amount of such claim, or any portion thereof, may be withheld from payments due the Contractor until such time as the Contractor shall furnish such additional security covering such claims as may be determined by the City of HOLLY HILL

- H. The Contractor shall provide the following insurance on forms no more restrictive than the latest edition of those filed by the Insurance Services Office, and name the "City of HOLLY HILL" (as defined in "C" above) as an Insured to the extent of the City's interests.

II. LIABILITY INSURANCE

- A. **WORKERS' COMPENSATION - STATUTORY** - in compliance with the Workers' Compensation law of the State of Florida including employers liability coverage of at least \$100,000. If any operations are to be undertaken on or about navigable waters, coverage must be included for the U.S. Longshoremen and Harbor Workers Acts and Jones Act.

- B. **COMMERCIAL GENERAL LIABILITY** - with minimum limits of:

\$2,000,000	General Aggregate
\$1,000,000	Products - Completed Operations Aggregate
\$1,000,000	Personal and Advertisement Injury
\$1,000,000	Each Occurrence
\$ 100,000	Fire Damage

- C. **BUSINESS AUTOMOBILE LIABILITY** - with minimum limits of \$1,000,000 per occurrence combined single limit. This insurance shall include for bodily injury and property damages the following coverage's:

- (1) Owned Automobiles
- (2) Hired Automobiles
- (3) Non-owned Automobiles
- (4) Employee Non-ownership

NOTE! The required limits of liability for the above policies may include umbrella insurance with the umbrella policy making up the difference between the policy limits of the underlying policies and the total amount of coverage required. Such Umbrella Liability insurance shall be a "follow form" and be at least as broad as the underlying policies.

III. PROPERTY INSURANCE

When this contract includes construction of and/or additions to above-ground buildings or structures, Builder's Risk and/or Installation Floater policies must be provided as follows:

- A. **BUILDER'S RISK** - "All risk" form in the amount of 100% of the completed value of such addition, building or structure to include personal property of others in the care, custody or control of the Contractor, and shall include a flat-premium endorsement.

- (1) Maximum Deductible - \$5,000 each claim

- (2) Certified Copy of the policy must be provided to the City prior to the commencement of work.
 - (3) Waiver of Occupancy Clause or Warranty - to provide that the Builder's Risk coverage will continue to apply until final acceptance by the City of the building or addition, regardless of any prior occupancy.
 - (4) Flood Insurance must be provided when buildings or structures are located within an identified special flood hazard area. The Flood Insurance must protect the interest of the City and be in the amount of the total insurable value of such building or structure, or the maximum amount of flood insurance coverage available under the National Flood program, whichever is the lesser.
 - (5) For additions or repairs of existing buildings or structures, the "Builder's Risk Completed Form" covering the Contractor's interest in improvements, repairs, additions, or alterations to completed buildings, shall be included.
 - (6) Bridges, Viaducts or similar structures - the "Bridge Builders Risk Form" - "All risk" contract with the flat-premium endorsement should be utilized.
- B. **INSTALLATION FLOATER** - when the contract is for the installation of machinery and/or equipment into an existing structure, but does not contemplate construction of or addition to the structure itself.
- (1) "All Risk" coverage to include transit and installation.
 - (2) Amount of Insurance - 100% of installed replacement cost value
 - (3) Maximum Deductible - \$5,000 each claim.
 - (4) Cessation of Insurance - Coverage is to continue in force until final acceptance by the City.
 - (5) Certified Copy of the policy must be provided to the City prior to commencement of work.
 - (6) Flood Insurance - must be provided when machinery or equipment are located within an identified special flood hazard area. The Flood Insurance must protect the interest of the city and be in the amount of the total insurable value of such machinery or equipment.

IV. **CERTIFICATE OF INSURANCE CLAUSES**

All policies and Certificates of Insurance of the Contractor shall contain the following clauses and agreements:

- A. Insurers shall have no right of recovery or subrogation against the City of HOLLY HILL (as defined in "C" above), it being the intention of the parties that the insurance policies so effected shall protect both parties and be primary coverage for any and all losses covered by the above described insurance.

- B. The clause "other insurance" in a policy in which the City of HOLLY HILL is named as an Insured shall not apply to the City of HOLLY HILL.
- C. The insurance companies issuing the policies shall have no recourse against the City of HOLLY HILL (as defined in "C" above) for payment of any premiums or for assessments under any policy for insurance.
- D. The contractor's insurer shall be requested to include a breach of warranty clause to prevent nullification of insurance because the Contractor breaches a condition of the policy.
- E. Any and all deductibles in the above described insurance policies shall be assumed by and be for the account of, and at the sole risk of the Contractor.
- F. Any loss payable under the Property Insurance, if any, is to be adjusted with and made payable to the City of HOLLY HILL, as their interest may appear.

V. CITY INDEMNIFICATION

The following Indemnification Agreement shall be a provision of this contract and also shall be endorsed onto or attached to the insurance policy and Certificate of Insurance:

"The Contractor agrees to protect, defend and pay on behalf of, and hold the City of HOLLY HILL and its elected officials, officers, employees, volunteers, representatives, agents and affiliates free and harmless from and against all claims for personal or bodily injury or death, or property damage or destruction of tangible property including loss of use thereof, losses, penalties, damages, settlements, costs, charges, professional fees or other expenses of every kind and character in connection with and arising directly or indirectly out of this agreement and/or performance thereof, unless such claims are a result of the City of HOLLY HILL's sole negligence. This indemnification clause includes claims made by the employees and subcontractors of the Contractor against the Owner and the Contractor hereby waives its entitlement, if any, to immunity under Section 440.11, Florida Statutes. Nothing contained herein shall be construed as a waiver of any immunity from or a limitation of liability the City may have under the doctrine of sovereign immunity or Chapter 768.28, Fla. Stat. This indemnification provision shall survive the completion of the project and shall be in full force and effect beyond the completion of the project or the termination of this contract.

VI. ENGINEER INDEMNIFICATION

"The Contractor agrees to protect, defend and pay on behalf of, and hold the ENGINEER and its officers, employees, and affiliates free and harmless from and against all claims for personal or bodily injury or death, or property damage or destruction of tangible property including loss of use thereof, losses, penalties, damages, settlements, costs, charges, professional fees or other expenses of every kind and character in connection with and arising directly or indirectly out of this agreement and/or performance thereof, unless such claims are a result of the ENGINEER'S sole negligence. This indemnification clause includes claims made by the employees and subcontractors of the Contractor against the ENGINEER. This indemnification provision shall survive the completion of the project and shall be in full force and effect beyond the completion of the project or the termination of this contract.

The Contractor shall be responsible for such requirements through the date of final acceptance of the project by the City. With regard to the Contractor's indemnification obligation for products

and completed operations, the Contractor shall be responsible for a minimum period of at least one year subsequent to the City's acceptance of the product or completed operation."

- VII.** The following Insurance Requirement Checklist shall be adhered to in its entirety. The coverage limits and language as indicated on the following checklist shall be reflected on the Contractor's Certificate of Insurance.
- VIII.** A Waiver of Subrogation shall be provided to the City.
- IX.** The Contractor' insurance carrier shall submit a letter showing authorization that the company is registered by the State of Florida Department of Insurance

Revised September 2005

Attachment: HH121_LS7 Rehabilitation_Bid Set Specs (1716 : Lift Station #7 Rehabilitation 17WW07)

**CITY OF HOLLY HILL, FLORIDA
INSURANCE REQUIREMENTS CHECKLIST
CITY OF HOLLY HILL, VOLUSIA COUNTY, FLORIDA**

Items marked "X" must be provided

<u>X</u>	<u>General Liability</u>	Minimum Limits Required	
	<u>X</u> Commercial General Liability	\$ <u>2,000,000</u>	General Aggregate
	<u>X</u> Occurrence Form	\$ <u>1,000,000</u>	Product/Completed Operations Agg.
	_____	\$ <u>1,000,000</u>	Personal & Advertising Injury
	_____	\$ <u>1,000,000</u>	Each Occurrence
	_____	\$ <u>100,000</u>	Fire Damage Pump Stations
<u>X</u>	<u>Automobile Liability</u>		
	Owned, Hired & Non-Owned	\$ <u>1,000,000</u>	Combined Single Limit per Occurrence
<u>X</u>	<u>Worker's Compensation and Employer's Liability</u>	Statutory	
		\$ <u>100,000</u>	Each Accident
		\$ <u>500,000</u>	Disease - Policy Limit
		\$ <u>100,000</u>	Disease - Each Employee
_____	<u>Professional Liability - Errors & Omissions</u> (*To be completed by Bidder)		
	* Deductible: \$ _____	\$ _____	Aggregate
	* Claims Made (Y/N): _____	\$ _____	Each Claim
	*Occurrence (Y/N): _____		
	*Defense included in Limits (Y/N): _____		
<u>X</u>	<u>Builder's Risk/Installation Floater</u> (*To be completed by Bidder)		
	* Flood included \$ _____ Limit	\$ _____	100% of Completed or Installed Value, All-Risk Form
	* Transportation included \$ _____ Limit		
	* Storage included \$ _____ Limit		
	City must be a named insured. Copy of policy will be required.		
_____	<u>Other</u>		
	_____	\$	
	_____	\$	
<u>X</u>	The Certificate of Insurance must show "The City of HOLLY HILL, elected officials and employees" and the adjacent property owners as an additional insured.		
<u>X</u>	Certificates must give to the City of HOLLY HILL 30 days' prior written notice of cancellation, non-renewal, or adverse change.		
<u>X</u>	Certificates must identify bid number and bid title.		
<u>X</u>	A Wavier of Subrogation shall be provided to the City		

Statement of Bidder:

We understand the requirements requested and agree to comply fully.

Bidder - Authorized Signature

A complete copy of this form with original signature must accompany bid.

Attachment: HH121_LS7 Rehabilitation_Bid Set Specs (1716 : Lift Station #7 Rehabilitation 17WW07)

SECTION 00 84 00
CONTRACTOR REQUEST FOR INFORMATION (RFI)

PROJECT NAME: **LIFT STATION #7 REHABILITATION**

OWNER: _____

ENGINEER: _____ PROJECT NO. _____

CONTRACTOR: _____ PROJECT NO. _____

RFI NO. _____ SPEC. SECT. _____ DRAWING NO. _____

RFI SHORT TITLE: _____

QUESTION/ISSUE: _____

BY: _____ DATE: _____

REPLY: _____

BY: _____ DATE: _____

CC:

- ☐ CONTRACTOR
☐ FIELD (INSPECTOR)
☐ OWNER
☐ QLH FILE
☐ ARCHITECT
☐ OTHER: _____

END SECTION

SECTION 00 84 10
NOTICE OF AWARD FORM

Date: _____

Contractor: _____

Project: **CITY OF HOLLY HILL**
LIFT STATION #7 REHABILITATION

Date of Bid Opening: _____

You are notified that your bid dated _____, 20____ for the above Contract has been considered and the OWNER, expects to award you a contract for:

_____.

(Indicated total Work, Alternates or Sections of Work Awarded)

The Contract Price of your contract is _____
Dollars (\$_____).

Five (5) copies of each of the following proposed Contract Documents (except Project Manual and Drawings) accompany this Notice of Award:

- ◆ Agreement Between Owner and Contractor
- ◆ Payment and Performance Bond
- ◆ Public Construction Bond
- ◆ Insurance Requirements
- ◆ Affidavit Regarding Workman's Compensation
- ◆ Certificate of Insurance for Workman's Compensation

You must comply with the following conditions to the awarded contract within ten (10) days of the date of the Notice of Award, which is by _____, 20__.

1. You must deliver to the OWNER five (5) fully executed counterparts of the Agreement.
2. You must deliver with the executed Agreement five (5) completed original documents with original signatures on the Payment and Material Payment Bond and Public Construction Bond in the form specified in the Bidding Documents.
3. You must provide in writing the correct name and address of the surety which is providing the Payment and Material Payment Bond and Public Construction Bonds and the correct name and address of the surety's resident agent for service of process in Florida.
4. You must deliver with the executed Agreement five (5) completed, with original signatures, Certificates and Endorsements of Insurance in the form specified in the Bidding Documents.

Failure to comply with these conditions within the time specified will entitle the OWNER to consider your Bid abandoned, to annul this Notice of Award, and to declare your Bid Security forfeited.

Within ten (10) days after you comply with these conditions, the OWNER will return to you two (2) fully signed counterparts of the agreement with the Contract Documents attached.

OWNER'S REPRESENTATIVE:

(Authorized Signature)

(Title)

Date: _____

END OF SECTION

SECTION 00 84 20
NOTICE TO PROCEED FORM

Date: _____

Contractor: _____

Notice to Proceed on Project:

You are notified that the Contract Time under the above contract will commence to run on _____, 20____. On that date you are to start performing the Work and your other obligations under the Contract Documents. Based on the Contract Time stated in the Agreement, we calculate that the dates of substantial Completion and Final Completion are _____, 20____, and _____, 20____, respectively.

Work at the site must be started by _____, 20__ as indicated in the Contract Documents.

Enclosed is one (1) set of Drawings and one (1) bound copy of the Project Manual containing:

- Instruction to Bidders
- Bid Form
- Bid Bond
- Executed Agreement
- Payment and Performance Bond
- Public Construction Bond
- Certificates of Insurance
- General Conditions
- Supplementary Conditions
- Notice of Award
- Specifications
- Addenda Numbers ____ through ____

OWNER'S REPRESENTATIVE:

(Name/Title)

(Date)

END OF SECTION

SECTION 00 84 30
CHANGE ORDER FORM

PROJECT:

CHANGE ORDER NO. _____

CONTRACTOR:_____

The following changes are hereby made to the Contract Documents:

CHANGE IN CONTRACT PRICE: Original Contract Price: \$ _____	CHANGE IN CONTRACT TIMES: Original Contract Times: Substantial Completion: _____ Final Completion:
Net changes from previous Change Orders No. _____ to No. _____. \$ _____	Changes in contract time from previous Change Orders No. _____ to No. _____. _____ Days
Contract Price prior to this Change Order: \$ _____	Contract Completion Date prior to this Change Order: Final Completion:
Net Increase (decrease) of this Change Order: \$ _____	Changes in contract time requested this Change Order No. _____ _____ Days
Contract Price with all approved Change Orders: \$ _____	Contract Times with all approved Change Orders: Final Completion:

Attachment: HH121_LS7 Rehabilitation_Bid Set Specs (1716 : Lift Station #7 Rehabilitation 17WW07)

CHANGES ORDERED:

- I. GENERAL – This change order is necessary to cover changes in the work to be performed under this Contract. The General Conditions, Supplementary Conditions, Specifications and all parts of the Project Manual listed in Article 1, Definitions, of the General Conditions apply to and govern all work under this change order.

The change in price and/or delivery date described, is considered to be fair and reasonable and has been mutually agreed upon in full agreement and final settlement of all claims arising out of the modification including all claims for delays and disruptions resulting from, caused by, or incident to such modifications and change orders.

II. REQUIRED CHANGES:

III. JUSTIFICATION:

IV. PAYMENT:

Acknowledgments:

The aforementioned change, and work affected thereby, is subject to all provisions of the original contract not specifically changed by this Change Order;

It is expressly understood and agreed that the approval of the Change Order shall have no effect on the original contract other than matters expressly provided herein;

The prices quoted are fair and reasonable and in proper ratio to the cost of the original work contracted for under competitive bidding; and,

The change in price and/or delivery date described is considered to be fair and reasonable and has been mutually agreed upon in full agreement and final settlement of all claims arising out of this modification including all claims for delays and disruptions resulting from, caused by, or incident to such modifications and change orders.

RECOMMENDED BY:

Quentin L. Hampton Associates, Inc.
(Engineer)

By: _____
Name Typed (Date)

(Authorized Signature)

ACCEPTED BY:

(Contractor)

Name Typed (Date)

(Authorized Signature)

APPROVED BY:

Owner

By: _____
Name Typed (Date)

(Authorized Signature)

END OF SECTION

SECTION 00 84 40

APPLICATION AND CERTIFICATE FOR PAYMENT FORM

Application No. _____ Progress _____ Final _____

Engineer's Project No.: _____

Project: _____

Contractor: _____ Contract Date: _____

Contract for : _____

Application Date: _____ For Period Ending _____

Change Order Summary			
Change Orders approved in previous months by OWNER		ADDITIONS	DEDUCTIONS
TOTAL		\$ 0.00	\$ 0.00
Approved this month			
Number	Date Approved		
TOTALS		\$ 0.00	\$ 0.00
Net Change by Change Orders			\$ 0.00

1.	ORIGINAL CONTRACT SUM	\$ 0.00
2.	Net Change by Change Order	\$ 0.00
3.	CONTRACT SUM TO DATE (Line 1 and 2)	\$ 0.00
4.	TOTAL COMPLETED AND STORED TO DATE	\$
5.	RETAINAGE: (Column I & N, Forms 00845 and 00846)	
	a. ____% of Completed Work	\$
	b. ____% of Stored Material	\$
	Total Retainage (Line 5a and 5b)	\$ 0.00
6.	TOTAL EARNED LESS RETAINAGE (Line 4 less Line 5 Total)	\$ 0.00
7.	LESS PREVIOUS CERTIFICATES FOR PAYMENT (Line 6 from prior Certificate)	\$ 0.00
8.	AMOUNT DUE THIS APPLICATION	\$ 0.00
9.	BALANCE TO FINISH, PLUS RETAINAGE (Line 3 less Line 6)	\$ 0.00

00 84 40-1

Attachment: HH121_LS7 Rehabilitation_Bid Set Specs (1716 : Lift Station #7 Rehabilitation 17WW07)

Contractor's Certification

The undersigned Contractor hereby swears under penalty of perjury that (1) all previous progress payments received from the Owner on account of Work performed under the contract referred to above have been applied by the undersigned to discharge in full all obligations of the undersigned incurred in connection with Work covered by prior Applications for Payment numbered 1 through ____ inclusive; and (2) all materials and equipment incorporated in said Project or otherwise listed in or covered by this Application for Payment are free and clear of all liens, claims, security interest and encumbrances; (3) all Work covered by this Application for Payment is in accordance with the Contract Documents and not defective as that term is defined in the Contract Documents.

Dated _____

(Contractor)

By: _____

(Name)

(Title)

COUNTY OF _____
STATE OF _____

Before me on this _____ day of _____, 20____, personally appeared _____, known to me, who being duly sworn, deposes and says that s(he) is the _____ of the Contractor above mentioned; that s(he) executed the above Application for Payment and statement on behalf of said Contractor; and that all of the statements contained therein are true, correct and complete.

(Notary Seal)

Notary Public

My commission Expires _____

Engineer's Recommendation

Payment of the above AMOUNT DUE THIS APPLICATION is recommended.

Quentin L. Hampton Associates, Inc.

By: _____

(Authorized Signature)

Date: _____

Owner's Approval

By: _____

(Title)

Acct No. _____

Date: _____

END OF SECTION

Attachment: HH121_LS7 Rehabilitation_Bid Set Specs (1716 : Lift Station #7 Rehabilitation 17WW07)

00 84 40-3

4.1.b

Application Date:
Period Ending:
Contractor:

Attachment: HH121_LS7 Rehabilitation_Bid Set Specs (1716 : Lift Station #7 Rehabilitation 17WW07)

Section 00 84 60
Stored Materials Summary

Owner:
Project:
Bid No.:
Contractor:

Date:

Received thru:
Installed thru:

[illegible]

Subtotal
Sales Tax
Total

Attachment: HH121_LS7 Rehabilitation_Bid Set Specs (1716 : Lift Station #7 Rehabilitation 17WW07)

SECTION 00 84 80
CERTIFICATE OF SUBSTANTIAL COMPLETION

OWNER'S Project No.: _____ ENGINEER's Project No.: _____

CONTRACTOR: _____

Contract Date: _____

This Certificate of Substantial Completion applies to all Work under the Contract Documents or to the following specified parts thereof.

To: _____
 Owner

And To: _____
 Contractor

The Work to which this Certificate applies has been inspected by authorized representatives of OWNER, CONTRACTOR and ENGINEER, and that Work is hereby declared to be substantially complete in accordance with the Contract Documents on:

 Date of Substantial Completion

Certificate of Substantial Completion
 Page 1 of 3

A tentative list of items to be completed or corrected is attached hereto. This list may not be all-inclusive, and the failure to include an item therein does not alter the responsibility of CONTRACTOR to complete all the Work in accordance with the Contract documents. When this Certification applies to a specified part of the Work the items in the tentative list shall be completed or corrected by CONTRACTOR within _____ days of the above date of Substantial Completion.

The date of Substantial Completion is the date upon which all guarantees and warranties begin, except as follows:

The responsibilities between OWNER and CONTRACTOR for security, operation, safety, maintenance, heat, utilities and insurance shall be as follows:

RESPONSIBILITIES:

OWNER _____

CONTRACTOR _____

The following documents are attached to and made a part of this Certificate:

Certificate of Substantial Completion

Page 2 of 3

This certificate does not constitute an acceptance of Work not in accordance with the Contract Documents nor is it a release of CONTRACTOR'S obligation to complete the Work in accordance with the Contract Documents.

Executed by ENGINEER on _____, 20__.

(Engineer)

By _____

The CONTRACTOR accepts this Certificate of Substantial Completion on _____, 20__.

(Contractor)

By _____

Certificate of Substantial Completion
Page 3 of 3

Attachment: HH121_LS7 Rehabilitation_Bid Set Specs (1716 : Lift Station #7 Rehabilitation 17WW07)

SECTION 00 84 90
CONTRACTOR'S FINAL RELEASE OF LIEN

Before me the undersigned authority in said County and State, appeared _____ who, being first duly sworn, deposes and says that he is _____ of _____, a company and/or corporation authorized to do business under the laws of Florida, which is the Contractor on the Contract described as: **"LIFT STATION #7 REHABILITATION"**, dated the ____ day of _____, 20____, that the said deponent is duly authorized to make this affidavit by resolution of the Board of Directors of said company and/or corporation; that deponent knows of his own knowledge that said Contract has been complied with in every particular by said Contractor and that all parts of the work have been approved by the Owner's Engineers; that there are no bills remaining unpaid for labor, material, or otherwise, in connection with said Contract and work, and that there are no suits pending against the undersigned as Contractor or anyone in connection with the work done and materials furnished or otherwise under said Contract. Deponent further says that the final estimate which has been submitted to the owner simultaneously with the making of the affidavit constitutes all claims and demands against the Owner on account of said Contract or otherwise, and the acceptance of the sum specified in said final estimate will operate as full and final release and discharge of the Owner from any further claims, demands or compensation by Contractor under the above Contract. Deponent further agrees that all guarantees under this Contract shall be in full force from the date of this release as spelled out in the Contract Documents.

Sworn to and subscribed to before me this ____ day of _____, 20____.

Notary Public

My Commission Expires: _____

We, the _____ having heretofore executed a Performance Bond for the above-mentioned Contractor covered Project and Section as described above in the sum of _____ dollars (\$ _____), hereby agree that the Owner may make full payment of the final estimate, including the retained percentage, to said Contractor.

It is fully understood that the granting of the right to the Owner to make payment of the final estimate to said Contractor and/or his assigns, shall in no way release the surety company of its obligations under its bond, as set forth in the Specifications, Contract and Bond pertaining to the above Project.

IN WITNESS WHEREOF, the _____ has caused this instrument to be executed on its behalf by its _____ and/or its duly authorized attorney in fact, and its corporate seal to be hereunto affixed, all of this _____ day of _____, A.D., 20_____.

Surety Company

Attorney in Fact

(Power of Attorney must be attached if executed by Attorney in Fact)

STATE OF FLORIDA

COUNTY OF _____

Before me the undersigned authority, personally appeared to me well known as the person described in and who executed the foregoing instrument in the name of _____ and/or authority to execute the same on behalf of said _____, a corporation.

IN WITNESS WHEREOF, I have hereunto set my hand and official seal at _____ this _____ day of _____, 20_____.

Notary Public

My Commission Expires: _____

END OF SECTION

Attachment: HH121_LS7 Rehabilitation_Bid Set Specs (1716 : Lift Station #7 Rehabilitation 17WW07)

SECTION 01 00 00

PROJECT REQUIREMENTS

PART 1 – GENERAL

1.01 DESCRIPTION

- A. Scope of Work: The Work to be done consists of the furnishing of all labor, materials and equipment, and the performance of all Work included in this Contract. The summary of the Work is presented in Section 01 11 00: Summary of Work.
- B. Work Included:
1. The CONTRACTOR shall furnish all labor, superintendence, materials, plant power, light, heat, fuel, water, tools, appliances, equipment, supplies, and means of construction necessary for proper performance and completion of the Work. The CONTRACTOR shall obtain and pay for all necessary local building permits. The CONTRACTOR shall perform and complete the work in the manner best calculated to promote rapid construction consistent with safety of life and property and to the satisfaction of the ENGINEER, and in strict accordance with the Contract Documents. The CONTRACTOR shall clean up the Work and maintain it during and after construction, until accepted, and shall do all Work and pay all costs incidental thereto. He shall repair or restore all structures and property that may be damaged or disturbed during performance of the Work.
 2. The cost of incidental work described in these Project Requirements, for which there are no specific Contract Items, shall be considered as part of the general cost of doing the Work and shall be included in the prices for the various Contract Items. No additional payment will be made therefore.
 3. The CONTRACTOR shall provide and maintain such modern plant, tools, and equipment as may be necessary, in the opinion of the ENGINEER, to perform in a satisfactory and acceptable manner all the Work required by this Contract. Only equipment of established reputation and proven efficiency shall be used. The CONTRACTOR shall be solely responsible for the adequacy of his workmanship, materials, and equipment, prior approval of the ENGINEER notwithstanding.

C. Public Utility Installations and Structures:

1. Public utility installations and structures shall be understood to include all poles, tracks, pipes, wires, conduits, vaults, manholes, and all other appurtenances and facilities pertaining thereto whether owned or controlled by the OWNER, other governmental bodies, or privately owned by individuals, firms, or corporations, used to serve the public with transportation, traffic control, gas, electricity, telephone, sewerage, drainage, water, or other public or private property which may be affected by the Work shall be deemed included hereunder.
2. The Contract Documents contain data relative to existing public utility installations and structures above and below the ground surface. These data are not guaranteed as to their completeness or accuracy and it is the responsibility of the CONTRACTOR to make his own investigations to inform himself fully of the character, condition, and extent of all such installations and structures as may be encountered and as may affect the construction operations.
3. The CONTRACTOR shall protect all public utility installations and structures from damage during the Work. Access across any buried public utility installation or structure shall be made to avoid any damage to these facilities. All required protective devices and construction shall be provided by the CONTRACTOR at his expense. All existing public utilities damaged by the CONTRACTOR shall be repaired by the CONTRACTOR, at his expense. No separate payment shall be made for such protection or repairs to public utility installations or structures.
4. Public utility installations or structures owned or controlled by the OWNER or other governmental body which are shown on the Drawings to be removed, relocated, replaced, or rebuilt by the CONTRACTOR shall be considered as a part of the general cost of doing the Work and shall be included in the prices bid for the various Contract Items; therefore, no separate payment shall be made.
5. Where public utility installations of structures owned or controlled by the OWNER or other governmental body are encountered during the course of the Work, and are not indicated on the Drawings or in the Specifications, and when, in the opinion of the ENGINEER, removal, relocation, replacement, or rebuilding is necessary to complete the Work under this Contract, such Work shall be accomplished by the utility having jurisdiction, or such Work may be ordered, in writing by the ENGINEER, for the CONTRACTOR to accomplish. If such work is accomplished by the utility having jurisdiction it will be carried out expeditiously, and the CONTRACTOR shall give full cooperation to permit the utility to complete the removal, relocation,

replacement, or rebuilding as required. If such work is accomplished by the CONTRACTOR, it will be paid for as extra work as provided in the Agreement.

6. The CONTRACTOR shall, at all times, in performance of the Work, employ acceptable methods and exercise reasonable care and skill so as to avoid unnecessary delay, injury, damage, or destruction of public utility installations and structures; and shall, at all times in the performance of the Work, avoid unnecessary interference with, or interruption of, public utility services, and shall cooperate fully with the owners thereof to that end.
7. The CONTRACTOR shall give written notice to OWNER and other governmental utility departments and other owners of public utilities of the location of his proposed construction operations, at least 48-hours in advance of breaking ground in any area or on any unit of the Work.
8. The maintenance, repair, removal, relocation, or rebuilding of public utility installations and structures, when accomplished by the CONTRACTOR as herein provided, shall be done by methods approved by the owners of such utilities.

1.02 DRAWINGS AND PROJECT MANUAL

- A. Drawings: When obtaining data and information from the Drawings, figures shall be used in preference to scaled dimensions, and large-scale drawings in preference to small-scale drawings.
- B. Supplementary Drawings:
 1. When, in the opinion of the ENGINEER, it becomes necessary to explain more fully the Work to be done or to illustrate the Work further or to show any changes which may be required, drawings known as Supplementary Drawings, with specifications pertaining thereto, will be prepared by the ENGINEER, and the CONTRACTOR will be furnished one (1) complete set of reproducible Mylar sepias [24 inches by 36 inches (24" x 36")] and one (1) reproducible copy of the Project Manual.
 2. The Supplementary Drawings shall be binding upon the CONTRACTOR with the same force as the Contract Drawings. Where such Supplementary Drawings require either less or more than the estimated quantities of Work, credit to the OWNER or compensation therefore to the CONTRACTOR shall be subject to the terms of the Agreement.

C. CONTRACTOR to Check Drawings and Data:

1. The CONTRACTOR shall verify all dimensions, quantities, and details shown on the Drawings, Supplementary Drawings, schedules, Specifications, or other data received from the ENGINEER, and shall notify him of all errors, omissions, conflicts, and discrepancies found therein. Failure to discover or correct errors, conflicts, or discrepancies shall not relieve the CONTRACTOR of full responsibility for unsatisfactory work, faulty construction, or improper operation resulting there from, nor from rectifying such conditions at his own expense. He will not be allowed to take advantage of any errors or omissions, as full instructions will be furnished by the ENGINEER, should such errors or omissions be discovered.
2. All schedules are given for the convenience of the ENGINEER and the CONTRACTOR and are not guaranteed to be complete. The CONTRACTOR shall assume all responsibility for the making of estimates of the size, kind, and quality of materials and equipment included in work to be done under the Contract.

D. Specifications: The Technical Specifications consist of three (3) parts: General, Products, and Execution. The General part of a Specification contains General Requirements which govern the Work. The Products and Execution parts modify and supplement the General Requirements by detailed requirements for the Work and shall always govern whenever there appears to be a conflict.

E. Intent:

1. All Work called for in the Specifications applicable to this Contract, but not shown on the Drawings in their present form, or vice versa, shall be of like effect as if shown or mentioned in both. Work not specified in either the Drawings or in the Specifications, but involved in carrying out their intent or in the complete and proper execution of the Work, is required and shall be performed by the CONTRACTOR as though it were specifically delineated or described.
2. The apparent silence of the Specifications as to any detail, or the apparent omission from them of a detailed description concerning any work to be done and materials to be furnished, shall be regarded as meaning that only the best general practice is to prevail and that only material and workmanship of the best quality is to be used, the interpretation of these Specifications shall be made upon that basis.

1.03 MATERIALS AND EQUIPMENT

A. Manufacturer:

1. All transactions with the manufacturers or subcontractors shall be through the CONTRACTOR, unless the CONTRACTOR shall request and at the ENGINEER's option, that the manufacturer or subcontractor deal directly with the ENGINEER. Any such transactions shall not in any way release the CONTRACTOR from his full responsibility under this Contract.
2. Any two (2) or more pieces of material or equipment of the same kind, type, or classification, and being used for identical types of service, shall be made by the same manufacturer.

B. Delivery:

1. The CONTRACTOR shall deliver materials in ample quantities to ensure the most speedy and uninterrupted progress of the Work so as to complete the Work within the allotted time.
2. The CONTRACTOR shall also coordinate deliveries in order to avoid delay in, or impediment of, the progress of the work of any related CONTRACTOR.

C. Tools and Accessories:

1. The CONTRACTOR shall, unless otherwise stated in the Contract Documents, furnish with each type, kind, or size of equipment, one (1) complete set of suitably marked high grade special tools and appliances which may be needed to adjust, operate, maintain, or repair the equipment. Such tools and appliances shall be furnished in approved painted steel cases, properly labeled, and equipped with good grade cylinder locks and duplicate keys.
2. Spare parts shall be furnished as specified herein and as recommended by the manufacturer necessary for the operation of the equipment, not including materials required for routine maintenance.
3. Each piece of equipment shall be provided with a substantial nameplate, securely fastened in place, and clearly inscribed with the manufacturer's name, year of manufacture, serial number, weight, and principal rate data.

D. Service of Manufacturer's Engineer:

1. The Contract Prices for equipment shall include the cost of furnishing a competent and experienced engineer or superintendent who shall represent the manufacturer and shall assist the CONTRACTOR, when required, to install, adjust, test, and place in operation, the equipment in conformity with the Contract Documents.
2. After the equipment is placed in permanent operation by the OWNER, such engineer or superintendent shall make all adjustments and tests required by the ENGINEER to prove that such equipment is in proper and satisfactory operating condition, and shall instruct such personnel as may be designated by the OWNER in the proper operation and maintenance of such equipment.

1.04 INSPECTION AND TESTING

A. General:

1. For tests specified to be made by the CONTRACTOR, the testing personnel shall make the necessary inspections and tests, and the reports thereof shall be in such form as will facilitate checking to determine compliance with the Contract Documents. Five (5) copies of the reports shall be submitted, and authoritative certification thereof must be furnished to the ENGINEER as a prerequisite for the acceptance of any material or equipment.
2. If, in the making of any test of any material or equipment, it is ascertained by the ENGINEER that the material or equipment does not comply with the Contract Documents, the CONTRACTOR will be notified thereof, and he will be directed to refrain from delivering said material or equipment, or to remove it promptly from the site or from the Work and replace it with acceptable material, without cost to the OWNER.
3. Tests of electrical and mechanical equipment and appliances shall be conducted in accordance with the recognized test codes of the ANSI, ASME, or the IEEE, except as may otherwise be stated herein.
4. The CONTRACTOR shall be fully responsible for the proper operation of equipment during testing and instruction periods and shall neither have nor make any claim for damage which may occur to equipment prior to the time when the OWNER formally takes over the operation thereof.

B. Costs:

1. All inspection and testing of materials furnished under this Contract will be provided by the CONTRACTOR, unless otherwise expressly specified.

2. The cost of shop and field tests of equipment and of certain other tests specifically called for in the Contract Documents shall be borne by the CONTRACTOR, and such costs shall be deemed to be included in the Contract Price.
3. Materials and equipment submitted by the CONTRACTOR as the equivalent to those specifically named in the Contract may be tested by the OWNER for compliance. The CONTRACTOR shall reimburse the OWNER for the expenditures incurred in making such tests of materials and equipment which are rejected for non-compliance.

C. Certificate of Manufacture:

1. CONTRACTOR shall furnish to ENGINEER authoritative evidence in the form of a certificate of manufacture that the materials to be used in the Work have been manufactured and tested in conformity with the Contract Documents.
2. These certificates shall be notarized and shall include copies of the results of physical tests and chemical analyses, where necessary, that have been made directly on the product or on similar products of the manufacturer.

D. Shop Tests:

1. Each piece of equipment for which pressure, duty, capacity, rating, efficiency, performance, function, or special requirements are specified shall be tested in the shop of the maker in a manner which shall conclusively prove that its characteristics comply fully with the requirements of the Contract Documents.
2. Five (5) copies of the manufacturer's actual test data and interpreted results thereof, accompanied by a certificate of authenticity sworn to by a responsible official of the manufacturing company and/or independent laboratory, shall be submitted to the ENGINEER for approval.
3. The cost of shop tests and of furnishing manufacturer's preliminary and shop test data of operating equipment shall be borne by the CONTRACTOR.

E. Start-up Tests:

1. As soon as conditions permit, the CONTRACTOR shall furnish all labor, materials, and instruments and shall make start-up tests of equipment.

2. If the start-up tests disclose any equipment furnished under this Contract which does not comply with the requirements of the Contract Documents, the CONTRACTOR shall, prior to demonstration tests, make all changes, adjustments, and replacements required. The furnishing CONTRACTOR shall assist in the start-up tests as applicable.

F. Demonstration Tests:

1. Prior to CONTRACTOR's request for a Substantial Completion inspection, all equipment and piping installed under this Contract shall be subjected to demonstration tests as specified or required to prove compliance with the Contract Documents.
2. The CONTRACTOR shall furnish labor, fuel, energy, water, and all other materials, equipment, and instruments necessary for all demonstration tests, at no additional cost to the OWNER. CONTRACTOR shall assist in the demonstration tests as applicable.

1.05 LINES AND GRADES

A. Grade:

1. All work under this Contract shall be constructed in accordance with the lines and grades shown on the Drawings, or as given by the ENGINEER. The full responsibility for keeping alignment and grade shall rest upon the CONTRACTOR.
2. The vertical bench marks provided is USGS "Public Records" monumentation and the horizontal control is the monumentation on plats contained in the "Public Records of Volusia County."

B. Surveys:

1. The CONTRACTOR shall furnish and maintain, at his own expense, stakes, and other such materials.
2. The CONTRACTOR shall check such reference marks by such means as he may deem necessary and, before using them, shall call the ENGINEER's attention to any inaccuracies.
3. The CONTRACTOR shall, at his own expense, establish all working or construction lines and grades as required from the reference marks set by the ENGINEER, and shall be solely responsible for the accuracy thereof. He shall, however, be subject to the check and review by the ENGINEER.

C. Safeguarding Marks:

1. The CONTRACTOR shall safeguard all points, stakes, grade marks, monuments, and bench marks made or established on the Work, bear the cost of re-establishing them if disturbed, and bear the entire expense of rectifying work improperly installed due to not maintaining or protecting or to removing without authorization such established points, stakes, and marks.
2. The CONTRACTOR shall safeguard all existing and known property corners, monuments, and marks adjacent to but not related to the Work and shall bear the cost of re-establishing them if disturbed or destroyed.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

SECTION 01 11 00

SUMMARY OF WORK

PART 1 – GENERAL

1.01 WORK COVERED BY CONTRACT DOCUMENTS

- A. This Contract is for the construction of the **LIFT STATION #7 REHABILITATION**. The work consists of furnishing all labor, equipment, and materials for the construction of the facilities consisting of, but not limited to, the following:

This project includes the rehabilitation of the City of Holly Hill's Lift Station #7 by conversion of the can style lift station into a submersible station. Work includes bypass pumping, demolition of the two (2) existing pumps, piping, and valves to abandon pump can. Installation of two (2) new submersible pumps, new wet well, top slab, piping, valves, valve vaults, lining of an existing manhole, and the installation of a new force main.

- B. The CONTRACTOR shall furnish all labor, equipment, tools, services, and incidentals to complete all Work required by these Specifications and as shown on the Drawings.
- C. The CONTRACTOR shall perform the Work complete, in place, and ready for continuous service, and shall include repairs, testing, permits, cleanup, replacements and restoration required as a result of damages caused during this construction.
- D. All materials, equipment, skills, tools, and labor which is reasonably and properly inferable and necessary for the proper completion of the Work in a substantial manner and in compliance with the requirements stated or implied by these Specification or Drawings shall be furnished and installed by the CONTRACTOR without additional compensation, whether specifically indicated in the Contract Documents or not.
- E. The CONTRACTOR shall comply with all City, County, State, Federal, and other codes which are applicable to this Project.

1.02 CONTRACTOR'S USE OF PREMISES

- A. The CONTRACTOR shall assume full responsibility for the protection and safekeeping of products and materials at the job site. If additional storage or work areas are required, they shall be obtained by the CONTRACTOR at no additional cost to the OWNER.

1.03 PROJECT SEQUENCE

- A. The CONTRACTOR shall establish his work sequence based on the use of crews to facilitate completion of construction and testing within the specified Contract time.

END OF SECTION

SECTION 01 22 00

UNIT PRICES

PART 1 – GENERAL

- A. Separate payment will be made only 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, shall be considered to be included in the scope of the appropriate listed work items.
- B. The CONTRACTOR's attention is called to the fact that cleanup is considered a part of the work of construction. No payment will be made until cleanup is essentially complete.
- C. No separate payment will be made for the following items and the cost of such work shall be included in the applicable pay items of work if not shown as a separate pay item.
 - 1. Clearing and Grubbing.
 - 2. Excavation, including necessary pavement base removal.
 - 3. Shoring and sheeting.
 - 4. Dewatering and disposal of surplus water.
 - 5. Structural Fill.
 - 6. Backfill.
 - 7. Grading.
 - 8. Replacement of unpaved roadways, grass, and shrubbery plots.
 - 9. Cleanup.
 - 10. Testing and placing system in operation.
 - 11. Any material and equipment required to be installed and utilized for the test.
 - 12. Pipe, structures, pavement replacement and/or appurtenances included within the limits of lump sum work.
 - 13. Maintaining the existing quality of service during construction.

14. Appurtenant work as required for a complete and operable system.
 15. Maintaining or detouring of traffic.
- D. No payment shall be made for work constructed outside the authorized limits of work

PART 2 – MATERIALS AND EQUIPMENT

2.01 Pre-Construction Video

Bid Item 1

Lump sum payment will be made based on delivery to the City of two copies with documentation of the video for the project route. The contract lump sum price shall be full compensation for all materials and work necessary to complete the professional videotaping in accordance with the project specifications. Construction work shall not start until DVD's are delivered and approved by the project representative.

2.02 Demolition of Existing Lift Station

Bid Item 2

Lump sum payment shall be made for the demolition, removal, abandonment, filling, and/or other work to existing facilities as shown on the plans and as required to complete the required work. Restoration, including fill required, shall be included. Demolished facilities shall be shown on the as-builts. City shall have right to all abandoned equipment. CONTRACTOR shall deliver to City or dispose of properly. CONTRACTOR is responsible for proper disposal of all removed materials.

2.03 Bypass Pumping

Bid Item 3

Lump sum payment will be made at the completion of the operational lift station for temporary bypass pumping. The bypass pumping system shall be duplex pumps and each pump shall be capable of passing the flows with one unit on standby. Temporary systems shall be automatic float operated and switch over to standby, have cellular alarm notification, and have a noise level no greater than 70 dba at seven (7) meters.

2.04 Complete Lift Station

Bid Item 4

Lump sum payment will be made for the pumps, rails, top slab, hatch, new wetwell, valves, valve vault, yard piping, mechanical equipment, restoration, and all other items necessary for a complete installation. This includes all materials, equipment and labor required to construct the station as shown on the plans and described in the specifications.

2.05 Electrical

Bid Item 5

Lump sum payment shall be made for the installation of all Electrical equipment as shown on the plans and described in the specifications. Payment will be full compensation for furnishing all plant labor, materials, equipment, and electrical work to integrate and connect the new motors, lighting, control panels, junction boxes, cables, wiring, and miscellaneous components required

to complete all electrical work in accordance with the contract plans, specifications, the National Electric Code and FBC. CONTRACTOR shall obtain requisite electrical permits prior to commencement of work.

2.06 Tie-Ins

Bid Item 6

Payment will be made at the applicable unit price for the cost of the “tie-in” performed. The lump sum price will be full compensation for all pipe, valves, fittings, materials and labor required to satisfactorily accomplish this item as detailed in the plans and specifications.

2.07 DIP Fittings (Add or Delete)

Bid Item 7

Payment shall be made at the contract unit price per pound for all ductile iron/cast iron fittings installed by the CONTRACTORS as directed by the ENGINEER. This item is included in the CONTRACTOR cover the cost of additional fittings that are not shown on the project plans which are required to meet modified routing due to field conditions. This item includes the cost of providing and installing “restrained joints” at both ends of each additional fitting installed.

2.08 Cap and Abandon Existing Force Main

Bid Item 8

Lump sum payment shall be made for satisfactory abandonment of the existing lines as shown on the plans. Payment shall be full compensation for grouting the abandoned portion of the existing force main as shown on the plans.

2.09 Permit Allowance

Bid Item 9

An allowance is established to pay costs associated with building permit fees and ancillary costs associated with construction of the lift station improvements. No provisions for mark-up are included within the allowance.

2.10 As-Built Plans

Bid Item 10

Lump sum payment will be made based on delivery of record drawings produced by a licensed surveyor conforming to the specifications. Periodical record drawings shall be submitted with each pay estimate on which the ENGINEER shall rely to ensure the improvements are constructed in accordance with the design locations and elevations. Progress payments submitted without updated record drawings to document work constructed that pay period shall be a basis for rejection of the pay request until such time as adequate record drawings are submitted.

2.11 MOT

Bid Item 11

Payment for traffic control will be made at the contract lump sum price which price and payment shall be full compensation for the material, labor, equipment, and all other related work necessary to complete required traffic control during the period of construction affecting the flow of traffic within the project area or adjacent collector roads and highways. This item shall include the costs to prepare approved traffic control plans as well as the full cost to implement

the approved plans. For areas under County or State control, traffic control shall be provided in accordance with each entity's requirements. Payment shall be made based on the percent of the total construction cost completed.

2.12 Restoration

Bid Item 12

At the completion of construction, lump sum payment shall be made for site restoration to provide positive drainage, acceptable finish grades, base and pavement restorations. Sod shall match existing materials or as called out within the plans and specifications. All pavement, sod, grading for a final site acceptable to the City and their project representative are included in this pay item.

PART 3 – EXECUTION (NOT USED)

END OF SECTION

SECTION 01 29 76

PROGRESS PAYMENT PROCEDURES

PART 1 – GENERAL

1.01 DESCRIPTION

- A. Scope of Work: Submit Application for payment to the ENGINEER on accordance with schedule established by Conditions of the Contract and Agreement between OWNER and CONTRACTOR. CONTRACTOR shall use the Application and Certificate for Payment Form included on Section 00 84 40 as the official pay request form.
- B. Related Requirements Described Elsewhere:
 - 1. Agreement: Section 00 50 00.
 - 2. Construction Progress Schedule: Section 01 32 16.
 - 3. Schedule of Values: Section 01 29 73.
 - 4. Photographic Documentation: Section 01 32 33.
 - 5. Project Record Documents: Section 01 78 39.

1.02 FORMAT REQUIRED

- A. Submit applications typed on the form provided in Division 0, Section 00 84 40: Application and Certificate for Payment Form, with itemized data typed on eight and one-half inch by 11 inch (8-1/2" x 11") or white paper continuation sheets.
- B. Provide itemized data on continuation sheets of format, schedules, line items, and values specified on the Application and Certificate for Payment Form. The CONTRACTOR shall use the item descriptions and contract values included in schedule of values, approved, and accepted by the ENGINEER as a basis for preparation of the Application for Payment Form.

1.03 PREPARATION OF APPLICATION FOR EACH PROGRESS PAYMENT

- A. Application Form:
 - 1. Fill in required information, including that for Change Orders executed prior to date of submittal of application.

2. Fill in percent complete for each activity and dollar values to agree with respective percents.
3. Execute certification with signature of a responsible officer of CONTRACTOR.

B. Continuous Sheets:

1. Fill in total of all scheduled component items of the Work, with item number and schedule dollar value for each item.
2. Fill in dollar value in each column for each scheduled line item when Work has been performed or products stored. Round off values to nearest dollar, or as specified for Schedule of Values.
3. List each Change Order executed prior to date of submission, at the end of the continuation sheets. List by Change Order Number, and description, as for an original component item Work.
4. To receive approval for payment on component material stored on site, submit copies of the original invoices with Application and Certificate for Payment.
5. As provided for in the Application and Certificate for Payment Form, the CONTRACTOR shall certify, for each current pay request, that all previous progress payments received from the OWNER, under this Contract, have been applied by the CONTRACTOR to discharge in full, all obligations of the CONTRACTOR in connection with Work covered by prior Applications for Payment, and all materials and equipment incorporated into the Work are free and clear of all liens, claims, security interest, and encumbrances. CONTRACTOR shall attach to each Application and Certificate for Payment like affidavits by all Subcontractors.

1.04 SUBSTANTIATING DATA FOR PROGRESS PAYMENTS

- A. CONTRACTOR shall submit suitable information, with a cover letter identifying:
1. Project.
 2. Application number and date.
 3. Detailed list of enclosures.

4. For stored products:

- a) Item number and identification as shown on application.
- b) Description of specific material.

- B. Submit one (1) copy of data and cover letter for each copy of application.
- C. The CONTRACTOR is to maintain an updated set of drawings to be used as record drawings in accordance with Section 01 78 39: Project Record Documents. As a prerequisite for monthly progress payments, the CONTRACTOR is to exhibit the updated record drawings for review by the OWNER and the ENGINEER.
- D. Each monthly application for payment shall incorporate the corresponding “monthly progress status report” and updated construction schedule, prepared in accordance with the requirements of Section 01 32 16: Construction Progress Schedule.
- E. As a prerequisite for payment, CONTRACTOR shall submit a duly executed letter from surety consenting to payment due and progress to date.
- F. Provide construction photographs in accordance with Section 01 32 33: Photographic Documentation.

1.05 PREPARATION OF APPLICATION FOR FINAL PAYMENT

- A. Fill in application form as specified for progress payments. Provide information as required by the General Conditions and Section 01 77 00: Closeout Procedures.
- B. Furnish evidence of completed operations and insurance in accordance with the General Conditions.
- C. Provide CONTRACTOR’s Final Release of Lien (Section 00 84 90) and other close-out submittals as required by the General Conditions.

1.06 SUBMITTAL PROCEDURE

- A. Submit Application for Payment to the ENGINEER at the time stipulated in the Agreement, or as agreed to at the pre-construction meeting. Review the percents complete with the ENGINEER and resolve any conflict or discrepancies.
- B. Number of copies for each Application for Payment: Five (5) copies plus additional copies for CONTRACTOR’s needs.

- C. When the ENGINEER finds the Application and Certificate for Payment Form is properly completed and correct, he will execute the Certificate for Payment and transmit the forms to the OWNER, with a copy to the CONTRACTOR.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

SECTION 01 31 19

PROJECT MEETINGS

PART 1 – GENERAL

1.01 DESCRIPTION

A. Scope of Work:

1. The CONTRACTOR shall coordinate with the ENGINEER to schedule and administer the preconstruction meeting, resident meeting, utility coordination, periodic progress meetings, and specifically called meetings throughout the progress of the Work.
2. The ENGINEER shall:
 - a. Prepare agenda for meetings.
 - b. Make physical arrangements for meetings.
 - c. Preside at meetings.
 - d. Take and distribute meeting minutes.
3. The CONTRACTOR shall:
 - a. Attend all meetings along with pertinent subcontractors and suppliers.
 - b. Appoint attendees who are qualified and authorized to act on behalf of the entity each represents.
 - c. Provide requested information at meetings.
4. The OWNER shall:
 - a. Attend meetings to ascertain that the Work is expedited consistent with Contract Documents and construction schedules.

B. Related Requirements Described Elsewhere:

1. Construction Progress Schedules: Section 01 32 16.
2. Shop Drawings: Section 01 33 23.
3. Project Record Documents: Section 01 78 39.

1.02 PRECONSTRUCTION MEETING

- A. Purpose: To initiate coordination of contractual requirements prior to start of work.
- B. Scheduling: ENGINEER will schedule a preconstruction meeting after execution of the Contract. Invites shall be sent via electronic mail.
- C. Location: A local site, convenient for all parties, designated by the ENGINEER.
- D. Attendance:
 - 1. OWNER's representative.
 - 2. ENGINEER and his sub-consultants.
 - 3. Resident project representative.
 - 4. CONTRACTOR and his superintendent.
 - 5. Major subcontractors.
 - 6. Representatives of major suppliers and manufacturers, as appropriate.
 - 7. Governmental and franchised utility representatives, as appropriate.
 - 8. Permit agency representatives, as appropriate.
 - 9. Funding agency representatives, as appropriate.
 - 10. Others as requested by the CONTRACTOR, OWNER, and ENGINEER.
- C. Suggested Agenda:
 - 1. Introductions and Roles.
 - 2. Contract Execution and Dates.
 - a. Contracts.
 - b. Contract Time/Dates.
 - c. Copies of Conformed Documents.
 - 3. Communications.
 - a. Lines of Communication.
 - b. Coordination Meetings.

- c. Contact List.
 - d. Requests for Information (RFIs).
- 4. Preconstruction Matters.
 - a. Submittals.
 - b. Material Acquisition.
 - c. Mobilization.
 - d. Permitting.
- 5. Construction/Coordination.
 - a. Working Days/Hours.
 - b. Change Orders.
 - c. Locating Existing Facilities.
 - d. Demolition.
 - e. Testing.
 - f. Updated Schedules.
- 6. Pay Requests.
 - a. Process.
 - b. Schedule of Values.
 - c. Stored Materials.
 - d. Preliminary As-Builts.
- 7. Contract Closeout.
 - a. Substantial Completion.
 - b. Punch-list.
 - c. Final Acceptance.
 - d. Warranty.
 - e. Final Payment.

1.03 RESIDENT MEETING(S)

- A. Purpose: To present construction approach to effected residents and to allow residents to ask questions concerning such.
- B. Scheduling: ENGINEER/OWNER will schedule resident meeting(s) after preconstruction meeting is held, but before construction begins. Invites shall be distributed via electronic mail and hard copy flyers. CONTRACTOR shall assist in the distribution of flyers.
- C. Location: A local site, convenient for all parties, designated by the ENGINEER/OWNER.

D. Attendance:

1. OWNER's representative.
2. ENGINEER.
3. Resident project representative.
4. CONTRACTOR and his superintendent.
5. Major subcontractors, as appropriate.
6. Residents.

E. Suggested Agenda: To be determined by ENGINEER/OWNER.

1.04 UTILITY COORDINATION MEETING(S)

- A. Purpose: To discuss the coordination of the construction with existing and proposed utilities.
- B. Scheduling: ENGINEER will schedule utility coordination meeting(s) as needed. These meetings may be held in conjunction with Progress Meetings. Invites shall be distributed via electronic mail.
- C. Location: A local site, convenient for all parties, designated by the ENGINEER.
- D. Attendance:
1. OWNER's representative.
 2. ENGINEER.
 3. Resident project representative.
 4. CONTRACTOR and his superintendent.
 5. Major subcontractors, as appropriate.
 6. Utility representatives.
- E. Suggested Agenda: To be determined by ENGINEER.

1.05 PROGRESS MEETINGS

- A. Purpose: To discuss the progress of the construction and projected work activities.
- B. Scheduling: ENGINEER will schedule progress meetings on a regular basis at a minimum frequency of once per week and at a maximum frequency of once per month. Invites shall be distributed via electronic mail.
- C. Location: A local site, convenient for all parties, designated by the ENGINEER.
- D. Attendance:
 - 1. OWNER's representative.
 - 2. ENGINEER and sub-consultants, as appropriate.
 - 3. Resident project representative.
 - 4. CONTRACTOR and his superintendent.
 - 5. Major subcontractors, as appropriate.
 - 6. Utility representatives, as appropriate.
 - 7. Permit agency representatives, as appropriate.
 - 8. Funding agency representatives, as appropriate.
- E. Suggested Agenda:
 - 1. Work progress since last meeting.
 - 2. Work scheduled this period.
 - 3. Field observations, problems, and conflicts.
 - 4. Construction schedule.
 - a. Status of current schedule.
 - b. Issues impacting schedule.
 - c. Fabrication and delivery schedules.
 - d. Corrective measures to regain projected schedule.
 - 5. Submittals.
 - 6. RFIs.
 - 7. Pending Changes and Substitutions.

8. Quality Control.
9. Pay Requests.
10. Other Business.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

SECTION 01 32 33

PHOTOGRAPHIC DOCUMENTATION

PART 1 – GENERAL

1.01 SCOPE OF WORK

- A. Scope of Work: The CONTRACTOR shall employ a competent photographer to take construction record photographs and video recording prior to start of work and periodically during the course of the Work.
- B. Related Requirements Described Elsewhere:
 - 1. Project Requirements: Section 01 00 00.
 - 2. Summary of Work: Section 01 11 00.
 - 3. Location, Scope, and Special Requirements: Section 01 35 00.
 - 4. Project Record Documents: Section 01 78 39.

1.02 PHOTOGRAPHY REQUIRED

- A. Digital photographs shall be taken in conformance with this Section shall be furnished to the ENGINEER with each pay request. Failure to comply will result in rejection of pay request.
- B. Digital photographs shall be taken at each of the major stages of construction and as directed by the ENGINEER.
- C. Digital photographs may be taken by the CONTRACTOR's personnel but must be of professional quality as herein specified. Photographs which are deemed unsatisfactory will be rejected and retakes will be required.
- D. Views and Quantities Required:
 - 1. CONTRACTOR shall supply Digital pictures on a minimum four (4) GB USB Flash Drive. One (1) view of each activity, as directed by the Resident Project Representative, up to a limit of ten activities photographed per month.
 - 2. One (1) Digital picture of five (5) views of overall Project site monthly including any change of condition, any structural changes, relocation, and

all conflicts with utilities, as directed by the Resident Project Representative.

E. Digital pictures shall contain and comply with the following:

1. The CONTRACTOR shall maintain all Digital copies of photos for the entire Project and then shall convey the disks to the OWNER at the completion of the Project.
2. All disks shall be properly labeled with project name, project number, project start and end dates, CONTRACTOR's name, and OWNER's name for which work was completed.
3. The photographer shall agree to furnish additional disks to OWNER and the ENGINEER at commercial rates applicable at time of purchase.

1.03 COST OF PHOTOGRAPHY

- A. The CONTRACTOR shall pay costs for specified Digital photography and any required prints.

PART 2 – PRODUCTS

2.01 DIGITAL PHOTOGRAPH AND/OR PRINTS

A. Type of Print (if required):

1. Paper: Single weight, color print paper.
2. Finish: Smooth surface, glossy.
3. Size: Four inch x six inch (4" x 6") for construction photos.

B. Identify each photograph with the following (each print shall have information listed on back of each photograph and digital pictures shall have coordinating log sheet with information):

1. Name of project.
2. Orientation of view.
3. Date and time of exposure.
4. Name and address of photographer.
5. Each photograph shall be numbered in consecutive order.

Note: Digital prints shall be used to clarify as-builts.

PART 3 – EXECUTION

3.01 TECHNIQUE

- A. Factual Presentation.
- B. Correct exposure and focus.
 - 1. High resolution and sharpness (minimum 800 DPI).
 - 2. Maximum depth-of-field.
 - 3. Minimum distortion.

3.02 VIEWS REQUIRED

- A. Digital photographs shall adequately illustrate condition of construction and state of progress.
 - 1. At successive periods of photography, take at least one (1) digital photograph from the same overall view as previously photographed.
 - 2. Consult with the ENGINEER at each period of digital photography for instructions concerning views required.

3.03 DELIVERY OF PRINTS

- A. Deliver photographs, on USB Flash Drive with coordinating log, to the ENGINEER as attachment to Application for Payment. (Flash Drive will become property of ENGINEER and/or client)
- B. Distribution of construction photographs, as soon as processed, is anticipated to be as follows:
 - 1. ENGINEER [one (1) set].
 - 2. Project record file [one (1) set to be stored by CONTRACTOR until the end of the project which shall be delivered with Project Record Documents as specified in Section 01 78 39].
 - 3. CONTRACTOR [one (1) set].

END OF SECTION

SECTION 01 32 36

VIDEO MONITORING AND DOCUMENTATION

PART 1 – GENERAL

1.01 SCOPE OF WORK

- A. Furnish all labor, materials, and equipment to furnish color audio video recording of the project site as specified herein.
- B. Related Requirements Described Elsewhere:
 - 1. Project Requirements: Section 01 00 00.
 - 2. Summary of Work: Section 01 11 00.
 - 3. Location, Scope, and Special Requirements: Section 01 35 00.
 - 4. Project Record Documents: Section 01 78 39.
- C. Furnish to the ENGINEER an original and one copy of a continuous color audio video recording on DVD around the entire project site. The recording shall be taken prior to any construction activity.
- D. The ENGINEER reserves the right to reject the audio video recording because of poor quality, unintelligible audio or uncontrolled pan or zoom. Any DVD rejected by the ENGINEER shall be redone at no cost to the OWNER. Under no circumstances shall construction begin until the ENGINEER has received and accepted the audio video DVD(s).
- E. The recording shall be performed by a qualified, established audio video recording firm, knowledgeable in construction practices which have a minimum of one (1) year experience in the implementation of established inspection procedures.

1.02 COLOR AUDIO VIDEO SURVEY

- A. Complete coverage shall include all surface features located within the project site, easement areas, and adjacent private properties covering the extent of the project site to be utilized by the CONTRACTOR and will be supported by appropriate audio description made simultaneously with video coverage. Such coverage shall include, but not be limited to, all existing driveways, sidewalks, curbs, ditches, roadways including viaducts, landscaping, trees, culverts,

headwalls, and retaining walls, and buildings located within the area. Video coverage shall extend to the maximum height of all structures within this zone.

- B. All recording shall be done during times of good visibility. No recording shall be done during periods of visible precipitation, or when more than ten percent of the ground area is covered with standing water, unless otherwise authorized by OWNER.

1.03 COST OF VIDEOGRAPHY

- A. The CONTRACTOR shall pay costs for specified videography and any required digital copies.

PART 2 – PRODUCTS

2.01 AUDIO AND VIDEO

- A. CONTRACTOR shall furnish continuous color, audio-video DVD(s) of professional quality.
- B. Pre- and post-construction recording should be recorded on a DVD-R disk, 4.7 gigabits, recorded in SP mode (120 mins) or better (HQ, HSP), disk must be finalized with no editing of information and must be properly marked with date, location, CONTRACTOR's name, job site, and name of Videographer. The date and time stamp must be visible at all times on image and disk must be stored in an individual sleeve.
- C. Each DVD shall begin with the OWNER's name, Contract name and number, CONTRACTOR's name, date, and location information such as street name, direction of travel, viewing side, etc.
- D. Information appearing on the DVD must be continuous and run simultaneously by computer generated transparent digital information. No editing or overlaying of information at a later date will be acceptable.
- E. Digital information will be as follows:
 - 1. Upper left corner:
 - a. Name of CONTRACTOR.
 - b. Day, date, and time.
 - c. Name of project.

2. Lower left corner:

- a. Route of travel.
 - b. Viewing side.
 - c. Direction of travel.
 - d. Stationing.
- F. Time must be accurate and continuously generated.
- G. Engineering station numbers must be continuous, be accurate and correspond to project stationing. The symbols should be the standard engineering symbols (i.e. 16+64).
- H. Written documentation must coincide with the information on the DVD so as to make easy retrieval of location sought for at a later date.
- I. The video system shall have the capability to transfer individual frames of video electronically into hard copy prints or photography negatives.
- J. Audio shall be recorded at the same time as the video recording and shall have the same information as on the viewing screen. Special commentary will be given for unusual conditions of buildings, sidewalks and curbing, foundations, trees, and shrubbery, etc.
- K. All DVDs and boxes shall bare labels with the following information:
1. Recording Number.
 2. OWNER's Name.
 3. Date of Recording.
 4. Project Name and Number.
 5. Location and Standing Limit of DVD.
- L. Prior to commencement of audio video recording, the CONTRACTOR shall notify the ENGINEER in writing when and where the audio video recording will begin. The ENGINEER may provide a designated representative to accompany and oversee coverage of all recording operations. Audio video recording completed without an ENGINEER representative present will be unacceptable unless specifically authorized by the ENGINEER.

PART 3 – EXECUTION

3.01 TECHNIQUE

- A. Factual Presentation.
- B. Correct exposure and focus.
 - 1. High resolution and sharpness.
 - 2. Maximum depth-of-field.
 - 3. Minimum distortion.

3.02 VIEWS REQUIRED

- A. Videos shall adequately illustrate condition of construction and state of progress.
 - 1. At successive periods of videography, take at least one video from the same overall view as previously videoed.
 - 2. Consult with the ENGINEER at each period of videography for instructions concerning views required.

3.03 DELIVERY OF VIDEOS

- A. Deliver videos, on USB Flash Drive with coordinating log, to the ENGINEER as attachment to Application for Payment. (Flash Drive will become property of ENGINEER and/or client)
- B. Distribution of construction videos, as soon as processed, is anticipated to be as follows:
 - 1. ENGINEER [one (1) set].
 - 2. Project record file [one (1) set to be stored by CONTRACTOR until the end of the project which shall be delivered with Project Record Documents as specified in Section 01 78 39].
 - 3. CONTRACTOR [one (1) set].

END OF SECTION

SECTION 01 33 23

SHOP DRAWINGS

PART 1 – GENERAL

1.01 REQUIREMENTS INCLUDED

- A. The CONTRACTOR shall submit to the ENGINEER for review and approval, such working drawings, shop drawings, test reports and data on materials and equipment, and material samples materials list, certificates and affidavits as are required for the proper control of work, including but not limited to those working drawings, shop drawings, data and samples for materials and equipment specified elsewhere in the Specifications and in the Contract Drawings.
- B. Within 20 calendar days after the Effective Date of the Agreement, the CONTRACTOR shall submit to the ENGINEER a complete materials list of preliminary data on items for which Shop Drawings are to be submitted. Included in this materials list shall be the names of all proposed manufacturers furnishing specified items. Review of this list by the ENGINEER shall in no way be expressed or implied relief to the CONTRACTOR from submitting complete Shop Drawings and providing material, equipment, etc., fully in accordance with the Specifications. This procedure is required in order to expedite final review of Shop Drawings.
- C. The CONTRACTOR shall maintain an accurate updated submittal log and will bring this log to each scheduled progress meeting with the OWNER and the ENGINEER. This log shall include the following items:
 - 1. Submittal – Description and Number assigned.
 - 2. Date to ENGINEER.
 - 3. Date returned to CONTRACTOR (from ENGINEER).
 - 4. Status of Submittal (Approved, Approved as Noted, Not Approved/Resubmit).
 - 5. Date of Re submittal and Return (as applicable).
 - 6. Date material release (for fabrication).
 - 7. Projected date of fabrication.
 - 8. Projected date of delivery to site.

9. Status of O&M manuals submitted.
10. Specification Section.
11. Drawings Sheet Number.

1.02 CONTRACTOR'S RESPONSIBILITY

- A. It is the duty of the CONTRACTOR to check all drawings, data and samples prepared by or for him before submitting them to the ENGINEER for review. Each and every copy of the drawings and data shall bear CONTRACTOR's stamp and signature showing that they have been so checked. Shop drawings submitted to the ENGINEER without the CONTRACTOR's stamp and signature will be returned to the CONTRACTOR for conformance with this requirement. Shop drawings shall indicate any deviations in the submittal from requirements of the Contract Documents. If the CONTRACTOR takes exception to the specifications, the CONTRACTOR shall note the exception in the letter of transmittal to the ENGINEER. Shop drawings submittals shall not be used as a vehicle for requesting approval of substitute or alternative equipment and materials. Substitution requests will be considered only when submitted in accordance with the applicable provisions of Section 01 60 00.
- B. Determine and Verify:
 1. Field measurements.
 2. Field construction criteria.
 3. Catalog numbers and similar data.
 4. Conformance with Specifications.
- C. The CONTRACTOR shall furnish the ENGINEER a schedule of Shop Drawings submittals fixing the respective dates for the submission of shop and working drawings, the beginning of manufacture, testing and installation of materials, supplies and equipment. This schedule shall indicate those that are critical to the progress schedule.
- D. The CONTRACTOR shall not begin any of the work covered by a drawing, data, or a sample returned for correction until a revision or correction thereof has been reviewed and returned to him, by the ENGINEER, with approval.
- E. The CONTRACTOR shall submit to the ENGINEER all drawings and schedules sufficiently in advance of construction requirements to provide no less than 30 calendar days for checking and appropriate action from the time the ENGINEER receives them.

- F. All submittals shall be accompanied by a transmittal letter prepared in duplicate containing the following information:
1. Date.
 2. Project Title and Number.
 3. CONTRACTOR's name and address.
 4. The number of each Shop Drawing, Product Data, and Sample submitted.
 5. Notification of deviations from Contract Documents.
 6. Submittal Log Number conforming to Specification Section Numbers.
- G. The CONTRACTOR shall submit five (5) copies of descriptive or product data submittals/drawings to the ENGINEER. The ENGINEER will review the submittals/drawings and return to the CONTRACTOR the sets of marked-up submittals/drawings with appropriate review comments. All shop drawings, when practical, shall be 24 inch by 36 inch (24" x 36") in size.
- H. Once submittals/drawings are approved, they are to be distributed as follows:
1. OWNER: One (1) copy.
 2. ENGINEER: Two (2) copies.
 3. CONTRACTOR: Two (2) copies.
- I. The CONTRACTOR shall be responsible for and bear all costs of damages which may result from the ordering of any material or from proceeding with any part of work prior to the completion of the review by ENGINEER of the necessary shop drawings.
- J. The CONTRACTOR shall be fully responsible for observing the need for and making any changes in the arrangement of piping, connections, wiring, manner of installation, etc., which may be required by the materials/equipment he proposed to supply both as pertaining to his own work and any work affected under other parts, headings, or divisions of Drawings and Specifications.

1.03. ENGINEER'S REVIEW OF SHOP DRAWINGS

- A. The ENGINEER's review of drawings, data and samples submitted by the CONTRACTOR will cover only general conformity to the Specifications, external connections, and dimensions which affect the installation. The ENGINEER's review and exceptions, if any, will not constitute an approval of dimensions, quantities, and details of the material, equipment, device, or item shown.
- B. The review of drawings and schedules will be general, and shall not be construed:
 - 1. As permitting any departure from the Contract requirements;
 - 2. As relieving the CONTRACTOR of responsibility of any errors, including details, dimensions, and materials;
 - 3. As approving departures from details furnished by the ENGINEER, except as otherwise provided herein.
- C. If the drawings or schedules as submitted describe variations and show a departure from the Contract requirements which ENGINEER finds to be in the interest of the OWNER and to be so minor as not to involve a change in Contract Price or time for performance, the ENGINEER may return the reviewed drawings, without noting an exception.
- D. When reviewed by the ENGINEER, each of the Shop Drawings will be identified as having received such review, being so stamped and dated. Shop Drawings stamped "NOT APPROVED/RESUBMIT" and with required corrections shown will be returned to the CONTRACTOR for correction and re-submittal.
- E. Re submittals will be handled in the same manner as first submittals. On Re submittals the CONTRACTOR shall direct specific attention, in writing or on resubmitted Shop Drawings, to revisions other than the corrections requested by the ENGINEER on previous submissions. The CONTRACTOR shall make any corrections required by the ENGINEER.
- F. If the CONTRACTOR considers any correction indicated on the drawings to constitute a change to the Contract Drawings or Specifications, the CONTRACTOR shall give written notice thereof to the ENGINEER.
- G. Shop drawings and submittal data shall be reviewed by the ENGINEER for each original submittal and first Re submittal; thereafter review time for subsequent Re submittals shall be charged to the CONTRACTOR in accordance with the terms of the ENGINEER's Agreement with the OWNER.
- H. When the Shop Drawings have been completed to the satisfaction of the

ENGINEER, the CONTRACTOR shall carry out the construction in accordance therewith and shall make no further changes therein except upon written instructions from the ENGINEER.

- I. No partial submittals will be reviewed. Submittals not complete will be returned to the CONTRACTOR for Re submittal. Unless otherwise specifically permitted by the ENGINEER, make all submittals in groups containing all associated items for:
 1. Systems.
 2. Processes.
 3. As indicated in Specifications Sections. All drawings, schematics, manufacturer's product data, certifications and other shop drawing submittals required by a system specification shall be submitted at one time as a package to facilitate interface checking.

1.04 SHOP DRAWINGS

- A. When used in the Contract Documents, the term "shop drawings" shall be considered to mean CONTRACTOR's plans for materials and equipment which become an integral part of the Project. These drawings shall be completed and detailed. Shop drawings shall consist of fabrication, erection and setting drawings and schedule drawings, manufacturer's scale drawing, and wiring and control diagrams. Cuts, catalogs, pamphlets, descriptive literature, and performance and test data, shall be considered only as supportive to required shop drawings as defined above. As used herein, the term "manufactured" applied to standard units usually mass-produced; and "fabricate" means items specifically assembled or made out of selected materials to meet individual design requirements.
- B. Manufacturer's catalog sheets, brochures, diagrams, illustrations, and other standard descriptive data shall be clearly marked to identify pertinent materials, product, or models. Delete information which is not applicable to the Work by striking or cross-hatching.
- C. Drawings and schedules shall be checked and coordinated with the work of all trades involved, before they are submitted for review by the ENGINEER and shall bear the CONTRACTOR's stamp of approval as evidence of such checking and coordination. Drawings or schedules submitted without this stamp of approval shall be returned to the CONTRACTOR for resubmission.
- D. Each shop drawing shall have a blank area three and one-half inch x three and one-half inch (3-1/2" x 3-1/2"), located adjacent to the title block. The title block shall display the following:

1. Project title and number.
 2. Name of project building or structure.
 3. Number and title of the shop drawing.
 4. Date of shop drawing or revision.
 5. Name of CONTRACTOR and subcontractor submitting drawing.
 6. Supplier/manufacturer.
 7. Separate detailer when pertinent.
 8. Specification title and number.
 9. Specification section.
 10. Drawing number.
- E. If drawings show variations from Contract requirements because of standard shop practice or for other reasons, the CONTRACTOR shall describe such variations in his letter of transmittal. If acceptable, proper adjustment in the Contract shall be implemented where appropriate. If the CONTRACTOR fails to describe such variations, he shall not be relieved of the responsibility for executing the work in accordance with the Contract, even though such drawings have been reviewed.
- F. Data on materials and equipment include, without limitation, materials and equipment lists, catalog data sheets, cuts, performance curves, diagrams, materials of construction and similar descriptive material. Materials and equipment lists shall give, for each item thereon, the name and location of the supplier or manufacturer, trade name, catalog reference, size, finish, and all other pertinent data.
- G. For all mechanical and electrical equipment furnished, the CONTRACTOR shall provide a list including the equipment name, address, and telephone number of the manufacturer's representative and service company so that service and/or spare parts can be readily obtained.
- H. All manufacturers or equipment suppliers who are proposed to furnish equipment or products shall submit an installation list to the ENGINEER along with the required shop drawings. The installation list shall include at least five (5) installations where identical equipment has been installed and has been in operation for a period of at least one (1) year.
- I. Only the ENGINEER will utilize the color "red" in marking shop drawing submittals.

1.05 WORKING DRAWINGS

- A. When used in the Contract Documents, the term “working drawings” shall be considered to mean the CONTRACTOR’s plan for temporary structures such as temporary bulkheads, support of open cut excavation, support of utilities, ground water control systems, forming and false work; for underpinning; and for such other work as may be required for construction but does not become an integral part of the project.
- B. Copies of working drawings as noted in paragraph 1.05 A. above, shall be submitted to the ENGINEER where required by the Contract Documents or requested by the ENGINEER, and shall be submitted at least 30 calendar days (unless otherwise specified by the ENGINEER) in advance of their being required for work.
- C. Working drawings shall be signed by a registered Professional Engineer, currently licensed to practice in the State of Florida and shall convey, or be accompanied by, calculation or other sufficient information to completely explain the structure, machine, or system described and its intended manner of use. Review of working drawings by the ENGINEER will not relieve the CONTRACTOR in any way from his responsibility with regard to the fulfillment of the terms of the Contract. All risks of error are assumed by the CONTRACTOR; the OWNER and ENGINEER shall have no responsibility therefore.

1.06 SAMPLES

- A. The CONTRACTOR shall furnish, for the approval of the ENGINEER, samples required by the Contract Documents or requested by the ENGINEER. Samples shall be delivered to the ENGINEER as specified or directed. The CONTRACTOR shall prepay all shipping charges on samples. Materials or equipment for which samples are required shall not be used in work until approved by the ENGINEER.
- B. Samples shall be of sufficient size and quantity to clearly illustrate:
 - 1. Functional characteristics of the product, with integrally related parts and attachment devices.
 - 2. Full range of color, texture and pattern.
 - 3. A minimum of two (2) samples of each item shall be submitted.
- C. Each sample shall have a label indicating:
 - 1. Name of project.
 - 2. Name of CONTRACTOR and subcontractor.

3. Material or equipment represented.
4. Place of origin.
5. Name of producer and brand (if any).
6. Location in project.
7. Submittal Number.

(Samples of finished materials shall have additional marking that will identify them under the finish schedules).

- D. The CONTRACTOR shall prepare a transmittal letter in triplicate for each shipment of samples containing the information required in paragraph 1.06 B. above. He shall enclose a copy of this letter with the shipment and send a copy of this letter to the ENGINEER. Approval of a sample shall be only for the characteristics or use names in such approval and shall not be construed to change or modify any Contract requirements.
- E. Approved samples not destroyed in testing shall be sent to the ENGINEER or stored at the site of work. Approved samples of the hardware in good condition will be marked for identification and may be used in the work. Materials and equipment incorporated in work shall match the approved samples. Samples which failed testing or were not approved will be returned to the CONTRACTOR at his expense, if so requested at time of submission.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

SECTION 01 35 00

LOCATION, SCOPE, AND SPECIAL REQUIREMENTS

PART 1 – GENERAL

- 1.01 The CONTRACTOR shall not have any right in property in any materials taken from any excavation and he shall not remove any earth, sand, or other material from the lines of the work before the excavation is refilled except upon direction of the ENGINEER. The provisions of this paragraph shall not be construed as relieving the CONTRACTOR of any kind of his obligations to remove and dispose of any of the material excavated, with or without rehandling, at his cost and expense as provided in these specifications.
- 1.02 From investigations, including surveys made at the site, it is assumed that physical conditions are approximately as indicated on the drawings, but the nature of the materials below the surface, the depth to satisfactory foundations, or the stability of beds or banks or quantity of groundwater are not guaranteed.
- 1.03 Where reference is made within these documents to government specifications, or those of well known organizations such as ASTM, ASA, ASME, etc., the latest editions shall be used, any or all references in these documents to earlier stated editions notwithstanding.
- 1.04 The CONTRACTOR shall take all necessary precautions to prevent damage to existing City utilities which are to remain in service during any of his construction operations. Should such utilities be damaged by the CONTRACTOR, he shall be required to replace, or repair same, to the satisfaction of the ENGINEER, at no additional cost to the OWNER.
- 1.05 Certain information regarding the reputed presence, size, character, and location of existing underground structure, pipes and conduits has been shown on the contract drawings. The location of underground structures shown may be inaccurate, and other obstructions than those shown may be encountered. The CONTRACTOR distinctly agrees that the ENGINEER and the OWNER are not responsible for the correctness or sufficiency of the information given; that in no event is this information to be considered as a part of the Contract; that he shall have no claim for delay or extra compensation on account of incorrectness of information given; or on account of insufficiency or absence of information regarding obstructions either revealed or not revealed by the drawings; and that he shall have no claim for relief from any obligation or responsibility under this Contract, in case the location, size or character of any pipe or other underground structure is encountered that is not shown on the drawings.
- 1.06 The CONTRACTOR agrees that the work shall be started not later than the date indicated in the “Notice to Proceed”, and shall substantially complete all work within **150 calendar days**, with final completion within **30 days** of substantial completion.

- A. The CONTRACTOR further agrees that for each calendar day, with the exception of Sundays and legal holidays, that any such work shall remain uncompleted after the completion time stipulated above, the sum of **One Thousand Dollars (\$1,000)** per day shall be deducted by the OWNER from monies due the CONTRACTOR, not as a penalty but as liquidated damages. If the CONTRACTOR is declared in default in accordance with the provisions of the specifications, liquidated damages shall be charged as provided herein, and such amounts shall be deducted from the final amount payable to the CONTRACTOR or his Surety. Should the total amount chargeable as liquidated damages exceed the amount due or payable to the CONTRACTOR or his Surety, then such excess shall be paid to the OWNER by the CONTRACTOR or his Surety.
- 1.07 The City shall provide reference points as shown on the plans. CONTRACTOR shall be responsible for having a land surveyor registered in the State of Florida and approved by the ENGINEER lay out the work, shall protect and preserve the established reference points and shall make no changes or relocations without the prior written approval of the ENGINEER. CONTRACTOR shall report to ENGINEER whenever such reference point is lost or destroyed or required location because of necessary changes in grades or locations, and the CONTRACTOR shall be responsible for replacement or relocation of such reference points by professionally qualified personnel, registered in the State of Florida and approved by the ENGINEER.
- 1.08 At least 30 days prior to the first progress payment request, the CONTRACTOR shall submit to the OWNER a schedule of anticipated draws, which estimates as accurately as possible the amount of the anticipated "work in place" which will be completed each month. Failure to comply may result in delay in payment, as funds from several sources customarily serve as the project funding source.
- 1.09 All dewatering and pumping necessary to accomplish the work of this Contract shall be performed by the CONTRACTOR at no extra or additional cost to the OWNER. Any permits required shall be the responsibility of the CONTRACTOR.
- 1.10 Examination of Contract Documents and Site. Before submitting a Bid, each CONTRACTOR must (a) examine the Contract Documents thoroughly, (b) visit the site to familiarize himself with local conditions that may in any manner affect cost, progress, or performance of the work, (c) familiarize himself with federal, state and local laws, ordinance, rules, and regulations that may in any manner affect cost, progress or performance of the work, and (d) study and carefully correlate Bidder's observations with the Contract Documents.
- 1.11 Attention is directed to the requirements of the following agencies with regard to permits and construction requirements within their jurisdiction.
- A. City of New Smyrna Beach.
- B. Army Corps of Engineers.

- C. St Johns River Water Management District.
 - D. Department of Environmental Protection.
 - E. Utilities Commission of New Smyrna Beach.
 - F. The OWNER will make necessary application for permits or permit exemptions to construct such facilities. It shall be, however, the responsibility of the CONTRACTOR to construct the facilities in strict accordance with the requirements of the above-mentioned agencies, and no extra or additional payments will be made by the OWNER for this work.
- 1.12 Construction shall be limited to weekday “day light” working hours. No “weekend”, “night time”, or “holiday” work shall be performed without obtaining permission in advance from the Project Engineer. Certain non-essential items such as clean up, seeding and mulching, sodding, some well pointing operations, saw cutting of pavement, etc. may be performed by the CONTRACTOR during the above times by giving the Project Engineer “Advance Notice” of such operations. The Prime CONTRACTOR shall establish the “normal (40 hour)” work week and all subcontractors shall work only during this “normal (40 hour)” work week to allow the Project Engineer’s Representative to observe the contract work during this “normal (40 hour)” work week. Any weekend, nighttime, or holiday work permitted to be performed by the CONTRACTOR shall be by agreement of both the ENGINEER and the City. Such work shall be performed in the presence of the ENGINEER’s Project Representative, paid for and scheduled at least 48 hours in advance of the activity planned. The fee shall be \$500 per inspector per day or any portion thereof, paid in advance directly to the ENGINEER. The fee shall only cover the activities the ENGINEER can reasonably inspect with one person. The ENGINEER solely reserves the right to determine the number of inspectors required for the number of CONTRACTOR’s crews working outside of the normal 40-hour work week.
- 1.13 The CONTRACTOR is responsible for recording a copy of the Payment and Performance Bond in the Official Records of Volusia County, Florida and shall provide copies of the recorded documents to the ENGINEER prior to the issuance of the “Notice to Proceed”. The CONTRACTOR shall be responsible for paying all costs associated with the recording of these documents and no contract payment shall be made to the CONTRACTOR for this item.
- 1.14 The CONTRACTOR acknowledges that he is responsible for complying with all aspects of the Florida Trench Safety Act (90-96, Laws of Fla.) effective October 1, 1990. He assumes all responsibility and costs entailed.
- 1.15 The proposed work indicated on the project plans may require adjustment in the field due to conflicts or field conditions. Field changes which do not substantially alter the character of the work shall not be grounds for the issuance of the change order.

- 1.16 Construction materials may be stockpiled. All arrangements and costs incurred are the responsibility of the CONTRACTOR. Prior to making arrangements with individual property owners, the CONTRACTOR shall indicate to the City and the ENGINEER which sites have been targeted for material storage. The City reserves the right to approve or disapprove the proposed locations. The CONTRACTOR shall provide a notarized written letter from the property owner approving use of the property by the property owner prior to using the property.
- 1.17 The CONTRACTOR is responsible for obtaining a Water Management District Permit for (dewatering) consumptive use if the CONTRACTOR's "means or methods" trip the Agency's thresholds requiring permits. No separate payment or contract time extension for the CONTRACTOR obtaining the permit shall be granted by the City.
- 1.18 Land disturbed shall have hay bales or "turbidity curtains" installed around the perimeter to control erosion and sediment runoff where it is likely to occur during construction at no extra cost to the OWNER.
- 1.19 All contract unit pricing shall remain valid for the duration of the contract.
- 1.20 Florida Sales Tax on materials, as well as all other customary taxes on construction activities, shall be paid for by the CONTRACTOR at no additional expense to the OWNER.
- 1.21 Limitations on the ENGINEER's Responsibilities:
- A. Neither the ENGINEER's authority to act under this Paragraph nor any decision made by him in good faith either to exercise or not exercise such authority shall give rise to any duty or responsibility of the ENGINEER to the CONTRACTOR, any Subcontractor, any of their agents or employees or any other person performing any of the work.
 - B. The ENGINEER will not be responsible for the construction means, methods, techniques, sequences or procedures, or the safety precautions and programs incident thereto, and he will not be responsible for the CONTRACTOR's failure to perform the work in accordance with the Contract Documents.
 - C. The ENGINEER will not be responsible for the acts or omissions of the CONTRACTOR, any subcontractors, or any of his or their agents or employees, or any other persons performing any of the work.
- 1.22 Reasonable care shall be taken during construction to avoid damage to vegetation. Ornamental shrubbery and tree branches shall be temporarily tied back, where appropriate, to minimize damage. Trees which receive damage to branches shall be trimmed of those branches to improve the appearance of the tree. Tree trunks receiving damage from equipment shall be treated with a tree dressing.

- 1.23 Substantial completion is defined as materials in place tested and in use, sodding, and sidewalk and other restoration items complete.
- 1.24 The CONTRACTOR's forces shall be required to "hand dig" and expose all existing public/private utilities and other existing facilities which may be in conflict with the proposed construction in order to adjust the proposed facility alignments to avoid any conflicts.
- 1.25 All existing improved areas disturbed by construction shall be sodded with the same type sod as the existing variety of sod encountered. Payment will be made for this work under the appropriate lump sum pay item. No separate payment will be made for sodding.
- 1.26 The CONTRACTOR shall make his own provisions for materials security. Any City provided work areas shall be returned to its original or better condition upon the completion of the project. Sodding of any disturbed areas utilized by the CONTRACTOR for work area will be accomplished by the CONTRACTOR at no additional cost to the City. Separate payment for this work will not be made and shall be included in the appropriate contract work items by the CONTRACTOR in the bid proposal.
- 1.27 The OWNER shall provide copies of previous surveys for the CONTRACTOR's surveyor's use. The CONTRACTOR shall bear all costs for a registered professional surveyor to "layout" the proposed project. At project completion time, the CONTRACTOR shall bear the costs of setting property corners which were lost during construction if they were disturbed by the CONTRACTOR's construction operation.
- 1.28 The Contractor shall perform on the site and with his own organization work equivalent to not less than 50 percent (50%) of the total dollar value of the work to be performed under this contract. The exception is specialty work may be performed by subcontractors and the cost of any such specialty work so performed by subcontract may be deducted from the total contract amount before computing the amount of work required to be performed by the CONTRACTOR with his own organization.
- 1.29 The CONTRACTOR shall be responsible for dust control on the project. The CONTRACTOR shall control dust when conditions as determined by the ENGINEER warrant. Water shall be provided by the City for this use in accordance with Paragraph 1.30 of this section. No separate payment shall be made for this item.
- 1.30 The CONTRACTOR and/or subcontractor shall not work on City's holidays. City Utility personnel are not available for emergency repairs nor are construction representatives on these holidays.
- 1.31 No construction trailer shall be required for this project.
- 1.32 All construction, manufacturing, fabrication and testing of materials shall be performed under the guidelines set forth in applicable local, state and federal codes, and/or under

recommendations provided in technical publications of respected professional or industry organizations. Material testing programs, where applicable, shall be presented to the ENGINEER for review and approval prior to construction. All products constructed or manufactured/supplied for the project shall be accompanied by industry acceptable warranties or guarantees.

- 1.33 For the purpose of these specifications. "Project Completion" is defined as completion of an agreed upon list of punch-list items compiled in a planned project walkthrough held at a time the CONTRACTOR considers the project to be "Substantially Complete". The CONTRACTOR shall notify the OWNER and ENGINEER at least 48 hours in advance of substantial completion and schedule a mutually agreeable walkthrough.
- 1.34 The CONTRACTOR shall maintain a clean and neat site, void of loose debris, trash, remnant parts or materials. Trash receptacles and removal service shall be maintained by the CONTRACTOR specifically for this project. Existing facilities shall not be used to maintain the project. Temporary debris piles shall be limited in number as much as practical and contained in designated areas until removal. Debris and trash shall not be scattered in areas outside the limited designated areas at anytime.

Removal of debris/trash shall be scheduled as appropriate to not allow piles to reach five feet in height or greater than ten feet in diameter. Debris individually larger than these dimensions shall be removed from the site within five working days. Receptacles shall not be allowed to overflow at any time. Where necessary, the CONTRACTOR shall employ a Maintenance of Traffic Plan (MOTP) for vehicles and pedestrians. The plan must be in writing, including sketches or drawings, and must be submitted to the OWNER, OWNER's Representative or ENGINEER for review and approval before commencement of the plan. The CONTRACTOR shall follow all applicable local, state and federal codes regarding site safety and maintenance.

END OF SECTION

SECTION 01 35 01

ATTACHMENTS

PART 1 – GENERAL

1.01 DESCRIPTION

A. The following attachments are hereby made part of the project specifications as fully and completely as if the same were fully set forth herein:

1. DEP Wastewater Construction Permit **PENDING**

SECTION 01 42 00

REFERENCES

PART 1 – GENERAL

1.01 GENERAL

- A. Applicable Publications. Whenever in these Specifications references are made to published specifications, codes, standards, or other requirements, it shall be understood that wherever no date is specified, only the latest specifications, standards, or requirements of the respective issuing agencies which have been published as of the date that the Work is advertised for bids, shall apply; except to the extent that said standards or requirements may be in conflict with applicable laws, ordinances, or governing codes. No requirements set forth herein or shown on the Drawings shall be waived because of any provision of or omission from said standards or requirements.
- B. Assignment of Specialists. In certain instances, specification test requires (or implies) that specific work is to be assigned to specialist or expert entities who must be engaged for the performance of the Work. Such assignments shall be recognized as special requirements over which the CONTRACTOR has no choice or option. These requirements shall not be interpreted so as to conflict with the enforcement of building codes and similar regulations governing the Work. They are not intended to interfere with local union jurisdiction settlements and similar conventions. Such assignments are intended to establish which party or entity involved in a specific unit of Work is recognized as “expert” for the indicated construction processes or operations. Nevertheless, the final responsibility for fulfillment of the entire set of Contract requirements remains with the CONTRACTOR.

1.02 REFERENCE SPECIFICATIONS, CODES, AND STANDARDS

- A. Without limiting the generality of other requirements of the Specifications, all Work specified herein shall conform to or exceed the requirements of such referenced documents which are not in conflict with the requirements of these Specifications or applicable codes.
- B. References herein to “Building Code” shall mean the latest edition of the Florida Building Code. The latest edition of the code as approved and used by the local agency as of the date of award as adopted by the agency having jurisdiction shall apply to the Work herein, including all addenda, modifications, amendments, or other lawful changes thereto.

- C. In case of conflict between codes, reference standards, Drawings, and the other Contract Documents, the most stringent requirements shall govern. All conflicts shall be brought to the attention of the ENGINEER for clarification and directions prior to ordering or providing any materials or labor. The CONTRACTOR shall bid the most stringent requirements.
- D. Applicable Standard Specifications. The CONTRACTOR shall construct the Work specified herein in accordance with the requirements of the Contract Documents and the referenced portions of those referenced codes, standards, and specifications listed.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

SECTION 01 45 35

TESTING AND TESTING LABORATORY SERVICES

PART 1 – GENERAL

1.01 DESCRIPTION

A. Scope of Work:

1. Contractor will employ, and pay for services of an independent testing laboratory to perform testing specifically indicated on the Contract Documents or specified in the Specifications herein and may at any other time elect to have materials and equipment tested for conformity with the Contract Documents.
2. Contractor shall cooperate with the laboratory to facilitate the execution of its required services.
3. Contractor shall provide engineer with all test results as indicated herein within five (5) days of receipt.

B. Related Requirements Described Elsewhere:

1. Testing laboratory inspection, sampling and testing is required for, but not limited to the following:
 - a. Excavation, Backfill, and Embankment: Section 31 23 00.
 - b. Trenching, Backfilling, and Compacting: Section 31 23 33.
 - c. Paving: Section 32 10 00.
 - d. Cast-in-Place Concrete: Section 03 30 00.

C. The following schedule defines the responsibility for various tests.

Test	Notes	Paid for By
Soil Compaction	Pipe Work: Every 300 feet (300') at each lift of compaction minimum. Beneath Structures: Each 500 SF lift of compaction minimum and each lift around structures.	Contractor
Pressure	As specified in Section 46 05 03	Contractor
Bacteriological	As required by local and state agencies	Contractor
LBR	Each 1500 SF of pavement (minimum)	Contractor
Concrete	Slump test each delivery and compressions test five (5) cylinders every 50 CY (minimum)	Contractor

- D. Additional Tests: The Contractor shall pay for first tests as specified herein. In the event that first test samples do not meet the applicable material specification, the Contractor shall take measures to conform the material and equipment to the Specifications. All subsequent tests shall be paid for by the Contractor.

1.02 LABORATORY TESTS

- A. The materials listed below shall require advance and periodic laboratory tests as indicated, and shall be sampled in accordance with the methods of the ASTM and as directed by the Engineer. With the exception of concrete test cylinders and mixing water, duplicate advance samples of all materials requiring laboratory tests shall be submitted to the Engineer, one of which will be certified by the Engineer for submission to the testing laboratory and the other retained on the job site in suitable storage provided by the Contractor. Except as noted below, preliminary samples of materials for advance laboratory tests shall be submitted at least two (2) weeks prior to starting delivery of such materials to the site of the project. The testing laboratory shall furnish both the Engineer and the Contractor with two (2) copies of the reports showing the results of such tests, and the reports shall be considered as sufficient evidence of the acceptance or rejection of the quality of the materials tested. The specifications for, and the method of testing, will be found under the detailed specifications for the particular material involved. All samples shall be properly packed and clearly marked as to source and intended use.

MATERIALS	TEST FREQUENCY	SAMPLE SIZE	SHIPPING CONTAINER
Fine Aggregate	Advance, first shipment then each 100 tons	100 lbs.	Canvas Sack
Coarse Aggregate	Advance, first shipment then each 200 tons	Stone or Gravel 200 lbs.	Strong Sack
Concrete	Advance test using approved materials	Four (4) cylinders per mix, two (2) broken at seven (7) days, two (2) at 28 days	
Concrete (b) Air Entrainment	Advance test on trial mix air entraining agent is used. Test as specified under Article 405 (e)		

1.03 TESTS

- A. The materials listed below shall be tested at the shop or plant of, and by, the producer. Each manufacturer of such materials shall be fully equipped to carry out the tests herein designated. Upon demand of the Engineer, the manufacturer shall perform such additional number of tests as the Engineer may deem necessary to establish the quality of the material offered for use. The Engineer shall be furnished with the certified records of reports of the results of all tests, such reports of records to contain a sworn statement that the tests have been made as specified.

MATERIAL	TEST METHOD
Cement	ASTM C 114
Ductile Iron Pipe (Centrifugally Cast)	As required under ANSI A21.51-1176
Brick	ASTM C 32
Reinforcement	ASTM A 15 & A 305

1.04 FIELD TESTS

- A. All sewers, water lines, piping and equipment shall be tested in the field in the presence of the Engineer or his authorized assistant, in the manner prescribed in the sections of these specifications pertaining to such installations. The Engineer may also perform or have performed any other field tests necessary to determine compliance with the Contract requirements. The Contractor shall furnish all necessary labor, equipment, and materials for such tests and, with the exception of the Engineer's expenses, shall bear all the cost thereof.

1.05 PAVING TESTS

- A. The following tests will be made, unless otherwise stipulated by the Engineer, by a testing laboratory approved by the Engineer.

Material	Test or Test Method	Frequency
Subbase	1) AASHTO T-180 [Modified Proctor Minimum 98 percent (98%) Density]	Every 300 LF
	2) Limerock Bearing Ratio 40	Every 300 LF
Base	(Soil Cement)	
	(1) Mix Design 350 psi @ 28 days. Mix design required seven (7) days in advance.	Prior to Mixing Base
	(2) Optimum Moisture content and Maximum Density (AASHTO T-134)	Every 300 LF
	(3) LBR 100	Every 1500 SF
	(4) Depth [six inch (6") minimum]	Every 300 feet (300')
Paving	(1) Job Mix Formula. Required seven (7) days in advance and submit to Engineer	Each Job
	(2) Bitumen Content of Mix	Every 2500 SY or fraction thereof
	(3) In Place Density	Every 300 feet (300') (left, right & center)
	(4) Marshall Field Stability Index	Every 1500 SY or fraction thereof
	(5) Thickness Cores	Every 300 feet (300') (left, right & center)

1.06 BASIS OF PAYMENT

- A. All shop tests and mill inspection shall be included in the price of the manufactured article, and no separate or extra payment will be made for such tests and inspection.
- B. All laboratory and field tests will be paid for by the Contractor; he shall furnish all necessary labor, equipment, and materials for such tests and, with the exception of the Engineer's expenses, shall bear all the costs thereof.

1.07 LABORATORY DUTIES: LIMITATIONS OF AUTHORITY

- A. Cooperate with Engineer and Contractor; provide qualified personnel promptly on notice.
- B. Perform specified inspections, sampling and testing of materials and methods of construction:
 - 1. Comply with specific standards; ASTM, other recognized authorities, and as specified.
 - 2. Determine and report on compliance with requirements of Contract Documents.
- C. Promptly notify the Engineer and Contractor of material or operations which do not meet the specifications.
- D. Promptly submit five (5) copies of reports of inspections and tests to the Engineer including:
 - 1. Date issued.
 - 2. Project title and Engineer's job number.
 - 3. Testing Laboratory name and address.
 - 4. Name and signature of inspector.
 - 5. Date of inspection of inspector.
 - 6. Date of inspection or sampling.
 - 7. Date of test.
 - 8. Identification of product and Specification section.
 - 9. Location in project.

10. Type of inspection or test.
 11. Compliance with Contract Documents or not.
- E. Laboratory is not authorized to:
1. Release, revoke, alter, or enlarge on requirements of Contract Documents.
 2. Approve or reject any portion of work.
 3. Perform any duties of the Contractor.

1.08 CONTRACTOR'S RESPONSIBILITIES

- A. Cooperate with laboratory personnel; provide access to Work and manufacture's operations.
- B. Secure and deliver to the laboratory adequate representational samples of materials purposed to be used and which require testing.
- C. Provide to the laboratory the preliminary design mix proposed to be for concrete, and other materials mixes which require control by the testing laboratory.
- D. Materials and equipment used in the performance of work under this Contract are subject to inspection and testing at the point of manufacturer of fabrication. Standard specifications for quality and workmanship are indicated in the Contract Documents. The Engineer may require the Contractor to provide statements or certificates from the manufacturers and fabricators that in full accordance with the standard specifications for quality and workmanship indicated in the Contract Documents. All costs of this testing and providing statements and certificates shall be a subsidiary obligation of the Contractor, and no extra charge to the Owner shall be allowed on account of such testing and certification.
- E. Furnish incidental labor and facilities:
 1. To provide access to Work to be tested.
 2. To obtain and handle samples at the Project site or at the source of the product to be tested.
 3. To facilitate inspections and tests.
 4. For storage and curing of test samples.

5. Notify laboratory sufficiently in advance of operations to allow for laboratory assignment of personnel and scheduling of tests.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

Attachment: HH121_LS7 Rehabilitation_Bid Set Specs (1716 : Lift Station #7 Rehabilitation 17WW07)

SECTION 01 57 13

TEMPORARY EROSION AND SEDIMENTATION CONTROL

PART 1 – GENERAL

1.01 DESCRIPTION

A. Scope of Work:

1. The Work specified in this Section consists of designing, providing, maintaining, and removing temporary erosion and sedimentation controls as required by Rules and Regulations and permit conditions.
2. Temporary erosion controls include, but are not limited to, grassing, mulching, setting, watering and re-seeding on-site surfaces and soil and borrow area surfaces and providing interceptor ditches at ends of berms and at those locations which will ensure that erosion during construction will be either eliminated or maintained within acceptable limits as established by the OWNER.
3. Temporary sedimentation controls include, but are not limited to silt dams, traps, barriers, and appurtenances at the foot of sloped surfaces which will ensure that sedimentation pollution will be either eliminated or maintained within acceptable limits as established by the OWNER.
4. CONTRACTOR is responsible for providing effective temporary erosion and sediment control measures during construction or until final controls become effective.

B. Related Work Described Elsewhere:

1. Excavation, Backfill, and Embankment: Section 31 23 00.
2. Grassing, Mulching and Sodding: Section 32 92 00.

PART 2 – PRODUCTS

2.01 EROSION CONTROL

- A. Sodding is specified in Section 31 23 00.
- B. Netting shall be fabricated of material acceptable to the OWNER.

2.02 SEDIMENTATION CONTROL

- A. Bales shall be clean, seed-free cereal hay type.
- B. Netting shall be fabricated of material acceptable to the OWNER.
- C. Filter stone shall be crushed stone which conforms to Florida Department of Transportation (FDOT) specifications.
- D. Concrete block shall be hollow, non-load bearing type.
- E. Concrete shall be exterior grade not less than one inch (1") thick.

PART 3 – EXECUTION

3.01 EROSION CONTROL

- A. Minimum procedures for grassing are:
 - 1. Scarify slopes to a depth of not less than six inches (6") and remove large clods, rock, stumps, roots larger than one-half inch (1/2") in diameter and debris.
 - 2. Sow seed within 24 hours after the ground is scarified with either mechanical seed drills or rotary hand seeders.
 - 3. Apply mulch loosely and to a thickness of between three-quarter inches (3/4") and one and one-half inches (1-1/2").
 - 4. Apply netting over mulched areas on sloped surfaces.
 - 5. Roll and water seeded areas in a manner which will encourage sprouting of seeds and growing of grass. Reseed areas which exhibit unsatisfactory growth. Backfill and seed eroded areas.

3.02 SEDIMENTATION CONTROL

- A. Install and maintain silt dams, traps, barriers, and appurtenances as shown on the approved descriptions and working drawings. Hay bales which deteriorate and filter stone which is dislodged shall be replaced.

3.03 PERFORMANCE

- A. Should any of the temporary erosion and sediment control measures employed by the CONTRACTOR fail to produce results which comply with the requirements of the State of Florida, the OWNER or ENGINEER, the CONTRACTOR shall immediately take whatever steps are necessary to correct the deficiency at his own expense.

END OF SECTION

SECTION 01 60 00

MATERIAL AND EQUIPMENT

PART 1 – GENERAL

1.01 DESCRIPTION

A. Scope of Work:

1. Conform to applicable specifications and standards.
2. Comply with size, make, type and quality specified, or as specifically approved in writing by ENGINEER.
3. Manufactured and fabricated products:
 - a. Design, fabricate and assemble in accordance with the best engineering and shop practices.
 - b. Manufacture like parts of duplicate units to standard sizes and gauges, to be interchangeable.
 - c. Two (2) or more items of the same kind shall be identical, by the same manufacturer.
 - d. Products shall be suitable for service conditions.
 - e. Equipment capacities, sizes and dimensions shown or specified shall be adhered to unless variations are specifically approved in writing.
4. Do not use material or equipment for any purpose other than that for which it is designed or is specified.

1.02 APPROVAL OF MATERIALS

- A. Only new materials and equipment shall be incorporated in the work. All materials and equipment furnished by CONTRACTOR shall be subject to the inspection and approval of ENGINEER. No material shall be delivered to the work without prior approval of ENGINEER.
- B. Within 20 days after the Effective Date of the Agreement, CONTRACTOR shall submit to ENGINEER, data relating to materials and equipment he proposes to furnish for the work. Such data shall be in sufficient detail to enable ENGINEER to identify the particular product to form an opinion as to its conformity to the specifications.
- C. Facilities and labor for handling and inspection of all materials and equipment shall be furnished by CONTRACTOR. If ENGINEER requires, either prior to beginning

or during progress of the work, CONTRACTOR shall submit samples of materials for such special tests as may be necessary to demonstrate that they conform to the specifications. Such samples shall be furnished, stored, packed and shipped as directed at CONTRACTOR's expense. Except as otherwise noted, CONTRACTOR shall make arrangements for and pay for the tests.

- D. CONTRACTOR shall submit data and samples sufficiently early to permit consideration and approval before materials are necessary for incorporation in the work. Any delay of approval resulting from CONTRACTOR's failure to submit samples or data promptly shall not be used as a basis of claim against OWNER or ENGINEER.
- E. In order to demonstrate the proficiency of workers or to facilitate the choice among several textures, types, finishes and surfaces, CONTRACTOR shall provide such samples of workmanship or finish as may be required.
- F. The materials and equipment used on the work shall correspond to the approved samples or other data.

1.03 SUBSTITUTIONS AND PRODUCT OPTIONS

- A. The substitution requirements of this Section are in addition to the requirements of the General Conditions and Supplementary Conditions.
- B. The intent of these Specifications is to provide OWNER with a quality facility without discouraging competitive bidding. Substitutions may be submitted and will be evaluated as specified herein.
- C. A Request for Substitution of Product may be submitted after the CONTRACTOR:
 - 1. Has investigated the proposed product and determined that it is equal to or superior to specified product, furnishes a certification to that effect and waives all rights to additional payment or time that may subsequently become necessary due to the failure of the substituted product to perform adequately.
 - 2. Agrees to provide same warranties or bonds for product substitution as for product specified.
 - 3. Agrees to be responsible for coordinating and paying for any necessary changes to other work required by approved substitutions or product options which he selects and shall pay all such costs including the costs of the services of the design professional to revise the Contract Documents, if such revisions are required.
 - 4. Waives all claims for additional costs due to substitution which may subsequently become apparent.

5. Is offering either a substantial credit to the OWNER for acceptance of the substitution or a convincing justification that the product to be provided as the substitution is substantially superior in quality, performance, compatibility with adjacent products, durability, vandal-resistance or in other important ways.

D. ENGINEER's Action:

1. ENGINEER will consider written requests for product substitution for a period of 45 calendar days after the effective date of the Agreement. ENGINEER will review requests for substitutions with reasonable promptness and notify CONTRACTOR in writing of OWNER's decision to accept or reject requested substitutions. Only the OWNER may accept a substitution.
2. Substitution requests made by means of shop drawings or product data submittal will not be considered.
3. After the period of 45 days has elapsed, the only substitution requests which will be considered are those which are made necessary by the removal of the specified products from the market or by other similar, unavoidable circumstances beyond the control of the CONTRACTOR.

1.04 MANUFACTURER'S INSTRUCTIONS FOR INSTALLATION

- A. When Contract Documents require that installation of work shall comply with manufacturer's printed instructions, obtain, and distribute copies of such instructions to parties involved in the installation, including five copies to ENGINEER.
 1. Maintain one (1) set of complete instructions at the job site during installation and until completion.
- B. Handle, install, correct, clean, condition and adjust products in strict accord with such instructions and in conformity with specified requirements.
 1. Should job conditions or specified requirements conflict with manufacturer's instructions, consult with ENGINEER for further instructions.
 2. Do not proceed with work without clear instructions.
- C. Perform work in accordance with manufacturer's instructions. Do not omit any preparatory step or installation procedure unless specifically modified or exempted by Contract Documents.

1.05 TRANSPORTATION AND HANDLING

- A. Arrange deliveries of products in accordance with construction schedules, coordinate to avoid conflict with work and conditions at the site.
 - 1. Deliver products in undamaged condition, in manufacturer's original containers or packaging, with identifying labels intact and legible.
 - 2. Immediately on delivery, inspect shipments to assure compliance with requirements of Contract Documents and approved submittals, and that products are properly protected and undamaged.
- B. Provide equipment and personnel to handle products by methods to prevent soiling or damage to products or packaging.

1.06 STORAGE AND PROTECTION

- A. The CONTRACTOR shall furnish a covered, weather-protected storage structure providing a clean, dry, noncorrosive environment for all mechanical equipment, valves, architectural items, electrical and instrumentation equipment, and special equipment to be incorporated into this project. Storage of equipment shall be in strict accordance with the "instructions for storage" of each equipment supplier and manufacturer including connection of heaters, placing of storage lubricants in equipment, etc. Corroded, damaged or deteriorated equipment and parts shall be replaced before acceptance of the project. Equipment and materials not properly stored will not be included in a payment estimate.
- B. Store products in accordance with manufacturer's instructions, with seals and labels intact and legible.
 - 1. Store products subject to damage by the elements in weathertight enclosures such as buildings or trailers which have a concrete or wooden floor, a roof, and fully closed walls on all sides.
 - 2. Maintain temperature and humidity within the ranges required by manufacturer's instructions (i.e. electrical and instrumentation equipment).
 - 3. Protect mechanical and electrical equipment from being contaminated by dust, dirt, and moisture.
 - 4. Store fabricated products above the ground, on blocking or skids prevent soiling and staining. Cover products which are subject to deterioration with impervious sheet coverings, provided adequate ventilation to avoid condensation.

5. Provide heated storage space for material which would be damaged by freezing.
 6. Store loose granular materials in a well-drained area on solid surfaces to prevent mixing with foreign matter.
 7. Prior to the installation of equipment, it shall be stored at locations designated and approved by the ENGINEER.
- C. All materials and equipment to be incorporated in the work shall be handled and stored by CONTRACTOR before, during and after shipment in a manner to prevent warping, twisting, bending, breaking, chipping, rusting, and any injury, theft, or damage of any kind whatsoever to the material or equipment.
 - D. Cement, sand, and lime shall be stored under a roof and off the ground and shall be kept completely dry at all times. All structural and miscellaneous steel, and reinforcing steel shall be stored off the ground or otherwise to prevent accumulations of dirt or grease, and in a position to prevent accumulations of standing water and to minimize rusting. Beams shall be stored with the webs vertical. Precast concrete beams shall be handled and stored in a manner to prevent accumulations of dirt, standing water, staining, chipping or cracking. Brick, block, and similar masonry products shall be handled and stored in a manner to reduce breakage, chipping, cracking and spalling to a minimum.
 - E. All materials which, in the opinion of ENGINEER, have become so damaged as to be unfit for the use intended or specified shall be promptly removed from the site of the work, and CONTRACTOR shall receive no compensation for the damaged material or its removal.
 - F. Arrange storage in a manner to provide easy access for inspection. Make periodic inspections of stored materials and equipment to assure that products are maintained under specified conditions, and free from damage or deterioration.
 - G. Protection After Installation: Provide substantial coverings as necessary to protect installed products from damage from traffic and subsequent construction operations. Remove covering when no longer needed.
 - H. The CONTRACTOR shall be responsible for all material, equipment, and supplies delivered to OWNER under this Contract until final inspection of the work and acceptance thereof by OWNER. In the event, any such material, equipment and supplies are lost, stolen, damaged or destroyed prior to final inspection and acceptance, CONTRACTOR shall replace same without additional cost to OWNER.

- I. Should CONTRACTOR fail to take proper action on storage and handling of equipment supplied under the Contract within seven (7) days after written notice to do so has been given. OWNER retains the right to correct all deficiencies noted in previously transmitted written notice and deduct the cost associated with these corrections from CONTRACTOR's Contract. These costs may be comprised of expenditures for labor, equipment usage, administrative, clerical, engineering and any other costs associated with making the necessary corrections.

1.07 SPECIAL TOOLS

- A. Manufacturers of equipment and machinery shall furnish any special tools (including grease guns or other lubricating devices) required for normal adjustment, operations, and maintenance, together with instructions for their use. CONTRACTOR shall preserve and deliver to OWNER these tools and instructions in good order no later than upon completion of the Contract.

1.08 STORAGE AND HANDLING OF EQUIPMENT ON SITE.

- A. Attention shall be given to the storage and handling of equipment on site. As a minimum, the procedure outlined below shall be followed:
 1. Equipment shall not be shipped until approved by ENGINEER. The intent of this requirement is to reduce on-site storage time prior to installation and/or operation. Under no circumstances shall equipment be delivered to the site more than one month prior to installation without written authorization from ENGINEER. Equipment shipped to the site shall be stored in accordance with Paragraph 1.06, herein. Operation and maintenance data shall be submitted to ENGINEER for review prior to shipment of equipment.
 2. All equipment having moving parts such as gears, electric motors, etc. and/or instruments shall be stored in a temperature and humidity controlled building approved by ENGINEER, until such time as the equipment is to be installed.
 3. All equipment shall be stored fully lubricated with oil, grease, etc. unless otherwise instructed by the manufacturer.
 4. Manufacturer's storage instructions shall be carefully studied by CONTRACTOR and reviewed with ENGINEER by him. These instructions shall be carefully followed and a written record of this kept by the CONTRACTOR.
 5. Moving parts shall be rotated a minimum of once weekly to insure proper lubrication and to avoid metal-to-metal "welding". Upon installation of the equipment, CONTRACTOR shall start the equipment, at least half load, once weekly for an adequate period of time to ensure that the equipment does not deteriorate from lack of use.

6. Lubricants shall be changed upon completion of installation and as frequently as required thereafter during the period between installation and acceptance. Mechanical equipment to be used in the work, if stored for longer than 90 days, shall have the bearings cleaned, flushed and lubricated prior to testing and startup, at no extra cost to OWNER.
7. Prior to acceptance to the equipment, CONTRACTOR shall have the manufacturer inspect the equipment and certify that its condition has not been detrimentally affected by the long storage period. Such certifications by the manufacturer shall be deemed to mean that the equipment is judged by the manufacturer to be in a condition equal to that of equipment that has been shipped, installed, tested and accepted in a minimum time period. As such, the manufacturer will guarantee the equipment equally in both instances. If such a certification is not given, the equipment shall be judged to be defective. It shall be removed and replaced at CONTRACTOR's expense.

1.09 WARRANTY

- A. For all major pieces of equipment, submit a warranty from the equipment manufacturer as specified. The manufacturer's warranty period shall be concurrent with the CONTRACTOR's for one (1) year after the time of acceptance.

1.10 SPARE PARTS

- A. Spare parts for certain equipment have been specified in the pertinent sections of the Specifications. CONTRACTOR shall collect and store all spare parts so required in an area to be designated by ENGINEER. In addition, CONTRACTOR shall furnish ENGINEER an inventory listing all spare parts, the equipment they are associated with, the name and address of the supplier, and the delivered cost of each items. Spare parts shall be turned over in conjunction with the "Spare Parts List" as shown. Copies of actual invoices for each item shall be furnished with the inventory to substantiate the delivered cost.

1.11 GREASE, OIL, AND FUEL

- A. All grease, oil and fuel required for testing of equipment shall be furnished with the respective equipment. OWNER shall be furnished with a year's supply of required lubricants including grease and oil of the type recommended by manufacturer with each item of equipment supplied.
- B. CONTRACTOR shall be responsible for changing the oil in all drives and intermediate drives of each mechanical equipment after initial break-in of the equipment, which in no event shall be any longer than three (3) weeks of operation.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

Attachment: HH121_LS7 Rehabilitation_Bid Set Specs (1716 : Lift Station #7 Rehabilitation 17WW07)

SECTION 01 71 13

MOBILIZATION

PART 1 – GENERAL

1.01 DEFINITION AND SCOPE

- A. Mobilization shall include the obtaining of all permits, insurance, and bonds; moving onto the site of all plant and equipment; furnishing and erecting plants, temporary buildings, and other construction facilities; all as required for the proper performance and completion of the Work. Mobilization shall include, but not be limited to, the following principal items.
1. Move onto the site all CONTRACTOR's plant and equipment required for first month operations.
 2. Install temporary construction power, wiring, and lighting facilities.
 3. Establish fire protection plan and safety program.
 4. Secure construction water supply.
 5. Provide field office trailers for CONTRACTOR and as may be specified for OWNER and ENGINEER.
 6. Provide on-site sanitary facilities and potable water facilities as specified.
 7. Arrange for and erect CONTRACTOR's work and storage yard and employee's parking facilities.
 8. Submit all required insurance certificates and bonds.
 9. Obtain all required permits.
 10. Post all OSHA, EPA, Department of Labor, and all other required notices.
 11. Have CONTRACTOR's superintendent at the job site full time.
 12. Submit a detailed construction CPM schedule acceptable to the ENGINEER as specified.

13. Submit a schedule of values of the Work.

14. Submit a schedule of submittals.

1.02 DEMOBILIZATION

A. Demobilization is the timely and proper removal of all contractor owned material, equipment, or plant, from the job site and the proper restoration or completion of work necessary to bring the site into full compliance with the contract documents.

1.03 PAYMENT FOR MOBILIZATION/DEMOBILIZATION

A. The CONTRACTOR's attention is directed to the condition that no payment for mobilization, or any part thereof, will be approved for payment under the Contract. Mobilization/Demobilization is a subsidiary obligation of the CONTRACTOR.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

Attachment: HH121_LS7 Rehabilitation_Bid Set Specs (1716 : Lift Station #7 Rehabilitation 17WW07)

SECTION 01 74 00

CLEANING AND WASTE MANAGEMENT

PART 1 – GENERAL

1.01 DESCRIPTION

- A. Scope of Work: Execute cleaning, during the progress of Work and at completion of the Work.

1.02 DISPOSAL REQUIREMENTS

- A. Conduct cleaning and disposal operations to comply with codes, ordinances, regulations, and anti-pollution laws.

PART 2 – PRODUCTS

2.01 MATERIALS

- A. Use only those cleaning materials which will not create hazards to health or property and which will not damage surfaces.
- B. Use only those cleaning materials and methods recommended by manufacturer of the surface material to be cleaned.
- C. Use cleaning materials only on surfaces recommended by cleaning material manufacturer.

PART 3 – EXECUTION

3.01 DURING CONSTRUCTION

- A. Execute daily cleaning to keep the Work, the site, and adjacent properties free from accumulations of waste materials, rubbish, and windblown debris, resulting from construction operations or personal activities.
- B. Provide on-site containers for the collection of waste materials, debris, and rubbish.
- C. Remove waste materials, debris and rubbish from the site periodically, or as directed by the OWNER and dispose of at legal disposal areas away from the site.

3.02 DUST CONTROL

- A. The CONTRACTOR shall employ construction techniques that minimize the production and distribution of dust.
- B. Clean interior spaces prior to the start of finish painting and continue cleaning on an as-needed basis until painting is finished.
- C. Schedule operations so that dust and other contaminants resulting from cleaning process will not fall on wet or newly-coated surfaces.

3.03 FINAL CLEANING

- A. Employee skilled workman for final cleaning.
- B. Remove grease, mastic, adhesives, dust, dirt, stains, fingerprints, labels, and other foreign materials from sight-exposed interior and exterior surfaces.
- C. Prior to final completion, or OWNER occupancy, CONTRACTOR shall conduct an inspection of sight-exposed interior and exterior surfaces and all work areas, to verify that the entire Work site is clean.

END OF SECTION

SECTION 01 74 25

MISCELLANEOUS WORK AND CLEANUP

PART 1 – GENERAL

1.01 DESCRIPTION

A. Scope of Work:

1. This Section includes operations which cannot be specified in detail as separate items but can be sufficiently described as to the kind and extent to work involved. The CONTRACTOR shall furnish all labor, materials, equipment, and incidentals to complete the work under this Section.
2. The work of this Section includes, but is not limited to, the following:
 - a. Restoring of driveways and fences.
 - b. Cleaning up.
 - c. Incidental work.

PART 2 – PRODUCTS

2.01 MATERIALS

- A. Materials required for this Section shall be of the same quality as materials that are to be restored. Where possible, the CONTRACTOR shall reuse existing materials that are removed and then replaced.

PART 3 – EXECUTION

3.01 RESTORING OF DRIVEWAYS, FENCES, AND SIDEWALKS

- A. Existing public and private driveways and sidewalks disturbed by the CONTRACTOR shall be replaced. Paved drives shall be repaved to the limits and thickness existing prior to construction. Gravel drives shall be replaced and regraded. Concrete driveways and sidewalks shall be replaced.
- B. The CONTRACTOR shall remove, store and replace existing fences during construction. Only the sections directed by the ENGINEER shall be removed. If any section of fence is damaged due to the CONTRACTOR's negligence, it shall be replaced with fencing equal to or better than that damaged, and the work shall be satisfactory to the ENGINEER.

3.02 CLEAN UP

- A. The CONTRACTOR shall remove all construction material, buildings, equipment, and other debris remaining on the job as the result of construction operations and shall render the site of the work in a neat and orderly condition. All suitable excess excavated material shall remain on site.

3.03 INCIDENTAL WORK

- A. Do all incidental work not otherwise specified, but obviously necessary for the proper completion of the contract as specified and as shown on the Drawings.

END OF SECTION

SECTION 01 75 16

START-UP PROCEDURES

PART 1 – GENERAL

1.01 DESCRIPTION

- A. The Work may be segmented into several phases of construction in a logical order to meet the project schedule. Portions of the Work may be utilized prior to Substantial Completion of all the Work. Also, certain items of equipment are to be temporarily utilized in a phased segment of the Work and then relocated in a subsequent phase in a permanent installation.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.01 PRELIMINARY MATTERS

- A. Start-up Certification: Prior to start-up, successfully complete all testing required of the individual components of work in the presence of the Engineer or is representative.
- B. Demonstrate to the Engineer that all temporary jumpers and/or bypass have been removed and that all components are operating under their own controls as designated.
- C. Coordinate start-up activities with equipment suppliers, subcontractors, and the OWNER's operating personnel at the site and with the Engineer prior to commencing system start-up. All coordination is the responsibility of the CONTRACTOR.

3.02 START-UP

- A. Confirm that all equipment is properly installed and that the flow path through the new work is unobstructed.
- B. Make adjustments as necessary.

3.03 START-UP DEMONSTRATION AND TESTING

- A. After all work components have been constructed, field tested, and started up in accordance with the individual specifications, perform the Start-Up Demonstration and Testing in the presence of the Engineer and the OWNER. The

demonstration shall be held upon completion of all systems at a date to be agreed upon in writing with the OWNER.

- B. Acceptability of the Work's performance will be based on the Work performing as specified, under these actual and simulated operating conditions as defined in the Contract Documents. The intent of the start-up demonstration and testing is for the CONTRACTOR to demonstrate to the OWNER and the Engineer the Work will function as a complete and operable system under normal operating conditions and is ready for acceptance.
- C. Certificate of Completed Demonstration: Submit five (5) copies of Demonstration Certification memo signed by the CONTRACTOR, Subcontractor and OWNER and insert one (1) copy in each Operation and Maintenance Manual.

EQUIPMENT TRAINING & STARTUP CHECKLIST

PROJECT: _____

OWNER: _____

ENGINEER: _____

CONTRACTOR: _____

DATE: _____

STRUCTURE: _____

EQUIPMENT DESCRIPTION: _____

VENDOR: _____

REPRESENTATIVE: _____ INIT.: _____

of training days required: _____ # received: _____

STARTUP/TRAINING DESCRIPTION: _____

COMMENTS: _____

ACCEPTABLE: _____ PARTIALLY ACCEPTABLE: _____ NON-ACCEPTABLE: _____

ATTENDEES:

<u>NAME</u>	<u>AFFILIATION</u>	<u>DATE</u>
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

END OF SECTION

SECTION 01 77 00

CLOSEOUT PROCEDURES

PART 1 – GENERAL

1.01 DESCRIPTION

- A. Scope of Work: Comply with requirement stated in Conditions of the Contract and in Specifications for administrative procedures in closing out the Work.
- B. Related Requirements Described Elsewhere:
 - 1. Cleaning and Waste Management: Section 01 74 00.
 - 2. Start-Up Procedures: Section 01 75 16.
 - 3. Operating and Maintenance Data: Section 01 78 23.
 - 4. Project Record Documents: Section 01 78 39.
 - 5. Warranties: Section 01 78 36.

1.02 SUBSTANTIAL COMPLETION

- A. The Work will not be substantially complete, and CONTRACTOR may not request substantial completion inspection unless the following submittals and work is completed:
 - 1. All Operation and Maintenance manuals have been submitted and approved to the requirements of Section 01 78 23.
 - 2. All equipment has been checked-out by the equipment manufacturer and Certificates of Manufacturer's Check-Out have been submitted as required by Section 01 75 16.
 - 3. All start-up and demonstration testing completed and Certificates of Completed Demonstration submitted to the requirements of Section 01 75 16.
 - 4. Project Record Documents are complete and have been submitted and reviewed to the requirements of Section 01 78 39.
 - 5. All training of OWNER's personnel completed.
 - 6. All areas to be used and occupied are safe, operable in automatic and complete.

7. All building occupancy certificates have been issued by the appropriate building permitting agency.
 8. All painting, finishes, fencing, cleanup, final grading, grassing, planting, sidewalk construction, and paving shall have been completed and ready for inspection.
 9. All deficiencies noted on inspection reports or non-conformances are corrected or the correction plan approved.
- B. When the conditions of paragraph 1.02 A. are met, the CONTRACTOR shall submit to the ENGINEER:
1. A written notice that he considers the Work, or portion thereof, is substantially complete, and request an inspection.
 2. A punchlist of items to be corrected. (Uncompleted work which is not related to the safe, effective, efficient use of the Project may be allowed on the punchlist with the ENGINEER's approval.)
- C. Within a reasonable time after receipt of such notice, the ENGINEER will make an inspection to determine the status of completion.
- D. Should the ENGINEER determine that the Work is not substantially complete:
1. The ENGINEER will promptly notify the CONTRACTOR in writing, giving the reasons therefor.
 2. CONTRACTOR shall remedy the deficiencies in the Work and send another written notice of substantial completion to the ENGINEER.
 3. The ENGINEER will within reasonable time, re-inspect the Work. The CONTRACTOR will be liable for re-inspection fees as described in paragraph 1.04, herein.
- E. When the ENGINEER finds that the Work is substantially complete, he will:
1. Schedule a walk-through of the facility to include the OWNER. ENGINEER shall determine the completeness of the punchlist and readiness of the facility for occupancy by the OWNER.
 2. Prepare and deliver to OWNER a tentative Certificate of Substantial Completion with the tentative punchlist of items to be completed or corrected before final inspection.

3. After consideration of any objections made by the OWNER as provided in Conditions of the Contract, and when the ENGINEER considers the Work substantially complete, he will execute and deliver to the OWNER and the CONTRACTOR a definite Certificate of Substantial Completion with a revised tentative list of items to be completed or corrected. Any incomplete work allowed on a punchlist must be re-inspected upon completion and any deficiencies found will be added to the punchlist.

1.03 FINAL INSPECTION

- A. Prior to CONTRACTOR's request for a final inspection the following submittals and work must be complete:
 1. Project Record Documents must be approved.
 2. All spare parts and maintenance materials must be suitably delivered to the OWNER per the requirements of the Technical Sections of the Specifications.
 3. CONTRACTOR to submit evidence of compliance with requirements of governing authorities.
- B. After satisfying the requirements of paragraph 1.03 A. and when CONTRACTOR considers the Work complete, he shall submit written certification that:
 1. Contract Document requirements have been met.
 2. Work has been inspected for compliance with Contract Documents.
 3. Work has been completed in accordance with Contract Documents.
 4. Equipment and systems have been tested in the presence of the OWNER's representative and are operational.
 5. All punchlist items have been corrected or completed and the Work is ready for final inspection.
- C. The ENGINEER will, within reasonable time, make an inspection to verify the status of completion with reasonable promptness after receipt of such certification.
- D. Should the ENGINEER consider that the Work is incomplete or defective:
 1. The ENGINEER will promptly notify the CONTRACTOR in writing, listing the incomplete or defective work.

2. CONTRACTOR shall take immediate steps to remedy the stated deficiencies, and send another written certification to the ENGINEER that the Work is complete.
 3. The ENGINEER will, within a reasonable amount of time, re-inspect the Work and the CONTRACTOR shall be liable for re-inspection fees as described in paragraph 1.04, herein.
- D. When the ENGINEER finds that the Work is acceptable under the Contract Documents, the CONTRACTOR may make closeout submittals.

1.04 RE-INSPECTION FEES

- A. Should the ENGINEER perform re-inspections due to failure of the Work to comply with the claims of status of completion made by the CONTRACTOR:
1. CONTRACTOR will compensate the OWNER for such additional services.
 2. OWNER will deduct the amount of such compensation from the final payment to the CONTRACTOR.

1.05 CONTRACTOR'S CLOSEOUT SUBMITTALS

- A. Warranties: To requirements of Section 01 78 36.
- B. Evidence of Payment and Release of Liens: To requirements of General and Supplementary Conditions.
- C. Certificate of Insurance for Products and Completed Operations.

1.06 FINAL ADJUSTMENT OF ACCOUNTS

- A. Submit a final statement of accounting to the ENGINEER.
- B. Statement shall reflect all adjustments to the Contract Sum:
1. The original Contract Sum.
 2. Additions and deductions resulting from:
 - a. Previous change orders or written amendment.
 - b. Allowances.
 - c. Unit prices.
 - d. Deductions for uncorrected work.
 - e. Penalties and bonuses.

- f. Deductions for liquidated damages.
- g. Deductions for re-inspection payments.
- h. Other adjustments.

3. Total Contract Sum, as adjusted.

4. Previous payments.

5. Sum remaining due.

- C. ENGINEER will prepare a final Change Order, reflecting approved adjustments to the Contract Sum which were not previously made by Change Orders.

1.07 FINAL APPLICATION FOR PAYMENT

- A. CONTRACTOR shall submit the final Application for Payment in accordance with procedures and requirements stated in the Conditions of the Contract.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

SECTION 01 78 23

OPERATING AND MAINTENANCE DATA

PART 1 – GENERAL

1.01 DESCRIPTION

A. Scope of Work:

1. Compile product data and related information appropriate for OWNER's maintenance and operation of products furnished under Contract.
2. Prepare operating and maintenance data as specified in this Section and as referenced in other pertinent sections of the Specifications.
3. Instruct OWNER's personnel in maintenance of products and in operation of equipment and systems.

B. Related Requirements Described Elsewhere:

1. Section 01 33 23: Shop Drawings.
2. Section 01 78 39: Project Record Documents.
3. Section 01 78 36: Warranties.

1.02 QUALITY ASSURANCE

A. Preparation of data shall be done by personnel:

1. Trained and experienced in maintenance and operation of described products.
2. Familiar with requirements of this Section.
3. Skilled as a technical writer to the extent required to communicate essential data.
4. Skilled as draftsman competent to prepare required drawings.

1.03 FORM OF SUBMITTALS

- A. Prepare data in form of an instructional manual for use by OWNER's personnel.
- B. Hard Copy Format:
 - 1. Size: Eight and one-half inches by 11 inches (8-1/2" x 11").
 - 2. Paper: 20-pound minimum, white, for typed pages.
 - 3. Text: Manufacturer's printed data, or neatly typewritten.
 - 4. Drawings:
 - a. Provide reinforced punched binder tab, bind in with text.
 - b. Reduce larger drawings and fold to size of text pages but not larger than 14 inches x 17 inches (14" x 17").
 - 5. Provide fly-leaf for each separate product, or each piece of operating equipment.
 - a. Provide typed description of products and major component parts of equipment.
 - b. Provide indexed tabs.
 - 6. Cover: Identify each volume with typed or printed title "OPERATING AND MAINTENANCE INSTRUCTIONS". List:
 - a. Title of project.
 - b. Identity of separate structure as applicable.
 - c. Identity of general subject matter covered in the manual.
 - 7. Binders:
 - a. Commercial quality three-post binders with durable and cleanable plastic covers.
 - b. Maximum post width: two inches (2").
 - c. When multiple binders are used, correlate the data into related consistent groupings.
- C. Electronic Format Copy
 - 1. Provide electronic copy of operation and maintenance data on CD/DVD. File(s) should be organized/named to correspond with hard copy.

1.04 CONTENT OF MANUAL

- A. Neatly typewritten table of contents for each volume, arranged in systematic order.
 - 1. CONTRACTOR, name of responsible principal, address, and telephone number.
 - 2. A list of each product required to be included, indexed to content of the volume.
 - 3. List, with each product, name, address, and telephone number of:
 - a. Subcontractor or installer.
 - b. A list of each product required to be included, indexed to content of the volume.
 - c. Identify area of responsibility of each.
 - d. Local source of supply for parts and replacement.
 - 4. Identify each product by product name and other identifying symbols as set forth in Contract Documents.
- B. Product Data:
 - 1. Include only those sheets which are pertinent to the specified product.
 - 2. Annotate each sheet to:
 - a. Clearly identify specific product or part installed.
 - b. Clearly identify data applicable to installation.
 - c. Delete references to inapplicable information.
- C. Drawings:
 - 1. Supplement product data with drawings as necessary to clearly illustrate:
 - a. Relations of component parts of equipment and systems.
 - 2. Coordinate drawings with information in Project Record Documents to assure correct illustration of completed installation.
 - 3. Do not use Project Record Documents as maintenance drawings.
- D. Written text, as required to supplement product data for the particular installation:
 - 1. Organize in consistent format under separate headings for different procedures.

2. Provide logical sequence of instructions of each procedure.
- E. Copy of each warranty, bond and service contract issued.
1. Provide information sheet for OWNER's personnel, give:
 - a. Proper procedures in event of failure.
 - b. Instances which might affect validity of warranties or bonds.

1.05 MANUAL FOR MATERIALS AND FINISHES

- A. Submit four (4) copies of the complete manual in final form.
- B. Content: for architectural products, applied materials, and finishes:
1. Manufacturer's data, giving full information on products.
 - a. Catalog number, size, and composition.
 - b. Color and texture designations.
 - c. Information required for reordering special manufactured products.
 2. Instructions for care and maintenance.
 - a. Manufacturer's recommendation for types of cleaning agents and methods.
 - b. Cautions against cleaning agents and methods which are detrimental to product.
 - c. Recommend schedule for cleaning and maintenance.
- C. Content, for moisture protection and weather-exposed products:
1. Manufacturer's data, giving full information on products.
 - a. Applicable standards.
 - b. Chemical composition.
 - c. Details of installation.
 2. Instructions for inspection, maintenance, and repair.
- D. Additional requirements for maintenance data: Respective sections of the Specifications.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

01 78 23 - 4

SECTION 01 78 36

WARRANTIES

PART 1 – GENERAL

1.01 DESCRIPTION

A. Scope of Work:

1. Compile specified warranties and bonds as specified in these Specifications.
2. Co-execute submittals when so specified.
3. Review submittals to verify compliance with Contract Documents.
4. Submit to ENGINEER for review and transmittal to OWNER.

B. Related Work Described Elsewhere:

1. Instructions to Bidders: Bid Bonds.
2. Performance Bond and Payment Bond: Section 00 61 13.

1.02 SUBMITTAL REQUIREMENTS

- A. Assembly warranties, bonds and service and maintenance contracts, executed by each of the respective manufacturers, suppliers, and subcontractors.
- B. Number of original signed copies required: Two (2) each.
- C. Table of Contents: Neatly typed, in orderly sequence. Provide complete information for each item.
 1. Product of work item.
 2. Firm, with name of principal, address, and telephone number.
 3. Scope.
 4. Date of beginning of warranty, bond, or service and maintenance contract.

5. Duration of warranty, bond, or service maintenance contract.
6. Provide information for OWNER's personnel:
 - a. Proper procedure in case of failure.
 - b. Instances which might affect the validity of warranty or bond.
7. CONTRACTOR, name of responsible principal, address, and telephone numbers.

1.03 FORM OF SUBMITTALS

- A. Prepare in duplicate packets.
- B. Format:
 1. Size: Eight and one-half inches by 11 inches (8-1/2" x 11"), punch sheets for standard three-post binder.
 - a. Fold larger sheets to fit into binders.
 2. Cover: Identify each packet with typed or printed title "WARRANTIES AND BONDS". List:
 - a. Title of Project.
 - b. Name of CONTRACTOR.
- C. Binders: Commercial quality, three (3)-post binder, with durable and cleanable plastic covers and maximum post width of two inches (2").

1.04 WARRANTY SUBMITTALS REQUIREMENTS

- A. For all major pieces of equipment, submit a warranty from the equipment manufacturer. Manufacturer's warranty period shall be concurrent with CONTRACTOR's for one (1) year, unless otherwise specified, commencing at the time of final acceptance by OWNER.
- B. CONTRACTOR shall be responsible for obtaining certificates for equipment warranty for all major equipment which has at least a one (1) hp motor or which lists for more than \$1,000. ENGINEER reserves the right to request warranties for equipment not classified as major. CONTRACTOR shall still warrant equipment not considered to be "major" in the CONTRACTOR's one (1) year warranty period even though certificates of warranty may not be required.

- C. In the event that the equipment manufacturer or supplier is unwilling to provide a one (1) year warranty commencing at the time of OWNER acceptance, the CONTRACTOR shall obtain from the manufacturer a two (2) year warranty commencing at the time of equipment delivery to the job site. This two (2) year warranty from the manufacturer shall not relieve the CONTRACTOR of the one (1) year warranty starting at the time of OWNER acceptance of the equipment.
- D. OWNER shall incur no labor or equipment cost during the guarantee period.
- E. Guarantee shall cover all necessary labor, equipment and replacement parts resulting from faulty or inadequate design, improper assembly or erection, defective workmanship and materials, leakage, breakage or other failure of all equipment and components furnished by manufacturer.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

SECTION 01 78 39
PROJECT RECORD DOCUMENTS

PART 1 – GENERAL

1.01 REQUIREMENTS INCLUDED

- A. Maintain at the site for the OWNER one record copy of:
1. Drawings.
 2. Specifications.
 3. Addenda.
 4. Change Orders and other modifications of the contract.
 5. ENGINEER's Field Orders or written instructions.
 6. Approved Shop Drawings.
 7. Field Test records.
 8. Construction photographs, preconstruction videos, and pipeline videos.
 9. Preliminary as-built drawings.

1.02 MAINTENANCE OF DOCUMENTS AND SAMPLES

- A. Store documents and samples in CONTRACTOR's field office apart from documents used for construction.
1. Provide files and racks for storage of documents.
 2. Provide locked cabinet or secure storage space for storage of samples.
- B. File documents and samples in accordance with CSI format with section numbers as provided herein.
- C. Maintain documents in a clean, dry, legible condition, and in good order. Do not use record documents for construction purposes.
- D. Make documents and samples available at all times for inspection by the ENGINEER.

- E. As a prerequisite for monthly progress payments, the CONTRACTOR shall provide the currently updated “Record Documents” for review by the ENGINEER and OWNER.

1.03 MARKING DEVICES

- A. Provide felt tip marking pens for recording information in the color code designated by the ENGINEER.

1.04 RECORDING

- A. Label each document “PROJECT RECORD” in neat large printed letters.
- B. Record information concurrently with construction progress. Do not conceal any work until required information is recorded.
- C. Drawings: Legibly mark to record actual construction:
 1. Depths of various elements of foundation in relation to finish first floor datum.
 2. All underground piping with elevations and dimensions. Change to piping location. Horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements. Actual installed pipe materials, class, etc.
 3. Location of internal utilities and appurtenances concealed in the construction, referenced to visible and accessible features of the structure.
 4. Field changes of dimensional and detail.
 5. Changes made by Field Order or by Change Order.
 6. Details not on original contract drawings.
 7. Equipment and piping relocations.
 8. Major architectural and structural changes including relocation of doors, windows, etc.
 9. Architectural schedule changes according to CONTRACTOR’s records or shop drawings.
 - a. CONTRACTOR shall provide copies of all such recordings to the CONTRACTOR’s surveyor for incorporation into the preliminary and final as-builts drawings.

- D. Specifications and Addenda: Legibly mark each section to record:
1. Manufacturer, trade name, catalog number, and supplier of each product and item of equipment actually installed.
 2. Changes made by Field Order or by Change Order.
- E. Shop Drawings (after final review and approval): Provide four (4) sets of record drawings for each process equipment, piping, electrical system, and instrumentation system.

1.05 SUBMITTAL

- A. Accompany each submittal with transmittal letter in duplicate, containing:
1. Date.
 2. Project title and number.
 3. CONTRACTOR's name and address.
 4. Title and number of each Record Document.
 5. Signature of CONTRACTOR or his authorized representative.
- B. Preliminary As-built Drawings: The CONTRACTOR shall submit to the ENGINEER two (2) paper copies of preliminary as-built drawings prepared and signed/sealed by the CONTRACTOR's surveyor with each monthly progress payment request. Preliminary as-built drawings shall conform to the requirements of final as-built drawings and shall represent the completed work to date. Preliminary as-built drawings shall include all work which the CONTRACTOR is requesting to be paid for.
- C. Final As-built Drawings: Upon project closeout and as a prerequisite to the final pay request, the CONTRACTOR shall submit to the ENGINEER final as-built drawings Administrative Code, pursuant to Section 472.027 of the Florida Statutes. The ENGINEER shall supply the CONTRACTOR copies of AutoCad files and/or mylar sepias of the original construction plans for the CONTRACTOR's use in the as-built drawing preparation. Final as-built drawings shall include all work which the CONTRACTOR is requesting to be paid for. The final as-built drawing submittal shall include:
1. Six (6) sets of paper plans and one (1) set of mylar drawings signed and sealed by a professional land surveyor licensed in the State of Florida and

computer floppy disk(s) or CD(s) containing AutoCad, version 14, drawing files.

2. AutoCad drawing files shall include as-built information on layers separate from the original drawing layers and shall be named descriptively to represent the as-built features. (i.e.- Layer “wat ab” and “wat ab txt” for water as-built linework and text, respectively.) Drawing entities are to be shown on the correct layer. All as-built entities shall have color and line type set “bylayer”. Text sizes shall be relative to the plotted scale. Additional details or exploded views shall be included to accurately and fully represent the as-built conditions.
3. Certification by surveyor that the as-built information shown is accurate and that all improvements shown were constructed within or on public rights-of-way, easements or property specifically owned by the OWNER. Certification shall be to the OWNER, ENGINEER and St. Johns River Water Management (if applicable.)
4. No linework and text shall be erased from the original design (construction) drawings during the as-built drawing preparation. Original linework or text shall be circled if accurate or stricken (not erased) if not with the accurate information noted/shown. New linework and text shall be provided to accurately show the as-built information for the constructed improvements. Revisions to design dimensions alone will not be permitted.
5. Pressure Pipeline and Utility Conduit Improvements: For utility improvement projects, horizontal locations of the constructed pipelines with respect to the right-of-way lines or other readily visible, permanent features at 100 foot (100') minimum intervals and at critical locations such as road intersections shall be shown. For treatment plant and pump station improvements, horizontal locations shall be provided at 20 foot (20') intervals. Vertical locations of the constructed pipelines by elevation of centerline of pipe for above ground/exposed pipe or with respect to finished grade over buried pipe shall be shown at 100 feet (100') minimum intervals. (i.e. final cover) For underground piping, all valves, blow-offs, stub-outs, pigging stations, fire hydrants, backflow preventers and services shall be located horizontally in relation to readily visible, permanent features with three-way horizontal dimensions less than 100 feet (100'), each. Three-way dimensions to all buried fittings on treatment plant and pump station improvement projects shall be provided. If adequate features are not available, a station and offset dimensioning system can be used if prior approval is obtained from the ENGINEER. For above ground/exposed pipe, as-built dimensions between fittings or flanges shall be provided. Separations between sanitary hazards to potable water and reclaimed water mains per FDEP shall be shown.

6. Gravity Pipeline Improvements: Show elevations for all inverts, manhole tops, inlet throats/weirs, grate tops, etc. Show size and type of each structure. As-built length, size, and type of pipes between the structures shall be shown. All service laterals and cleanouts shall be located horizontally to readily visible, permanent features with three way horizontal dimensions less than 100 feet (100'), each. If adequate features are not available, a station and offset dimensioning system can be used if prior approval is obtained from the ENGINEER. A labeling and dimension table scheme is recommended for the three way or station/offset dimensioning. (i.e.-constructed feature labeled as "A", permanent feature labeled as "B", "A"- "B" dimension shown in table for distance measured between the two. Use continuous labeling and complete single table per plan sheet.) Separations between gravity "sanitary hazards" to potable water and reclaimed water mains per FDEP shall be shown.
7. Roadway Improvements: Elevation, size and location of swales, ditches, gutter flow-lines, edge of pavement, and road crown on both sides of the road if applicable shall be provided at 100 foot (100') minimum intervals and at critical areas such as intersections and inlets/flumes. As-built points of curvature, tangent and vertical intersection, along with radii of road alignment, intersecting streets and driveways and other alignment information shall be provided.
8. Stormwater Improvements: The limits, slopes, and bottom depths of stormwater ponds, swales and other retention areas shall be provided. All stormwater piping information shall conform to the Gravity Pipeline Improvement requirements. Size, type, material, and elevations of all stormwater structures, including appurtenances such as weirs, orifices, skimmer plates, etc. shall be shown. As-built information shall conform to St. Johns River Water Management District requirements.
9. Treatment Facility Improvements: Location, size, number, and type of treatment equipment and structures shall be shown. Applicable requirements of as-built information listed herein for similar improvements shall be required.
10. Building Improvements: Finished floor elevations, ceiling heights, building locations, wall opening dimensions, equipment (electrical, mechanical, plumbing) locations, etc. shall be provided. Change of material shall be specifically noted as such.
11. Landscaping Improvements: Number, type, size, and general location of installed plant material shall be provided. Change of material shall be specifically noted as such. Location of irrigation meters, services, manual

valves, automatic valves, controllers, rain shut off switches, etc. shall be shown. Changes to the designed irrigation system shall be shown.

12. Other Improvements: Changes from the original design of other improvements such as electrical, mechanical, and structural improvements shall be noted as such on the as-built drawings with the size, number, type, and location of the constructed/installed improvements noted.
13. CONTRACTOR may be required to reimburse the OWNER for services rendered by the ENGINEER for review of multiple resubmittals per SC-6.17, 1. of Section 00 80 00: Supplementary Conditions.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

SECTION 03 30 00

CAST IN-PLACE AND POURED CONCRETE

PART 1 – GENERAL

1.01 WORK INCLUDED

- A. The work included under this section consists of furnishing all materials, forms, transportation, and equipment, and performing all necessary labor to do all the plain and reinforced concrete work shown on the Drawings, or incidental to the proper execution of the work, or as herein specified.
- B. Composition: Concrete shall be composed of cement, fine aggregate, coarse aggregate, and water so proportioned and mixed as to produce a plastic workable mixture in accordance with all requirements under this section suitable to the specific conditions of placement.

1.02 SUBMITTALS

- A. All materials specified shall be certified by the producer or manufacturer that the furnished material meets the specific requirements of the specifications. Concrete mix designs shall be submitted for approval prior to placement.

1.03 CODES AND STANDARDS

- A. ACI 301 “Specifications for Structural Concrete for Buildings”, ACI 318 “Building Code Requirements for Structural Concrete”, ACI 347 “Recommended Practice for Concrete Formwork”, ACI 304 “Recommended Practice for Measuring, Mixing, Transporting, and Placing Concrete”, comply with applicable provisions except as otherwise indicated.

1.04 TESTING

- A. Air content shall be in accordance with American Society for Testing Materials Standard Methods C 173, one for each set of compressive strength specimens.
- B. Sampling of freshly mixed concrete shall be in accordance with ASTM C 172.
- C. Slump: ASTM C 143.
- D. Test results will be reported in writing to ENGINEER, CONTRACTOR, OWNER, and Concrete producer on same day tests are made.
- E. Laboratory Reports: Submit two (2) copies of laboratory test or evaluation reports for concrete materials and mix designs.

PART 2 – MATERIALS AND EQUIPMENT

2.01 Portland Cement. Shall comply with the standard specifications for Portland Cement, ASTM C 150, Type II, or Type III (high-early), where indicated on drawings.

2.02 Concrete Aggregate. Shall conform to standard specifications for concrete aggregate, ASTM C 33 or to ASTM C 330. Maximum size of aggregate shall not exceed one-fifth (1/5) of the narrowest dimension between reinforcing bars.

A. Fine Aggregate. Fine aggregate shall be clean, hard, strong, durable, uncoated particles of natural sand known as Lake Wales, Interlachen, or approved equal. The source, composition, quality, and gradation of the fine aggregate shall be subject to the approval of the ENGINEER. Samples of the sand shall be furnished, together with certified copies of the gradation and analysis from the recognized testing laboratory.

1. The weight of extraneous or deleterious substances shall not exceed the following percentages:

Loss by Decantation	3%
Shale	1%
Clay Lumps	1%
Coat and Lignite	1%

2. The fine aggregate shall be reasonably well graded from coarse to fine and when tested by means of laboratory sieves shall meet the following requirements in percent of total weight:

<u>Total Retained On</u>	<u>Percent (%) Retained</u>
No. 4 Sieve	0 – 5
No. 10 Sieve	3 – 30
No. 30 Sieve	30 – 70
No. 50 Sieve	65 – 95
No. 100 Sieve	95 – 100

3. Deficiencies in the percentages of the fine aggregates passing the No. 50 and No. 100 Sieves may be remedied by the addition of pozzolanic or

cementitious materials excepting Portland cement. Such materials must meet the approval of the ENGINEER.

- B. Coarse Aggregate. Coarse aggregate shall consist of hard, tough, durable components free from adherent coatings and vegetable matter, and shall not contain soft, friable, thin, or elongated particles in quantities considered deleterious by the ENGINEER. Coarse aggregate shall be properly graded from fine to coarse to produce concrete of desired strength, density, and workability. The source, composition, quality, and gradation of the coarse aggregate shall be subject to the approval of the ENGINEER. Samples of the coarse aggregate shall be furnished together with certified copies of the gradation and analysis from a recognized testing laboratory.

1. All coarse aggregate shall be washed and shall be free from disintegrated pieces, salt, alkali, vegetable matter and adherent coatings. The total percentage of all deleterious substances shall not exceed five percent (5%) by weight. The substances designated shall not be present in excess of the following amounts.

Loss by Decantation	1%
Clay Lumps or Other Soluble Materials	3%
Soft Fragments	5%

2. Where the cover over reinforcing is two inches (2") or more, the maximum size of aggregate shall be 12 inches (12"). Where the cover over reinforcing is less than two inches (2"), the maximum size of aggregate shall be three-quarter inch (3/4"). The maximum size of aggregate shall not exceed one-fifth (1/5) of the narrowest dimension between forms nor three-fourths of the minimum clear spacing between reinforcing bars. The grading of the coarse aggregate in the concrete shall be within the following limits.

Percent Passing

Maximum Size Square Mesh Screen	97 – 100 %
2 Maximum Size Square Mesh Screen	40 – 70 %
No. 4 Sieve	0 – 6 %

- 2.03 WATER. Water shall be clean and free from oil, acids, alkalis, organic materials, or other injurious substances.

2.04 REINFORCEMENT

- A. Reinforcing Bars: ASTM A 615, Grade 60, deformed bars of USA manufacture.
- B. Welded Wire Fabric: ASTM A 185, gauges, spacing, and dimensions as indicated.
- C. Metal Bar Supports: CRSI MSP-1, Chapter 3, Class 2, Type B, Stainless Steel Protected Bar Supports, or otherwise approved by the ENGINEER. Use concrete supports for reinforcement in concrete placed on grade.
- D. Tie Wire: 16-gauge minimum, black, soft annealed.
- E. Coupler Splice Devices: Cadweld tensions couplers, capable of developing the ultimate strength of the bar as manufactured by Erico Products, Incorporated, Solon, Ohio, or equal.
- F. Epoxy coated or FRP rebar shall be used for all marine applications.

2.05 FORM WORK

- A. Lumber: Douglas Fir or Larch, No. 2 grade, seasoned and surfaced on four sides.
- B. Plywood: Plyform, Class 1, BB-Exterior type, mill oiled and edge sealed, with thickness not less than three-quarter inch (3/4").
- C. Medium Density Overlay (MDO) Plywood Forms: PS-1, B-B High Density Concrete Form Overlay, Class I, unoiled.
 - 1. Butt form panels, make contact surface fully flush and seal butting holes with sponge form tape. Chamfer edges of beams and ceilings.
 - 2. Where MDO plywood is used to form beams, do not use MDO plywood that has been patched or damaged.
- D. Drip Forms: Varnished ponderosa pine or equally rigid non-staining plastic, two-inch (2") wide on each leg.
- E. Steel Forms. Uncoated steel, three-sixteenth inch (3/16") minimum thickness, fabricated to close tolerances, protected only by the specified release agent, braced so as not to bend, dent, or dimple under wet concrete load, vibrator impact, and tool impact. Maintain steel form in rust-free condition by use of steel wood and light grinding, followed by coats of specified release agent. Use forms that can be adjusted into true alignment without stops or ridges.
- F. Glass Fiber Reinforced Plastic (FRP) Forms: Smooth coated forms, braced so as not to bend, dent or dimple under wet concrete loads, vibrator impact and tool impact, and at least 0.11 inch (0.11") thick. Design forms for external bracing at piers and columns, without use of form ties.

- G. Plugged Cone Form Ties: Rod type, with ends or end fasteners which can be removed without spalling the concrete and which leave a hole equal in depth to the required reinforcement clearance. Form ties shall be of a design in which the hole left by the removed end or end fastener is easily filled to match the surface of the hardened concrete. Provide removable cones 13 inches (13") in diameter by 12 inches (12") deep. Provide preformed mortar plugs to match the color of the concrete, recessed three inches (3"), adhered with an approved two (2)-part epoxy.
- H. Weep Hole Forms: PVC polyethylene, or ABS pipe, matching color of the concrete, four-inch (4") inside diameter, with outlet projecting 12 inches (12") from wall and cutoff in a plane parallel to it.
- I. Circular and Elliptical Column Forms: Fabricate of two (2) pieces, clamped watertight using gaskets and without horizontal joints. Install horizontal construction joints only where indicated or as directed by the ENGINEER.
- J. Beam Forms: Provide in one length without form joints and suitable for cambering up to 1/160 of span without distortion of profile or opening of seams.
- K. Forms of Hammerhead Pier Caps: Provide in one (1) length with adjustable soffits, bulkheads and screens as necessary to accommodate different hammerhead beam configurations. Provide no construction joints in hammerhead pier caps. Where three or fewer identical hammerhead pier caps occur within a line section, steel braced HDO plywood forms may be substituted for steel forms if:
 - 1. Working drawings of formwork are submitted.
 - 2. Internal form ties are regularly spaced no less than 48 inches (48") each way, and are made watertight.
 - 3. Form ties have removable cones, which are filled to match concrete.
 - 4. Joints in panels are fully watertight.
 - 5. The resulting surface matches the appearance of steel formed hammerhead caps, with no visible discoloration due to form leakage.
- L. Styrofoam Board: Expanded polystyrene extruded into board form, closed cell, moisture resistant, capable of maintaining indicated clear space between concrete structures.
- M. Control Joint Filler: Use epoxy joint filler equal to BurkEpoxy Joint Filler to fill voids left by saw cuts and to resist against spalling caused by vehicle traffic in concrete slabs.

- N. Inserts: Galvanized cast steel or galvanized welded steel, complete with anchors to concrete and fittings such as bolts, wedges, and straps. Provide hanger inserts spaced to match grid of suspended ceilings.
- O. Shoring: As designed and executed by CONTRACTOR to support all loads.
- P. Chamfer Strips: Polyvinyl strips designed to be nailed in the forms to provide a three-quarter inch (3/4") chamfer at exposed edges of concrete members.
- Q. Form Release Agent: A blend of natural and synthetic chemicals that employs a chemical reaction to provide quick, easy, and clean release of concrete from forms, and equal to Eucoslip, by the Euclid Chemical Company, or Release #1, by The Burke Company. Use a non-staining release agent that leaves the concrete with a paintable surface.

2.06 ADMIXTURES

- A. Air Entraining Admixture: ASTM C 260.
- B. Water Reducing and Retarding Admixture:
 - 1. Concrete Without Superplasticizer:
 - a. Water Reducing Admixtures: ASTM C 494, Type A, equal to Eucon WR-75 by the Euclid Company, Pozzolith 200N by Master Builders, Plastocrete 161 by Sika Chemical Corporation, and containing no calcium chloride.
 - b. Water Reducing and Retarding Admixtures: ASTM C 494, Type D, equal to Eucon Retarder-75 by the Euclid Company, Pozzolith 100 XR by Master Builders, Plastiment by Sika Chemical Corporation, and containing no calcium chloride.
 - c. Accelerating Admixtures: ASTM C 494, Type C or E, equal to Accelguard 80 by the Euclid Company, Darex Set Accelerator by W.R. Grace, and containing no calcium chloride.
 - 2. Concrete with Superplasticizer:
 - a. Water Reducing, High Range Admixtures: ASTM C 494, Type F or G, equal to Eucon 37 by the Euclid Company, Rheobild 716 by Master Builders, Daracem 100 by W.R. Grace, Sikament by Sika Chemical Corporation, and consisting of a second-generation admixture, free of chlorides and alkalis (except for those attributable to water) composed of a synthesized sulfonated complex polymer, enabling the concrete to maintain its rehoplastic state in excess of two (2) hours if necessary.

- b. **Manufacturer's Job Site Representation:** Provide the services of a competent field service representative from the manufacturer of each of the admixtures selected for use to provide at the job site advice and consultation on the use of the admixture materials, including the effect on the concrete in place, including recommending maximum discharge time for superplasticizer method and procedure to induce superplasticizer into mixer, quantities of admixtures to be used if variations are required because of temperature/humidity, wind or other environmental considerations, and to be available on short call at any time requested by the OWNER, CONTRACTOR, or concrete producer.

3. **Concrete used in Marine Applications:**

- a. Micro Silica admixtures shall be used for concrete installed in marine and coastal applications. Concrete designs shall meet the appropriate requirements of EN206-1, BS 8500 and BS 5075. CONTRACTOR shall provide plant certification for all mix designs used in marine and coastal applications.

2.07 **GROUT**

- A. **Nonshrink, Nonmetallic Grout:** The Burke Company's Non-Ferrous, Non-Shrink Grout, Sauereisen F-100 Level Fill, Master Builders Masterflow 713, Euclid NS Grout, or equal pre-mixed type.
- B. **Nonshrink Metallic Grout:** The Burke Company's Metallic Spec Grout, Master Builders Embeco 636 Grout pre-mixed type, or equal.
- C. **Epoxy Grout:** Sikadur 42 Grout-Pak, or equal, for grouting sleeves for anchor bolts, etc.
- D. **Clarifier Basin Grout:** Class B concrete of coarse aggregate shall pass the three-quarter inch (3/4") sieve.

2.08 **MEMBRANE CURING COMPOUND.** Membrane curing compound shall be wax-free, pigmented, 100 percent (100%) resin base compound such as A.C. Horn's "Horncure 30 C", Hunt Process Corporation; Southern's "All-Resin", or equal.

2.09 **BONDING AGENT.** Bonding agent shall be Colma Fix, as manufactured by Sika Chemical Corporation, of Passaic, New Jersey or equal. To be considered equal, the material must be a two-component epoxy-polysulphide resin system, and it must have a demonstrated record of strong adhesion to both wet and dry concrete in either the hardened or the plastic state. It must also be of equal strength.

2.10 ACCESSORIES

- A. Precast Concrete Block Supports for Reinforcing Bars: Comply with ACI 315. Provide blocks with No. 4 dowels bent 90 degrees (90°) to support top bars.
- B. Membrane: Six (6) mil polyethylene film.
- C. Water Stops: Polyvinyl chloride meeting all requirements of U.S. Army Corps of Engineer's Specification CRD-C-572 and equal to Burke Water Stops as manufactured by The Burke Company. Provide flat dumbbell type and center bulb type, nine inches by three-eighth inches (9" x 3/8") at wall thickness of 12 inches (12") or greater, and six inches by three-eighth inches (6" x 3/8") at wall thickness less than 12 inches (12"). Provide six inch (6") split-ribbed with center bulb type at connections of new concrete structures with existing concrete. Provide water stops as indicated on the Drawings.
- D. Preformed Expansion Joint Filler:
 - 1. Bituminous type conforming to the requirements of ASTM D 994.
 - 2. Non-extruding type, self-expanding cork, three-quarter inch (3/4") thick or as otherwise shown on the Drawings, conforming to the requirements of ASTM D1752, Type III, and compatible with the specified joint sealant compound.
- E. Joint Sealant: A multipart gray polyurethane sealant, meeting U.S. Federal Specification TT-S-00227E (3) Type 1, Class A self-leveling for horizontal joints, and Type II, Class A, non-sag for vertical joints, and recommended by the manufacturer for continuous immersion in water. Provide sealants as manufactured by Products Research and Chemical Corporation, Mameco International, The Burke Company, W.R. Meadows, or equal.
- F. Tongue and Groove Joint Forms: 24-gauge steel forms complete with steel stakes and splice plates, designed for joints not to receive a poured seal, and equal to Burke Keyed Kold Joint as manufactured by The Burke Company.
- G. Inserts: Galvanized steel to fit the proposed hanger or support.
- H. Mortar for Repair of Concrete: Same materials as used for concrete, except omit coarse aggregate and use not more than one (1) part cement to two and one-half (2-1/2) parts sand by damp loose volume. Use no more mixing water than is necessary for handling and placing.
- I. Burlap Mats: Conform to AASHTO Specification M182.
- J. Epoxy Bonding Agent: Euco #452, BurkEpoxy MV, Sikadur Hi Mod, Concrecive 1001-LPL, or equal.

- K. Powered Epoxy Coating for Anchor Bolts: Powdered epoxy resin as manufactured by the 3M Company, Scotchkote No. 213, Armstrong No. R349.

2.11 CONDUITS AND PIPES EMBEDDED IN CONCRETE

- A. Conduits, pipes, and sleeves of any material not harmful to concrete shall be permitted to be embedded in concrete with approval of the ENGINEER, provided they are not considered to replace structurally the displaced concrete.
- B. Conduits and pipes of aluminum shall not be embedded in structural concrete unless effectively coated or covered to prevent electrolytic action between aluminum and steel.
- C. Conduits and pipes, with their fittings, embedded within a column shall not displace more than four percent (4%) of the area of cross section on which strength is calculated or which is required for fire protections.
- D. Conduits, pipes, sleeves passing through a slab, wall or beam shall not impair significantly the strength of the construction.
- E. Except when plans for conduits and pipes are approved by the ENGINEER, conduits and pipes embedded within a slab, wall, or beam shall satisfy the following:
 - 1. They shall not be larger in outside dimension than one-third (1/3) overall thickness of slab, wall, or beam in which they are embedded.
 - 2. They shall not be spaced closer than three (3) diameters or widths on center.

2.12 PIPES CONTAINING LIQUID, GAS, OR VAPOR

- A. Pipes that will contain liquid, gas or vapor may be embedded in structural concrete under the following conditions:
 - 1. Pipes and fittings shall be designed to resist effects of the material, pressure, and temperature to which they will be subjected.
 - 2. No liquid, gas, or vapor, except water not exceeding 90°F (32°C) nor 50 psi (345 kPa) pressure, shall be placed in the pipes until the concrete has attained its design strength.
 - 3. Concrete cover for pipes, conduits and fittings shall be not less than 12 inches (12" or 38 mm) for concrete exposed to earth or weather or in contact with ground.
 - 4. Reinforcement with an area of not less than 0.002 times area of concrete section shall be provided normal to piping.

5. Piping and conduit shall be so fabricated and installed that cutting, bending or displacement of reinforced from its proper location will not be required.

PART 3 – EXECUTION

3.01 PROPORTIONING

- A. The proportions of aggregate to cement shall be such as to produce a thoroughly plastic mixture which will work readily into the corners and angles of the forms and around the reinforcement but without permitting the materials to segregate or excess free water to collect on the surface. The percentage of sand shall not be less than 30 percent (30%) nor more than 50 percent (50%) of the total weight of the aggregate.
- B. The total content, including the surface water contained in the aggregate, shall not exceed 5.7 gallons per sack of cement. The slump shall not exceed four inches (4"). Air-entraining admixture shall be Darex AEA as manufactured by the Dewey and Almy Chemical Company.
- C. The amount of air entrained in the freshly mixed concrete shall not be less than three percent (3%) nor more than six percent (6%). The minimum cement content in sacks per cubic yard of concrete shall not be less than six (6) sacks per cubic yard for Class "A" concrete.
- D. Concrete materials shall be accurately measured by weight. Measurement of materials for ready-mixed concrete shall conform to the "Standard Specifications for Ready-Mixed Concrete" (ASTM C 94).
 1. Class "A" concrete for all structures shall have minimum compressive strength of 4000 psi at 28 days.
 2. Class "B" concrete for sidewalks shall have minimum compressive strength of 3000 psi at 28 days.
 3. All concrete shall be Class "A" unless otherwise shown on the drawings.

3.02 MIXING AND PLACING

- A. Concrete shall be mixed, conveyed, and deposited in accordance with the "A.C.I. Building Code" (A.C.I. 318).
- B. Prior to placing any concrete, the CONTRACTOR shall submit for the ENGINEER's approval a design mix, calculated by a recognized testing laboratory, and using the approved aggregates to produce a workable mix of the desired strength, together with certified copies of seven (7) days and 28 day tests of cylinders taken from concrete made according to the design mix. The mixes shall be designed to secure concrete having a minimum compressive strength at age 28 days.

C. Ready-mixed concrete delivered shall be accompanied by delivery tickets showing the following:

- | | | |
|----|----------------------------------|--------------------|
| 1. | Date and time leaving plant | Additives (if any) |
| 2. | Type of cement and weight | Site arrival time |
| 3. | Quantity of water and time added | Site leaving time |

D. Concrete.

1. Ready-mixed concrete shall be used. All mixing requirements specified herein shall be enforced, and the OWNER's laboratory representative and the ENGINEER shall have free access to the mixing plant at all times.
2. Except for materials and/or procedures otherwise specified herein, ready-mixed concrete shall be mixed and delivered in accordance with the requirements of ASTM C 94.
3. No water shall be added to the concrete after it leaves the plant except where part of the design water was purposely omitted at the plant, and then only as approved by the ENGINEER.

E. Mixer Speed.

1. Neither the speed of any mixer nor the quantity of material loaded into any mixer shall exceed the recommendations of the manufacturer.
2. Excessive over-mixing, required additions of water to preserve the required consistency, shall be cause for rejection of the batch.
3. Concrete shall not remain in a transit mixer or agitator truck more than 90 minutes after the water has been introduced, and not for more than 45 minutes if any approved retarding agent is not used.
4. Minimum mixing time shall be 50 revolutions of drum at rated speed.

F. Measurement.

1. Equipment necessary to determine and control the actual amounts of all materials entering the concrete shall be provided by the concrete manufacturer.
2. All materials shall be measured by weight, except that water may be measured by volume calculated at eight and one-third (8-1/3) pounds per gallon. One bag of cement will be considered as 94 pounds in weight.

G. Mixes.

1. Mix Design: Conform to ACI 318, Section 4.3. Submit data on consecutive tests and standard deviation.
2. Maximum Water – Cement Ratio:
 - 0.37 (lbs/lb) – Concrete with superplasticizer
 - 0.38 (lbs/lb) – Concrete in Marine Environments
 - 0.45 (lbs/lb) – Class A concrete without superplasticizer
 - 0.55 (lbs/lb) – Class B concrete without superplasticizer
 - 0.65 (lbs/lb) – Class C concrete without superplasticizer
3. Air Content: Five percent (5%) plus or minus one and one-half percent ($\pm 1.5\%$) (Class A and B).
4. Slump:
 - Four inches (4") plus or minus one inch ($\pm 1"$) for Class A and B without superplasticizer.
 - Seven inches (7") plus or minus one inch ($\pm 1"$) for Class A and B with superplasticizer.
 - Eight inches (8") plus or minus one inch ($\pm 1"$) for tremie concrete or as specified by details.

H. Placing Concrete.

1. All concrete shall be placed in clean, damp forms that are not hot to the touch.
2. To prevent segregation, concrete shall be deposited as nearly as practicable in final position and not allowed to drop freely more than necessary and in no case more than five feet (5'), except in an approved funnel or tremie. All concrete shall be placed during daylight unless otherwise authorized at least four (4) hours in advance. Where the reinforcing steel above the top of the concrete being placed becomes coated with laitance or partially set-up concrete, all such concrete shall be removed from the reinforcing steel prior to placing concrete around the bars.
3. Concrete shall be packed carefully and tightly around pipe and other items to secure maximum adhesion.
4. Concrete shall be placed in layers not over 12 inches (12") deep before compacting. Concrete shall be compacted by internal vibrating equipment supplemented by spading and hand-rodding between reinforcing steel and form to eliminate air bubbles and honeycomb. Vibrators shall not be used to

move the concrete laterally inside the forms. Duration of vibration shall be limited to the time necessary to provide satisfactory consolidation without causing segregation, not less than five (5) and not more than 15 seconds per square foot of exposed top surface. The vibrator shall be constantly relocated and shall be placed in each specific spot only once for each layer. The CONTRACTOR shall take steps to assure that sufficient personnel are available to devote full time to operating vibrator, spading and rodding.

5. Wall concrete shall be placed in layers as indicated above, with the first lift preceded by a one-inch (1") minimum layer of one to two and one-half (1:2-1/2) cement-sand grout, with a six-inch (6") to eight-inch (8") slump, placed on existing concrete not more than 20 minutes before concrete placement. The surface of previously placed hardened concrete shall be clean and wet before grouting, or shall be treated with a bonding agent as required. Puddles of water in horizontal recessed keys shall be avoided by the use of drain recesses to outside edge of concrete. Concrete in walls and deep beams shall be placed in lifts not to exceed three (3) layers at 12 inches (12") each for the full length of the pour before proceeding higher. The placing of concrete shall not be delayed more than 20 minutes between layers or lifts.
6. Slab forms shall be thoroughly cleaned after placing wall concrete below. Concrete in beams or walls shall be placed to bottom of floor slab. After concrete in walls below floor slab has been in place for approximately 30 minutes, the concrete for the floor slab and upper portion of the beam shall be placed and vibrated.
7. When concrete is conveyed by chutes, the equipment shall be of proper size and design to insure a continuous flow in the chute. The chutes shall be metal or metal lined, and the different portions shall have approximately the same slope. The slope shall not be less than one (1) vertical to three (3) horizontal or more than one (1) vertical to two (2) horizontal, and there shall be provision for a baffle at the discharge end of the chute to prevent segregation. If the vertical distance between the discharge end of the chute and the surface of the concrete is more than five feet (5'), a spout shall be used. The lower end of the spout shall be kept as near the surface of the deposit as is practicable. All chutes and spouts shall be thoroughly cleaned before and after each run. All debris and water shall be discharged outside the forms.

3.03 CURING AND PROTECTION

A. Curing:

1. Immediately after surface defects have been repaired, apply a spray coat of curing compound to all exposed surfaces, including slabs, walls, beams and columns in accordance with the manufacturer's recommendations. Protect exposed steel keyways and other embedded items from the curing compound.

Water cure, as specified in paragraph B hereunder, all concrete surfaces that are to be exposed to wastewater, surfaces that are to be coated with a coal tar epoxy system, and concrete floors requiring a bond for special finishes.

2. Do not apply compound during periods of rainfall. Should the film become damaged from any cause within the required curing period, immediately repair the damaged portions with additional compound. Upon removal of forms, immediately coat the newly exposed surfaces to provide a curing treatment equal to that provided for the surface.
 3. Curing and Sealing Compound: Use clear compound conforming to Federal Specification TT-C-800A, 30 percent (30%) solids content minimum, having test data from an independent laboratory indicating a maximum moisture loss of 0.030 grams per sq. cm. when applied at a coverage rate of 300 sq. ft. per gallon, and equal to Super Floor Coat or Super Pliocure by The Euclid Chemical Company or Masterseal 66 by Master Builders. Furnish manufacturer's certification as required.
 4. Apply specified clear curing and sealing compound to all horizontal areas so noted on the Drawings or in the Specifications. Apply immediately after final finishing. Apply this compound to non-structural construction joints of slabs on grade to act as a bond breaker prior to placement of adjacent concrete.
- B. Water Curing Method: Cure all concrete that is to be water cured by either the wet burlap method, by continuous fogging or by covering with waterproof sheet.
1. Wet Burlap Method: Cover concrete surface with a double thickness of burlap, cotton mats, or other approved material, kept thoroughly saturated with water. Keep the forms wet until removed and upon removal, start the curing specified herein immediately. Cure the concrete for a period of seven (7) days for normal Portland cement or four (4) days for high early strength cement. Do not submerge concrete poured in the dry until it has attained sufficient strength to adequately sustain the stress involved and do not subject it to flowing water across its surface until it has cured four (4) days.
 2. Continuous Fogging: Perform continuous fogging by fogging with a nozzle which so atomizes the flow of water that a mist, and not a spray, is formed. Fog the concrete surface regularly without allowing any part of the surface to become dry. Take all necessary precautions to prevent erosion of the concrete surface by the water.
 3. Covering with Waterproof Sheets: Keep the entire area to be cured continuously wet by fogging, as specified in the fogging paragraph above, for at least 18 hours and then immediately cover with waterproof curing sheet conforming to ASTM C 171, waterproof paper, and polyethylene film, free of holes or tears. Keep sheet fully flat, without wrinkles or air bubbles, held

down tautly at all edges. Do not use this method on slabs which will be exposed to view.

3.04 PLACING REINFORCEMENT

- A. All reinforcement shall be detailed, fabricated and erected in accordance with the A.C.I. "Manual of Standard Practice for Detailing Reinforced Concrete Structure", (A.C.I. 315), including bar supports and spacers. At splices, all reinforcing bars shall be lapped a minimum of 24 bar diameters but not less than 12 inches (12").
- B. The reinforcing shall be fabricated to the shapes and dimensions shown and shall be placed where indicated on the drawing. Before placing, all reinforced steel shall be thoroughly cleaned of rust, mill scale or coatings, which would reduce or destroy the bond. Reinforcing bars shall conform to the requirements of the latest editions of the A.C.I. Code and the CRSI Manuals.
- C. Wire mesh, unless otherwise shown on the drawings or specified, shall be six inches by six inches (6" x 6") No. 10 woven or electrically welded wire fabric conforming to the requirements of ASTM A 185, latest revision.
- D. Space chairs and bolsters in accordance with ACI 315 and 318 using height to furnish cover over reinforcing required. Chairs with plastic feet or stainless steel shall be used in all beams and elevated slabs. Chairs for other concrete adjacent to or on the ground may be pieces of concrete block or concrete brick compressed into subgrade with the rebars bearing directly on the pointed edge of the masonry supports, or chairs set on precast concrete pads compressed into the subgrade.
- E. When placed in the forms, reinforcement shall be clean and free of all loose rust, scale, dust, dirt, paint, oil, or other foreign material, and shall be accurately and securely positioned both laterally and vertically before placing concrete. Minimum clearances between the steel and face of concrete shall be maintained as shown.
- F. The rebars shall be fastened together at every intersection or at intervals not greater than 24 bar diameters by wire ties or by some alternate method acceptable to the ENGINEER. In areas where large bars are closer together, the wire ties may be spaced not more than 30 bar diameters apart, rather than as specified above.

3.05 FORMS

- A. Installation and erection shall be in accordance with ACI 347 and as specified hereinafter.
- B. Forms shall conform to shape, lines and dimensions of numbers indicated, and shall be sufficiently tight to prevent leakage of mortar. They shall not deflect under dead load weight of construction as a liquid or of construction load. Forms shall be properly braced or tied together so as to maintain position and shape within specified tolerances. Construct forms so that they can be removed steadily without hammering

or prying against the concrete. Forms for exposed concrete shall be carefully made and accurately placed to obtain correct shape and line.

- C. Forms shall be of wood, metal, or other approved materials. Metal forms shall be of a type and manufacture acceptable to the ENGINEER. Plywood, fiberboard, or absorptive type form linings may be used where appropriate. Sectional forms shall produce a uniform surface and shall be assembled in a modular pattern. Pours will not be scheduled until all erection and bracing is complete. Walers, ties and braces shall be required for all forms. Chamfer strips made from nominal dimensional one inch by one inch (1" x 1") lumber cut on the diagonal shall be installed at the top of the forms on all exposed edges of walls, slabs, beams and other structures above grade.
- D. Drip edge shall be made from wood quarter round and installed where shown. Extruded plastic fillets shall be used where detailed. Circular structures shall be formed with special care, and attention to the appearance of the finished structure. Random location of fillers, non-modular sections, and excessive deviations from true circular segments shall be cause for rejection of the forms.
- E. The CONTRACTOR shall be fully responsible for the adequacy of formwork in its entirety. Forms shall support required loads and shall maintain their dimensional and surface correctness to produce members required by drawings.
- F. Slots, chases, recesses, or other openings as shown on the drawings or as needed for the work of any other trades shall be boxed out.
- G. Box out for all temporary openings and build forms to seal them up when and as required.
- H. After sealing and immediately before the placing of reinforcing, faces of all forms in contact with the concrete shall receive a thorough coating of the liquid form releasing agent, applied in compliance with the Manufacturer's instructions.
- I. Reused forms shall be thoroughly cleaned out of dirt, debris, concrete and foreign matter. Forms shall not be reused if they have developed defects which would affect their tightness and strength or desired surface finish. Used forms shall not be used for architectural concrete.
- J. Forms shall be removed in a manner that will prevent injury to concrete. Supporting forms or shoring shall not be removed until the members have acquired sufficient strength to support their weight and any load thereon.
- K. Removal shall be in sequence as approved by the ENGINEER. Unless test cylinders warrant another procedure, the forms shall not be removed from members prior to the time listed in the schedule hereinafter unless otherwise directed.

- L. **Bonding to Existing Surfaces:** Clean existing concrete surfaces that are to have new concrete bonded thereto of all grease, oil, dust, dirt and loose particles and coat with an epoxy bonding agent just prior to placing of the new concrete. Apply the bonding agent as recommended by the manufacturer and allow the agent to become tacky before the new concrete is placed. Do not allow the bonding agent to overlap or be spilled on the surfaces to be exposed after the work is completed.

3.06 FORM REMOVAL

- A. Maintain formwork in place for the following structural conditions until the concrete has attained the minimum percentage of indicated design compressive strength or for the period of time specified in the following table.

Note: Time periods in the table include all days except those in which the temperature falls below 40°F.

Structural Member or Condition	Normal Strength Concrete	Normal High-Early Strength Concrete	Minimum Compressive Strength for Form Removal (% Design Strength)
Cantilevers	12 days	Seven (7) days	90
Over 20 feet (20') Between Supports	12 days	Seven (7) days	90
Stairway	10 days	Five (5) days	80
Floor Slabs	Five (5) days	Three (3) days	70
Free Standing Walls, Columns, and Piers	Five (5) days	Three (3) days	70
Walls, Piers, Columns, Sides of Beams, Footings, Slabs on Grade, and Vertical Surfaces	24 – 48 hours	12 – 24 hours	70
Front Face Form of Curbs	Six (6) – 24 hours	Six (6) hours	70

3.07 CONCRETE FINISHINGS

A. Repair of Surface Defects:

1. General: Repair surface defects, including tie holes immediately after form removal. Dampen the area to be patched and an area at least six inches (6") wide surrounding it to prevent absorption of water from the patching mortar. Notify the ENGINEER prior to commencing operations.
2. Removal of Defective Concrete: Remove all honeycombed and other defective concrete down to sound concrete. Cut edges perpendicular to the surface or slightly under cut. Sand blast surfaces to receive repair.
3. Bonding Grout: Thoroughly dampen surfaces to be patched and apply a coat of bonding grout consisting of one (1) part cement to one (1) part fine sand passing a No. 30 sieve and having the consistency of thick cream.
4. Placing Patching Mortar: After the bonding grout begins to lose its water sheen, apply a premixed patching mortar, thoroughly consolidating it into place and striking it off so as to leave the patch slightly higher than the surrounding surface. Leave mortar undisturbed for one hour to permit initial shrinkage and then finally finish.
5. Tie Holes: After being cleaned and thoroughly dampened, fill the tie holes solid with patching mortar.

B. Concrete Finishes:

1. Formed Surfaces: After removal of forms, chip off all irregular projections, grind flush with adjacent surfaces and finish concrete surfaces in accordance with the following schedule:

<u>Finish Designation</u>	<u>Area Applied</u>
F-1	Exterior walls below grade not exposed to water: Repair defective concrete, fill depressions deeper than two inch (2"), and fill tie holes.
F-2	Exterior and interior walls exposed to water: Repair defective concrete, remove fins, fill depressions three inch (3") or deeper, and fill tie holes.
F-3	Walls of structures of buildings exposed to view and underside of formed floors or slabs: In addition to Finish F-2, fill depressions and airholes in mortar. Dampen surfaces and then spread a slurry consisting of one (1) part cement and one and one-half (1-1/2) parts sand by damp loose volume on the surface with clean burlap pads or sponge rubber floats. Remove any surplus by scraping and then rubbing with clean burlap.
F-4	Tops of walls, beams and similar unformed surfaces occurring adjacent to formed surfaces: Strike smooth after concrete is placed and float to a texture reasonably consistent with that of formed surfaces.

2. Slab Surfaces:

- a. General: After concrete has been consolidated, finish all concrete slabs with a floated finish. After floating, trowel finish all concrete slabs, except for areas to receive roofing, insulation, tile or topping, and immediately light broom finish. Where a finish is not indicated, provide a troweled finish.

<u>Finish Designation</u>	<u>Area Applied</u>
S-1	Slabs and floors not water bearing: Smooth steel trowel finish.
S-2	Slabs and floors which are water bearing and slab surfaces on which mechanical equipment moves: Steel trowel finish free from trowel marks and all irregularities.
S-3	Slabs, floors and stair treads of structures or buildings exposed to view: Steel trowel finish without local depressions or high points and apply a light hair-broom finish. Do not use stiff bristle brooms or brushes. Leave hair-broom lines parallel to the direction of slab drainage.
S-4	Slabs and floors at slopes greater than 10 percent (10%): Steel trowel finish without local depressions or high points. Apply a stiff bristle broom finish. Leave broom lines parallel to the direction of slope drainage.
S-5	Exposed edges of slabs, floors and tops of walls: Finish with a three-inch

(3") radius edge if a chamfer is not indicated.

- C. Floated Finish: After concrete has been placed, consolidated, struck off and leveled, do not work the surface further until water sheen has disappeared and the surface has hardened sufficiently to permit floating. During the first floating, check the planeness of the slab with a ten-foot (10') straightedge applied at no less than two (2) angles. Cut down all high spots and fill all low spots to produce a surface having the required tolerance. Then refloat the slab to a uniform sandy texture.
- D. Light Broomed Finish: After floating, power trowel slabs to receive a light broomed finish to produce a smooth surface, relatively free of defects. Before the surface sets, pass a soft broom drag over the surface to produce a surface uniform in texture and appearance.
- E. Troweled Finish: After floating, power trowel slabs to receive a troweled finish to produce a smooth surface, relatively free of defects. Hand trowel after the surface has hardened sufficiently. When a ringing sound is produced as the trowel is moved over the surfaces, perform final troweling by hand to produce a surface which is thoroughly consolidated, free from trowel marks, uniform in texture and appearance and plane to a tolerance of one-eighth inch (1/8") in ten feet (10') as determined by a ten-foot (10') straightedge placed anywhere on the slab in any direction.
- F. Hardener Finish: Where indicated to receive a troweled hardener finish, water cure slabs without application of curing and sealing agent. When slab is at least 20 days old and thoroughly dry, apply the hardener in accordance with the manufacturer's recommendations. Where dry-shake hardener, or slip resistant finish is required, apply the hardener or slip-resistant product prior to complete curing and finishing, in accordance with the requirements and recommendations of the product manufacturer.
- G. Saw Cut Joints: Cut joints that are to be saw cut not sooner than two (2) hours after the concrete is poured and not later than eight (8) hours after the pour.

3.07 TESTS

- A. Compressive strength tests shall be made by breaking standard six-inch (6") diameter by 12-inch (12") high test specimens prepared, cured, and broken in accordance with the ASTM Standard Methods C 31 and C 39, latest revision. Four (4) specimen test cylinders shall be taken from each pour of five (5) cubic yards or more. One (1) additional test shall be taken from each 30 cubic yards or fraction thereof in each pour in excess of 30 cubic yards.
- B. Test specimens shall be taken from manhole bottom pours of less than five (5) cubic yards as directed by the ENGINEER. Test specimens shall be taken in the presence of the ENGINEER. One (1) cylinder from each pour shall be broken at seven (7) days, the remainder at 28 days. Additional test cylinders may be ordered for determining the characteristics of a new design mix or changes in equipment or methods, and under adverse weather or curing conditions.

- C. Slump test shall be made in accordance with ASTM C 143, latest revision, and shall be made with each load and at time of cylinders.
- D. The CONTRACTOR shall supply all cylinder molds, slump cones, tools, and labor for preparing specimen, and shall provide clean, moist sand or burlap for curing. Cylinder shall not be shipped to the testing laboratory until the third day following preparation, and shall be protected from accidental damage at all times.
- E. The test cylinders shall be tested in a recognized commercial testing laboratory at the expense of the CONTRACTOR.

3.08 EXPANSION JOINTS, CONSTRUCTION JOINTS AND WATER STOPS

- A. Expansion Joints shall be places as indicated on the drawings. Joint materials for surfaces exposed to water and sewage shall conform to ASTM D 175, Preformed Joint Filler, non-extruding and resilient (bituminous type), thickness as shown on the drawings. Joint materials for isolation joints, slab-on-grade joints and wall joints not exposed to water and sewage shall conform to ASTM D 994, preformed expansion joint filler for concrete (bituminous type), thickness as shown on the drawings.
- B. Construction Joints shall be located in accordance with a schedule of pours which shall be prepared and submitted by the CONTRACTOR. Vertical construction joints shall be held to the minimum number consistent with good standard practice.
- C. Water Stops. Material for water stops shall be nine-inch (9") PVC multi-rib center-bulb type for expansion joints, and one-quarter inch by four inches (1/4" x 4") and one-eighth inch by four inches (1/8" x 4") structural steel sheets for construction joints. PVC joint material shall be as manufactured by The Burke Company, or approved equal.

END OF SECTION

SECTION 03 40 00

PRECAST CONCRETE

PART 1 – GENERAL

1.01 DESCRIPTION

- A. Scope of Work: The work under this Section includes the design, casting, delivery, and erection of concrete structures as indicated on the Drawings.

1.02 QUALITY ASSURANCE

- A. Standards: Unless otherwise indicated, all materials, workmanship and practices shall be in accordance with the current editions of the following standards:
1. Standard Building.
 2. ACI 318, "Building Code Requirements for Reinforced Concrete".
 3. PCI MNL 116, "Manual for Quality Control for Plants and Production of Precast Concrete Products".

1.03 SUBMITTALS

- A. The following information shall be submitted for approval. Fabrication shall not begin until submission has been approved.
1. Quality Control: Satisfactory evidence shall be submitted that plant and production methods meet the requirements of PCI MNL 116.
 2. Design: Complete calculations including shear, moment, buoyancy, and camber calculations shall be submitted. All computation sheets shall bear the seal of a Professional Engineer registered in the State of Florida. Design water table shall be assumed to be at finished grade.
 3. Shop Drawings: Complete fabrication and erection drawings shall be submitted. All drawings shall bear the seal of a Professional Engineer registered in the State of Florida.

B. Manufacturer's data sheets shall be submitted on the following:

1. Joint mastic and gaskets.
2. Pipe connections.
3. Grout material.
4. Hatches and manhole covers

1.04 DELIVERY, STORAGE, AND HANDLING

A. Transportation and erection shall be done by qualified personnel using proper equipment. Lifting and supporting shall be done only at points indicated on the shop drawings.

PART 2 – PRODUCTS

2.01 MATERIALS AND FABRICATION

A. Precast Concrete Structures:

1. Design loads shall consist of dead load, live load, impact, soil loads and loads due to water table, as well as other loads which may be imposed upon the structure. Wetwells and manholes shall be designed in accordance with ASTM C 478. The minimum wall thickness for wetwells up to seven feet (7') I.D. shall be eight inches (8"). The minimum wall thickness for wetwells eight feet zero inches (8' 0") to 12 feet zero inches (12' 0") I.D. shall be ten inches (10"). The minimum wall thickness for four foot (4') I.D. manholes shall be six inches (6"). The minimum wall thickness for valve vaults shall be six inches (6").
2. Forms used for precast concrete shall be of metal and sufficiently designed and braced to maintain their alignment under pressures of the concrete during placing. Base and first section of precast structures shall be an integral cast.
3. Aggregates: All aggregates, fine and coarse, other than lightweight aggregate shall conform to ASTM C 33. Lightweight aggregates, fine and coarse, shall conform to ASTM C 330. Aggregates shall be free of deleterious substances causing reactivity with oxidized hydrogen sulfide. Both types of aggregate shall be graded in a manner so as to produce a homogenous concrete mix. All materials are to be accurately weighed at a central batching facility for mixing.
4. Cement shall be Portland cement Type II.

5. Minimum compressive strength of concrete used for precast concrete structures shall be 4000 psi at 28 days.
6. Placing. All concrete shall be handled from the mixer or transport vehicle to the place of final deposit in a continuous manner, as rapidly as practicable, and without segregation or loss of ingredients, until the approved unit is completed. Maximum elapsed time from batching to placement shall be two (2) hours. Concrete shall be placed in layers not over two feet (2') deep. Each layer shall be compacted by mechanical internal or external vibrating equipment. Duration of the vibration cycle shall be limited to the time necessary to produce satisfactory consolidation without causing objectionable segregation.
7. Curing:
 - a. For purposes of early reuse of forms, precast concrete may be steam cured after an initial set has taken place. The steam temperature shall not exceed 160°F, and the temperature shall be raised from normal ambient temperatures at a rate not to exceed 40°F per hour.
 - b. The steam cured unit shall not be removed from the forms until sufficient strength is obtained for the unit to withstand any structural strain to which it may be subjected during the form stripping operation. After the stripping of forms, further curing by means of water spraying or a membrane curing compound may be used, and shall be of a clear or white type, conforming to ASTM C 309.
8. Reinforcing steel shall be sufficiently tied to withstand any displacement during the pouring operation. All bars shall be Grade 60.
9. Joints shall be tongue and groove pipe ends sealed with round or other flexible type natural rubber joint ring gaskets in conformance with ASTM C 433 or by a flexible preformed bitumastic sealing material equal to Ram-Nek as manufactured by R.K. Snyder and Co., Houston, Texas. If rubber joint ring gaskets are used, interior and exterior voids in the pipe joints shall be sealed with flexible sealing material specified above, installed in strict accordance with the manufacturer's printed instructions. If manhole sections are sealed with a flexible preformed bitumastic sealing material, adequate material shall be applied so that "squeeze out" occurs at the interior and exterior of the joint. Rubber joint ring gaskets and flexible preformed bitumastic sealing material shall be provided by the manhole manufacturer.
10. Eccentric precast concrete cone sections shall be manufactured of precast concrete with reinforcing and joints as specified above for straight riser.

11. Lifting holes through the structures are not permitted. Equally spaced lifting lugs, rings or non-penetrating lift inserts shall be provided.
 12. Top slabs for shallow manholes, valve vaults, and pumping station wet wells may be precast or cast-in-place. Steel reinforcing shall be as required for the dead load of the slab plus an H-20 designation live load. Concrete for top slabs shall have a compressive strength of 4000 psi at 28 days. Thickness of concrete for top slabs shall be a minimum of six inches (6") for shallow manholes and valve vaults and eight inches (8") for pumping station wet wells.
 13. Manholes inverts shall be precast into the manhole base section by the manhole manufacturer unless prior approval is obtained from the ENGINEER to construct inverts in the field. The drop from inlet to outlet shall be a minimum of one inch unless approved by the ENGINEER. The channel height of the manhole invert shall match the crown of the exit sewer. Manhole benches shall be sloped a minimum of one inch per foot from the outside periphery of the manhole to the edge of the invert channel.
- B. Sealing Compound and Grout: Plastic sealing compound shall comply with Federal Specification SS-SS-00210. Mortar shall comply with ASTM C 387, Type S, or use grout complying with Section 03 60 00.
- C. Pipe Connections:
1. Pipe connections for wet wells and manholes shall be resilient, waterproof connections designed in accordance with ASTM C 923 "Resilient Connectors Between Reinforced Concrete Manhole Structures and Pipes". Resilient pipe connectors shall either be cast into the manhole wall or installed following casting in a cored section of the manhole wall. Resilient connectors shall either be a gasket type connector equal to the A-Lok pipe to manhole seal as manufactured by Atlantic Concrete Products, Inc., or a flexible neoprene boot with stainless steel clamps equal to KOR-N-Seal System as manufactured by the Dukor Corporation. When the pipe is installed in the resilient manhole connector, the pipe shall be capable of 20-degree minimum deflection in any direction.
 2. Pipe connections for wall penetrations for valve vaults and for manholes and wetwells where resilient connectors cannot be used shall be provided with wall sleeves and link seals or as specified in Section 46 05 02.
- D. Frames and Covers: Cast iron manhole frames and covers shall be provided for manholes and aluminum access hatches shall be provided for wetwells and valve vaults as specified below:

1. Standard Manhole Frames and Covers: Shall be gray iron castings conforming to ASTM A 48, Class 30B for Gray Iron Castings; and shall be smooth, true to pattern, free from blow holes, sand holes, projections, and other harmful defects. The seating surfaces of both the frame and cover shall be machined so that the cover will not rock after it has been seated. The cover shall be provided with a precisely machined dovetail groove with a neoprene O-ring gasket to provide a self-sealing cover. The gasket shall be glued in place at the foundry. The manhole cover shall be solid with two non-penetrating pick holes. Manholes frames and covers shall be coated on all non-machined surfaces with three coats of coal tar epoxy as specified for the Class 7 Coating System in Section 09 91 00. Manhole frames and covers shall be U.S. Foundry and Manufacturing Corp. No. 38B, Ref. Cat. No. 225, Neenah Foundry Company No. R-1642 with a Type "B" cover or an equal approved by the ENGINEER.
 - a. Anchor Bolts: Anchor bolts for bolting manhole frame to precast manholes shall be three-quarter inch (3/4") diameter galvanized all thread steel rods with a five-inch (5") hook for embedment in the precast manhole. The bolts shall be of sufficient length to provide a minimum two-inch (2") thread projection through the flange of the manhole frame. Two (2) anchor bolts shall be cast into the precast manhole top section or slab, positioned at 180 degrees, at the time of manufacturer. Manhole frames shall be drilled to match the bolt settings prior to coating.
2. Aluminum Access Hatches: Aluminum hatches shall be provided for wetwells and valve vaults sized as indicated on the Drawings. Access hatches shall be a specified in Section 08 30 05.

E. Coatings:

1. Interior and exterior surfaces of precast structures shall be coated with a primer coat and three finish coats of coal tar epoxy as specified in Section 09 91 00.

PART 3 – EXECUTION

3.01 INSTALLATION

- A. Earthwork: The CONTRACTOR shall prepare an excavation large enough to accommodate the structure and permit sealing of openings, waterproofing, and backfilling operations. Earthwork shall conform to the applicable sections of Division 2.
- B. Installation of Precast Concrete Structures: Precast concrete structures shall be constructed in a workmanlike manner at the locations and dimensions indicated on

the Drawings. Precast structures shall be set on foundation of crushed stone, 12 inches (12") thick. Crushed stone material shall be a well graded crushed stone or crushed gravel meeting the requirements of ASTM C 33, Gradation No. 67 [three-quarter inch (3/4") to No. 4 sieve]. The precast structures shall be constructed such that the structure will not transmit dead or live loads to the piping. Care shall be taken to prevent earth and other material from entering precast structures.

C. Sealing and Grouting: Fill all interior and exterior joints between precast sections with a joint sealant, as recommended by the structure manufacturer.

D. Installing Precast Sections:

1. Set each precast concrete unit plumb on a bed of sealant to make a watertight joint at least two-inch (2") thick with the concrete base or with a preceding unit. Point the inside joint and wipe off the excess sealant.
2. Assemble units so that the cover conforms to the elevations shown on the Drawings.
3. Pipe connections at precast structures shall be provided at the locations shown on the Drawings. Connections shall be resilient and waterproof.
4. All voids in interior and exterior manhole section joints and lift holes for manhole sections shall be filled with a non-shrinking, non-metallic grout. Grout shall be applied and cured in strict accordance with the manufacturer's recommendations. The grout shall be finished smooth and flush with the wall surface of the manhole.

E. Manhole Flow Channels and Bench Walls:

1. Unless prior approval is obtained from the ENGINEER, manhole flow channels (inverts) and bench walls shall be precast into the manhole base section as specified above.
2. Upon prior approval from the ENGINEER, manhole inverts may be constructed in the field. Invert channel bottoms shall be smooth and semicircular in shape conforming to inside of adjacent sewer sections. Changes in direction of flow shall be made with a smooth curve of as large radius as the size of manhole will permit. Changes in size and grade of channels shall be made gradually and evenly to give a smooth uninterrupted flow pattern through the manhole. Channel height shall match the crown of the connection sewer pipe exiting the manhole. Manhole bench walls shall be smooth and shall slope one inch per foot from the edge of the invert channel to the precast manhole wall. Invert channels may be constructed by forming in concrete or by building up brick and mortar to form the manhole bench walls on each side of the channel, and plastering over bricks with

cement mortar with a minimum thickness of two inches (2"). Manhole invert construction shall only be performed by experienced and qualified workmen.

3. Bricks used to construct manhole invert channels and bench walls shall be standard size [22 inches high by four inches wide by eight inches long (22" H x 4" W x 8" L)] brick in conformance with ASTM C 32 "Sewer and Manhole Brick (Made from Clay and Shale)", Grade MS. Mortar used for masonry work shall be prepared by thoroughly mixing: One (1) volume of Type II Portland Cement with three (3) volumes of sand and sufficient clean water to produce a rich mass of approved consistency. Mixing mortar on the ground or any paved surface shall not be permitted. Sand to be used in making mortar shall be clean, well-graded, and shall pass a standard No. 4 sieve.

F. Setting Frames and Covers:

1. Unless otherwise indicated on the Drawings, in unpaved areas the tops of manholes shall be set 0.2 feet (0.2') above finished grade and the tops of wetwells and valve vaults shall be set 0.5 feet (0.5') above finished grade.
2. The top of all precast manholes may be brought to proper grade for receiving manhole frame by using not more than three courses of brick or precast concrete grade rings. Bricks and mortar used for manhole top grade adjustments shall be as specified above in Paragraph 3.01.E.3. Precast concrete grade rings shall be precast with steel reinforcement in conformance with ASTM C 478 and concrete with a compressive strength of 4000 psi in 28 days. Precast concrete grade rings shall be manufactured in half annular shapes for ease of handling. The grade ring dimensions shall be two inches (2") thick with an annular width of eight inches (8") and an inside diameter of 24 inches (24").
3. Masonry construction shall be performed by experienced and qualified workmen only. All work shall be laid plumb, straight, level, square and true. Brick shall be laid in full beds of mortar and shoved into place. All joints shall be full and not more than two inches (2") in thickness. The CONTRACTOR shall set in place and bond in the masonry all necessary anchor bolts and miscellaneous items specified elsewhere. The masonry walls shall be plastered on the inside and outside with a one-half inch coat of Portland Cement mortar.
4. Following curing of any masonry construction required for manhole top adjustment, set manhole frame in a bed of three- to two-inch (3-2") thick flexible bitumastic sealing material (Ram-Nek) and anchor in place with two (2) three-quarter inch (3/4") diameter anchor bolts, which shall be securely embedded in the top of the manhole. Seal the flange of the manhole ring to the top of the manhole with cement mortar.

- G. Interior Lining: The interior coating system shall be applied following installation of the precast structures and any piping or equipment which will penetrate or attach to the walls. Surface preparation and application of the coating system shall be in strict accordance with the manufacturer's recommendations. Refer to Section 09 91 00 for additional specifications.
- H. Backfill: After the structure and all appurtenances are in place and approved, backfill shall be placed to the original ground line or to the limits designated on the Drawings. Backfill material shall consist of sand or loose earth, free from stones, clods, or other deleterious material. It shall be placed in horizontal layers not exceeding 12 inches (12") in depth, and shall be moistened and thoroughly compacted to a minimum relative density conforming to the requirements of Division 2.

END OF SECTION

SECTION 03 60 00

GROUTING

PART 1 – GENERAL

1.01 WORK INCLUDED

- A. Provide all labor, materials, tools, and equipment and perform all grouting as specified hereinafter and indicated on the Drawings.

1.02 RELATED WORK

- A. Section 03 30 00: Cast-In-Place and Poured Concrete.

1.03 SUBMITTALS

- A. Submit manufacturer's literature for review on the following items:
 - 1. Non-shrink grout data including grout properties, mixing, surface preparation, and installation instructions.

1.04 DELIVERY AND STORAGE

- A. Deliver and store grouting materials in unbroken containers with seals and labels intact as packaged by the manufacturer.

PART 2 – PRODUCTS

2.01 MATERIALS

- A. Non-shrink, Nonmetallic Grout: The Burke Company's Non-Ferrous, Non-Shrink Grout, Sauereisen F-100 Level Fill, Master Builders Masterflow 713, Euclid NS Grout, or equal pre-mixed type.
- B. Non-shrink Metallic Grout: The Burke Company's Metallic Spec Grout, Master Builders Embeco 636 Grout pre-mixed type, or equal.
- C. Epoxy Grout: Sikadur 42 Grout-Pak, or equal, for grouting sleeves for anchor bolts, etc.

PART 3 – EXECUTION

3.01 PREPARATION

- A. Clean all bonding surfaces of dust and oil.

3.02 INSTALLATION

A. Non-shrink Grout:

1. Use non-shrink, nonmetallic grout for grouting precast concrete wall panel connections, column base plates, anchor bolts, reinforcing bars, pipe sleeves, machinery supports and pump base plates. Use epoxy grout for anchor bolts, etc., where indicated on the Drawings.
2. Mix and place non-shrink grout as recommended by the manufacturer.
3. Mix grout as close to the work area as possible and transport quickly to its final position in a manner which will not permit segregation of materials.
4. Cure non-shrink grout with water saturated burlap for at least three (3) days or with an application of Super Rez Seal cure and seal compound applied immediately after grout placement.
5. Do not operate machinery set on grout pads until the grout has cured for at least 24 hours.

END OF SECTION

SECTION 08 30 05

ACCESS HATCHES

PART 1 – GENERAL

1.01 DESCRIPTION

- A. Scope of Work. This Section includes providing all labor, materials, and equipment necessary to install the access hatch doors or the collection basin and the flow meter vault as indicated in the Drawings and/or specified herein.

1.02 QUALITY ASSURANCE

- A. Standards. The access doors shall meet the standards of the following:
 - 1. Standard Building Code.
 - 2. OSHA Requirements.
- B. Manufacturers. Halliday Products, Orlando, Florida; The Bilco Company, New Haven, Connecticut; or approved equal.

1.03 SUBMITTALS

- A. Shop Drawings. Shop drawings shall be submitted to the ENGINEER for approval. Shop drawings shall include manufacturer's data sheets showing all materials, connections, and other required details to illustrate a complete operating access door.

1.04 WARRANTY AND GUARANTEES

- A. The manufacturer shall guarantee the access door against defects in material and workmanship for a period of 10 years. Refer to Section 01 78 39 for requirements.

PART 2 – PRODUCTS

2.01 GENERAL REQUIREMENTS

- A. The access doors, in sizes as shown on the drawings, shall be standard design of the manufacturer.

2.02 MATERIALS

- A. Each hatch shall be designed according to the openings shown on the Drawings. The aluminum access frames shall be manufactured from one-third inch (1/3") thick, one (1) piece extruded aluminum frame. The frame shall be a self-draining channel with one and one-half inch (1-1/2") draining coupling located in the channel frame. The door panels shall close flush and shall be one-third inch (1/3") thick aluminum diamond (checker) plate. The installed access doors shall be designed to withstand traffic loads, as required. Removable aluminum cross-beams shall be provided by the hatch supplier as required to accomplish the stated loadings. The doors shall have stainless steel hinges with tamper proof fasteners. All hardware shall be made of 316L stainless steel. Each door shall have spring operators, such that the maximum lifting effort is less than 25 pounds. The hatch supplier shall provide the number of doors as required to accomplish the lifting requirements. Each door shall open to 90 degrees (90°) and lock automatically with a stainless steel, positive locking arm and a stainless steel release handle. Each door shall have a recessed stainless steel lifting handle.
- B. All access doors shall be designed with a neoprene gasket on the inside lip of the frame perimeter, to form an essentially air-tight seal.

PART 3 – EXECUTION

3.01 INSTALLATION

- A. The access hatches and doors shall be installed as recommended by the manufacturer and adjusted for proper operation without binding.

END OF SECTION

SECTION 22 13 29

SANITARY SEWERAGE PUMPS – GENERAL

PART 1 – GENERAL

1.01 WORK INCLUDED – DESCRIPTION

- A. Scope of Work: Furnish all labor, materials, equipment, and incidentals required to install complete and ready for operation all pumps related equipment.
- B. Except as specified to the contrary in the specific pump specifications, this specification shall be complied with for all pumping units.
- C. Related Work Described Elsewhere:
 - 1. Shop Drawings: Section 01 33 23.
 - 2. Material and Equipment: Section 01 60 00.
 - 3. Start-up: Section 01 75 16.
 - 4. Operations and Maintenance Data: Section 01 78 23.
 - 5. Warranties: Section 01 78 36.
 - 6. Painting: Division 9.
 - 7. Pipe and Pipe Fittings: Division 33.
 - 8. Valve and Specialties – General: Division 40.
 - 9. General Mechanical Requirements: Section 46 05 01.
 - 10. Instrumentation: Division 33 and respective equipment sections.
 - 11. Motors and Starters: Division 33.
- D. General Design: Refer to respective sections of the specifications.

1.02 QUALITY ASSURANCE

A. Qualifications:

1. The pumping units specified herein are to be standard pumping units for the intended service and shall be the product of a fully experienced, reputable, and qualified manufacturer. The manufacturer shall supply the ENGINEER with information pertaining to three (3) installations where equipment of the specific type, size and function have been in operation for not less than five (5) years with the shop drawing submittal. The information shall contain items as follows:
 - a. Installation name and location.
 - b. Date of installation of equipment.
 - c. Date of start up of equipment.
 - d. Personnel at installation which can be contacted with telephone numbers and extensions.
2. The Supplier shall supply the services of a qualified factory-trained service representative for a period specified under the individual equipment specifications. The representative shall inspect the completed equipment installation to ensure that it meets with the manufacturer's recommendations. Any adjustments or modifications shall be made, at not additional cost to the OWNER, to place the equipment in trouble-free operation.

B. Equipment Manufacturer: Refer to respective sections of the contract documents.

1.03 SUBMITTALS

A. Materials and Shop Drawings:

1. The CONTRACTOR to conform shop drawings to Section 01 33 23 and as required below.
2. The CONTRACTOR shall submit the following to the ENGINEER for approval in accordance with Section 01 33 23:
 - a. Manufacturer's literature, illustrations, and applicable data for the individual pumps, including the total weight of the equipment and the weight of the single largest item.
 - b. Manufacturer's certified curves illustrating pump characteristics of head, discharge, brake horsepower, efficiency, required net positive suction head, and available suction lift.
 - 1) Curves shall be submitted on eight and one-half inch by 11 inch (8-1/2" x 11") sheets, at as large a scale as is practical.

Curves shall be plotted from no flow at shut off head to maximum pump runout head and gallonage allowed by the manufacturer. Curves for variable speed pumps shall be provided for maximum running, full load RPM as specified, and a minimum of four (4) other curves of equal speed increments not inclusive of O RPM (i.e., 1760, 1408, 1056, 704, 352).

- 2) Points of operation which cause bearing stress or shaft deflection in excess of the manufacturer's tolerances for continuous operation shall be indicated on the submitted curves.

- c. The shop drawings shall include details of pump assembly, installation layouts, procedures, types of materials used in pump construction, details on all pump accessories, and dimensions of major components. Where applicable, and pumps are provided as part of a complete package inclusive of controls, control diagrams shall be provided.
- d. A complete total bill of materials for all equipment.
- e. A list of manufacturer's recommended spare parts to be supplied, with the manufacturer's current price for each item. Include O-rings, seals, etc. on the list. List bearings by the bearing manufacturer's name and numbers only.
- f. Pumping equipment, requiring special tools for maintenance, shall be provided with one set of tools labeled, packed with instructions for use, and housed in a metal tool box with lock end hoop for each two units provided.
- g. Motor data shall be submitted in accordance with the specific equipment specification and Section 33 05 93.

- B. Operating and Maintenance Instructions: For all pumps furnished under this Section, the CONTRACTOR shall submit operation and maintenance manuals in accordance with requirements of Section 01 78 23 to include, at a minimum, the following:

1. Equipment function.
2. Description.
3. Normal and limiting operating characteristics.
4. Installation instructions (assembly, alignment, and adjustment procedures).
5. Operation instructions (normal start up and shut down procedures, normal operating conditions, and emergency situations).
6. Lubrication and maintenance instructions.

7. Troubleshooting guide.
8. Parts list and predicted life of parts subject to wear.
9. Drawings - cross sectional view, assembly, and wiring diagrams.
10. Performance curves.

C. Factory Performance Test Data:

1. After acceptance of pump shop drawings, factory performance test data will be submitted for approval on each pumping unit. Duplicate units require factory testing for only specified flow and head conditions, unless otherwise specified under the specific pump specification. Tests conducted in accordance with these specifications on similar units within 24 months may be submitted in lieu of tests on the actual units to be supplied.
2. Test shall be certified by a registered Professional Engineer.
3. Tests shall be in accordance with the standards of the Hydraulic Institute including head, capacity, brake horsepower, pump efficiency and NPSH.

- D. Certifications: The CONTRACTOR shall furnish the ENGINEER with a written certification signed by the manufacturer's representative that the equipment has been properly installed and lubricated, is in accurate alignment, is free from undue stress imposed by piping or mounting bolts, and has been operated under full load conditions and that satisfactory operation has been obtained. Refer to Section 01 75 16 for more details.

1.04 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Refer to Section 01 60 00.
- B. Finished surfaces of all exposed pump openings shall be protected by wooden blanks.
- C. After hydrostatic or other tests, all entrapped water shall be drained prior to shipment, and proper care shall be taken to protect parts from the entrance of water during shipment, storage, and handling.
- D. Each box or package shall be properly marked to show its net weight in addition to its contents.
- E. For equipment, such as pumping units, which require field alignment and connections, the Contract shall provide the services of the equipment manufacturer's qualified mechanic, millwright, machinist, or authorized representative, to align the pump and motor prior to making piping connections or anchoring the pump base.

- F. Precision gauges and levels shall be used in setting all equipment. All piping and equipment shall be perfectly aligned, horizontally and vertically. Tolerances for piping and equipment installation shall be one-half inch (1/2") in 30 foot (30') horizontal and vertical. All valves and operators shall be installed in the position shown on the plans or as directed by the ENGINEER if not shown.

1.05 WARRANTY AND GUARANTEES

- A. Refer to Section 01 78 36.
- B. Certifications: The CONTRACTOR shall furnish the ENGINEER with a written certification signed by the manufacturer's representative, in accordance with Section 01 75 16, that the installed equipment:
 - 1. Has been installed per manufacturer's requirements.
 - 2. Has been lubricated per manufacturer's instructions.
 - 3. Has been accurately aligned and proper running clearance set.
 - 4. Is free from undue stress imposed by piping or mounting bolts.
 - 5. Suction lines and seal water lines have been flushed and all debris removed prior to startup.
 - 6. Is ready to be operated on a continuous basis, and is free from any known defects.
- C. The nominal nameplate horsepower rating for the motors at their rated speed shall not be exceeded by the driven equipment at any point of operation on its characteristics curve.

PART 2 – PRODUCTS

2.01 GENERAL

- A. The equipment covered by these Specifications shall be designed, constructed, and installed in accordance with the best practice and methods.
- B. All parts shall be so designed and proportioned as to have liberal strength and stiffness, and to be especially adapted for the work to be done. Ample room and facilities shall be provided for inspection, repairs, and adjustment.
- C. Pump bases shall be rigidly and accurately anchored into position, precisely leveled, and aligned, so that the completed installation is free from stress or distortion. All necessary foundation bolts, plates, nuts, and washers shall be furnished and installed

by the CONTRACTOR and conform to the recommendations and instructions of the equipment manufacturer. Anchor bolts, nuts, and washers shall be stainless steel unless noted otherwise. Grouting under bases after the equipment is set is included as work under this Section. Pumps and pump bases shall have adequate provisions to collect drainage and conduct it away to nearest drain.

D. Data Plates:

1. Stainless steel pump nameplates giving the name of the manufacturer, the rated capacity, head, speed, and any other pertinent data shall be attached to each pump.
2. Stainless steel motor nameplates giving the name of the manufacturer, serial number, model number, horsepower, speed, voltage, amperes, and all other pertinent data shall be attached to each motor.

- E. All pumps shall be designed and built for 24-hour continuous service at any and all points within the specified range of operation, without overheating, without cavitation, and without excessive vibration or strain.

2.02 SPARE PARTS (TO BE SUPPLIED IN ACCORDANCE W/ MANUFACTURER RECOMMENDATIONS)

PART 3 – EXECUTION

3.01 INSTALLATION

- A. Installation of pumping equipment by the CONTRACTOR shall be in strict accordance with the respective manufacturer's instructions and recommendations in the locations shown on the Drawings. Installation shall include furnishing the required oil and grease for initial operation. The grades of oil and grease shall be in accordance with the manufacturer's recommendations.
- B. The CONTRACTOR shall furnish and install four and one-half inch (4-1/2") oil dampened pressure gauges on all pump discharge volutes with isolators and isolation valves. Where it is not practical to mount pressure gauges on pump volutes, gauges shall be mounted in the discharge piping.

3.02 SHOP PAINTING

- A. Shop Painting is specified in Division 9.

3.03 FIELD PAINTING

- A. Field painting is specified under Section 09 91 00.

- B. All nameplates shall be properly protected during painting.

3.04 INSPECTION AND TESTING

- A. After all pumps have been completely installed the CONTRACTOR shall conduct, in the presence of the ENGINEER, field tests to indicate that pump efficiency and discharge conform to the Specifications. Field tests shall include all pumps included under this Division. The CONTRACTOR shall supply all oil, grease, electric power, water, wastewater, chemical solutions, and all other material necessary to complete the field tests.
- B. If the pump performance does not meet the Specifications, corrective measures shall be immediately taken by the manufacturer, or pumps shall be removed and replaced with pumps which satisfy the conditions specified, without cost to the OWNER.
- C. The components of each seal lubricating system shall be completely tested by the CONTRACTOR in the presence of the ENGINEER. Any component parts which are damaged as a result of testing or which fail to meet requirements of this Specification shall be replaced, reinstalled and retested at the CONTRACTOR's expense.
- D. The pumps and motors shall be designed and constructed to avoid the generation of objectionable noise or vibration. The sound pressure level at full load shall not exceed 85 (A Scale) decibels above 300 cycles when measured at a point not exceeding five feet (5') from the motor. Mufflers or external baffles will not be accepted. When operating at any point or vertical plane at the top of the motor shall not exceed hydraulic institute standards.
- E. Field Testing:
 - 1. Upon completion of all the mechanical work, the CONTRACTOR shall conduct testing as specified herein to demonstrate that the equipment performs in accordance with all specifications.
 - 2. The CONTRACTOR shall perform initial testing of the equipment insuring to himself that the tests listed in the Demonstration Test paragraph below can be completed.
 - 3. The Demonstration Test shall demonstrate that all items of these Specifications have been met by the equipment, as installed, and shall include the following tests.
 - a. That the pumps can deliver specified pressure and quantity at rated efficiency.
 - b. That the pump controls perform satisfactorily (where pump control combinations are supplied).

4. In the event that the equipment does not meet the Demonstration Test, the CONTRACTOR shall, at his own expense, make such changes and adjustments in the equipment which he deems necessary and shall conduct further tests until written certification is received from the ENGINEER.
5. The data shall include the following:
 - a. A vibration survey.
 - b. Motor current and amp load.
 - c. Certified alignment.

END OF SECTION

SECTION 26 05 00

COMMON WORK RESULTS FOR ELECTRICAL

PART 1 – GENERAL

1.01 DESCRIPTION OF WORK

- A. Description of Work. Extent of electrical connections (EICn) for equipment is indicated by drawings and schedules. Electric connections are hereby defined to include, but not necessarily limited to, connections for providing electrical power to equipment.
- B. The foregoing “General Requirements” form a part of this contract and all the requirements set forth shall be binding upon this subcontractor.
- C. The work required under this Division shall include all materials, labor and auxiliaries required to install a complete and properly operating electrical system. The electrical system required under this Division consists basically of, but is not limited to the following:
 - 1. Complete distribution system for lighting including the necessary feeders, branch circuits, lighting fixtures, control switches and receptacles.
 - 2. Complete distribution system for power including feeders, and connections to motors and other power loads.
 - 3. Underground feeders to panelboards, motor control centers including necessary risers, etc.
 - 4. A building ground system and special grounds as required.
 - 5. Final connections to equipment as noted or required.
 - 6. Motor control centers.
 - 7. Connecting motors and manual control (unless otherwise specified).
 - 8. Painting (of special equipment).
 - 9. Electrical specialties.

10. Concrete work for pad mounted equipment, encased raceways, or grade mounted lighting.
 11. Furnishing and installing all necessary access panels.
 12. Exterior lighting system.
 13. Fire alarm and fire detection system.
 14. Lightning and grounding system.
 15. A complete conduit and wire schedule.
- D. Extent of electrical related work required by this section is indicated on drawings and schedules, and/or specified in other sections.
- E. Types of electrical related work specified in this section include the following:
1. Access to Electrical Work.
 2. Access doors in walls, ceiling, and floors.
 3. Removable cover plates in walls, ceilings, and floors.
 4. Excavating for Electrical Work:
 - a. Underground electrical wiring and service tunnels.
 - b. Power and lighting poles.
 5. Concrete for Electrical Work:
 - a. Electrical equipment foundations and mounting pads.
 - b. Patching concrete which has been cut to accommodate electrical work.
 6. Painting and Electrical Work:
 - a. Ferrous metal surfaces (does not include stainless steel).
 - b. Exterior cast-iron handhole and manhole covers and similar units are excluded from work to be painted.
 - c. Aluminum, which is not specifically anodized as final finish is so indicated.
 - d. Concealed work is excluded from painting, except for interior work in “high humidity” areas.

PART 2 – MATERIALS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

Attachment: HH121_LS7 Rehabilitation_Bid Set Specs (1716 : Lift Station #7 Rehabilitation 17WW07)

SECTION 26 05 01

ELECTRICAL REFERENCE SYMBOLS

PART 1 – GENERAL

1.01 SYMBOLS

- A. The foregoing “General Requirements” form a part of this contract and all the requirements set forth shall be binding upon this subcontractor.
- B. In general, the symbols used on the drawings conform to the Standard Symbols of the Institute of Electrical and Electronic Engineers, with the exception of special systems or agencies as hereinafter noted.
1. Special Symbols as shown in schedules or legends.

1.02 ABBREVIATIONS

- A. The following abbreviations or initials are used:

A/C	Air Conditioning
AC	Alternating Current
AFF	Above Finished Floor
AFG	Above Finished Grade
AHU	Air Handling Unit
AIC	Amps Interrupting Capacity
AMP	Ampere
ANSI	American National Standards Institute
ATS	Automatic Transfer Switch
AUX	Auxiliary
AWG	American Wire Gauge
C	Conduit
CB	Circuit Breaker
CBM	Certified Ballast Manufacturers
Clg	Ceiling
COND	Conductor

Conn	Connection
CT	Current Transformer
CU	Copper
DO	Draw Out
DN	Down
DPST	Double Pole Single Throw
EC	Electrical Contractor
EMT	Electric Metallic Tubing
EO	Electrically Operated
FLA	Full Load Amperes
FM	Factory Mutual
FT	Feet
GFI	Ground Fault Interrupting
Gnd	Ground
Horiz	Horizontal
Hp	Horsepower
Hr	Hour
IEEE	Institute of Electrical and Electronic Engineers
IES	Illuminating Engineering Society
In	Inches
IPCEA	Insulated Power Cable Engineers Association
JB	Junction Box
KV	Kilovolt
KVA	Kilo-Volt-Amps
KW	Kilowatts
LBS	Pounds
Max	Maximum
MCB	Main Circuit Breaker
MCP	Motor Circuit Protector
Min	Minimum
MLO	Main Lugs Only

MTD	Mounted
N	Neutral
NEC	National Electric Code
NECA	National Electrical Contractors
NEMA	National Electrical Manufacturers Association
NFPA	National Fire Protection Association
NIC	Not in Contract
NF	Non-Fused
No	Number
/O	Phase
OL	Overload
OLS	Overloads
OSHA	Occupational Safety and Health Act
P	Pole
PB	Pullbox
PNL	Panel
PR	Pair
Pri	Primary
PT	Potential Transformer
PVC	Polyvinal Chloride
RMS	Root-Means-Square
Recept.	Receptacle
SCA	Short Circuit Amps
SH	Shielded
S/N	Solid Neutral
SPST	Single Pole Single Throw
SW	Switch
SWBD	Switchboard
TEL	Telephone
TYP	Typical
T/P	Twisted Pair

Temp	Temperature
UL	Underwriters Laboratories
V	Volt
W	Wire
WP	Weatherproof

PART 2 – MATERIALS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

SECTION 26 05 02

CODES, FEES, AND STANDARDS

PART 1 – GENERAL

1.01 CODES AND FEES

- A. The foregoing “General Requirements” form a part of this contract and all the requirements set forth shall be binding upon this subcontractor.
- B. Install in accordance with latest edition of the National Electric Code and the regulations of governing local, State, County, and other applicable codes. Pay for all required licenses, fees, and inspections.

1.02 STANDARDS

- A. All materials shall be new and free of defects, and shall be U.L. listed, bear the U.L. label or be labeled or listed with an approved, nationally recognized Electrical Testing Agency. Where no labeling or listing service is available for certain types of equipment, test data shall be submitted to prove to the ENGINEER that equipment meets or exceeds available standards.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

SECTION 26 05 03

SPECIAL REQUIREMENTS

PART 1 – GENERAL

1.01 AUXILIARIES AND ACCESSORIES

- A. The foregoing “Project Requirements”, Div.1, Section 01 00 00, form a part of this contract and all the requirements set forth shall be binding upon this subcontractor.
- B. Include all auxiliaries and accessories for complete and properly operating systems.

1.02 LAYOUT OF WORK

- A. Drawings are diagrammatic. Correlate final equipment locations with governing Architectural and Structural drawings. Lay out before installation so that all trades may install equipment in spaces available. Provide coordination as required for installation in a neat and workmanlike manner.

1.03 INVESTIGATION OF SITE

- A. Check site and existing conditions thoroughly before bidding. Advise ENGINEER in writing of discrepancies or questions noted.

1.04 SUPERVISION OF THE WORK

- A. Provide field superintendent who has had a minimum of four (4) years previous successful experience on projects of comparable sizes and complexity. At least one (1) member of the Electrical Contracting Firm shall hold a State Master Certificate of Competency.

1.05 COORDINATION

- A. Provide all required coordination and supervision where work connects to or is affected by work of others, and comply with all requirements affecting this Division. Work required under other divisions, specifications, or drawings to be performed by this Division shall be coordinated with the CONTRACTOR and such work performed at no additional cost to OWNER.

1.06 BASIS FOR WIRING DESIGN

- A. The drawings and specifications describe specific sizes of switches, breakers, fuses, conduits, conductors, motor starters, and other items of wiring equipment. Wherever the CONTRACTOR provides power consuming equipment which differs from

drawings and specifications, the wiring and associated circuit components for such equipment shall be changed to proper sizes to match at no additional expense to the OWNER.

1.07 PROVISIONS FOR OPENINGS

- A. Locate all openings required for work performed under this section. Provide sleeves, guards, or other approved methods to allow passage of items installed under this section.

1.08 CONCRETE PADS

- A. Furnish and install reinforced concrete pads for transformers, and motor control centers, of size as shown on the drawings or required. Unless otherwise noted, pads shall be four inches (4") high and shall exceed dimensions of equipment being set on them, including future sections, by six inches (6") on all sides, except when equipment is flush against a wall, then the side or sides against the wall shall be flush against a wall, then the side or sides against the wall shall be flush with the equipment. Chamfer top edges one-half inch (1/2") with forms. Trowel all surface smooth.

1.09 SURFACE MOUNTED EQUIPMENT

- A. Surface mount fixtures, outlets, cabinets, conduit, panels, etc., shall have finish or shall be painted as directed by ENGINEER. Paint shall be in accordance with other applicable sections of these specifications.

1.10 MATERIALS

- A. Reference: "General Requirements of the Contract", Div. 1.

1.11 SUBSTITUTIONS

- A. Reference: "General Requirements of the Contract", Div. 1.

1.12 ADDITIONAL REQUIREMENTS

- A. Keep two (2) sets of white prints on the job, and neatly marked up design drawings each day as components are installed. Different colored pencils shall be used as directed for different systems. Cost of prints shall be included under this Division. All items on Progress Drawings shall be shown in actual location installed. Change any equipment schedules to agree with items actually furnished.
- B. Prior to request for final payment furnish a set of neatly marked prints of drawings to General Contractor.

- C. Submit for checking a specific set of written Operating Instructions on each item which required instructions to operate. After approval, provide one (1) additional copy for insertion in each Technical Information Brochure.
- D. Submit for approval Maintenance Information consisting of manufacturer's printed instructions and parts lists for each major item of equipment. After approval, insert information in each Technical Information Brochure.
- E. The work required under this Division shall include a one (1)-year guarantee unless otherwise noted. This guarantee shall be by the CONTRACTOR to the OWNER for any defective workmanship or material which has been furnished under this Contract at no cost to the OWNER for a period of one (1) year from the date of substantial completion of the System. This guarantee shall not include light bulbs in service after one (1) month from date of Substantial Completion of the System. Explain the provisions of guarantee to the OWNER at the "Demonstration of Completed System".
- F. All work on the System shall be completed, and all forms and other information shall be submitted for approval one (1) week before the request for final inspection of the building.

1.13 CUTTING AND PATCHING

- A. Reference: "General Requirements of the Contract", Div. 1.
- B. Supplementary Requirements: Any cutting of work in place shall be patched and decorated by such mechanics and in such a manner that the quality of workmanship and finish shall be compatible with that of adjacent construction.

1.14 PROPRIETARY NAMES

- A. For convenience of description and as a standard for grade, type, quality, and performance characteristics, proprietary names are included with some description. This does not imply preference to specific manufacturers (except where multiple choice is specified or where otherwise noted to match existing conditions), but minimum requirements with approval to be made by the ENGINEER.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

SECTION 26 05 04

DEMONSTRATION OF COMPLETED ELECTRICAL SYSTEMS

PART 1 – GENERAL

1.01 SCOPE

A. Demonstrate the essential features of the following electrical systems:

1. Communications systems.
 - a. Alarms and bells.
 - b. Fire detection devices, smoke detection devices.
 - c. Telephone equipment.
2. Electrical entrance equipment.
 - a. Circuit breakers.
 - b. Fuses and fuse holders.
 - c. Meter.
3. Electrical systems, controls, and equipment.
 - a. Electrical power equipment.
 - b. Motor control centers.
 - c. Motor control devices.
 - d. Relays.
 - e. Special transformers.
 - f. Starting devices.
4. Lighting fixtures (include relamping and replacing lenses).
 - a. Exit and safety fixtures.
 - b. Fixtures, indoor and outdoor.
 - c. Floodlighting.
5. Lightning protection system.

6. Panel boards.
 - a. Distribution panels.
 - b. Lighting panels.
 - c. Load centers.
 - d. Main panels, power panels.
7. Standby Electrical Equipment.
 - a. Batteries.
 - b. Battery Chargers.
 - c. Motor-generator sets.
 - d. Transfer switch.
 - e. Day Tank.
 - f. Controls and alarms.
8. Wiring devices.
 - a. Face plates.
 - b. Low-voltage controls.
 - c. Outlets: convenience, special purpose.
 - d. Switches: regular, time.

B. Each system shall be demonstrated once only, after completion of testing.

1.02 TIME

A. The demonstration shall be held upon completion of all systems at a date to be agreed upon in writing by the OWNER or his representative.

1.03 ATTENDING PARTIES

A. The demonstration shall be held by this CONTRACTOR in the presence of the OWNER, and the manufacturer's representative.

1.04 DEMONSTRATION

- A. Demonstrate the function and location (in the structure) of each system, and indicate its relationship to the riser diagrams and drawings.
- B. Demonstrate by "start-stop operation" how to work the controls, how to reset protective devices, how to replace fuses, and what to do in the case of emergency.

1.05 CERTIFICATE OF COMPLETED DEMONSTRATION

- A. Submit five (5) copies of “Certificate of Completed Demonstration”, memo signed by the CONTRACTOR, Subcontractor, and OWNER and insert one (1) copy in each Technical Information Brochure.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

SECTION 26 05 06

ELECTRICAL CONNECTION FOR EQUIPMENT

PART 1 – GENERAL

- A. Type of electrical power connections specified in this section includes the following:
1. To motors,
 2. To motor starters,
 3. From motor starters to motors,
 4. To lighting fixtures,
 5. To transformers, rheostats, and similar current adjustment features of equipment,
 6. To ground, and
 7. To master units of communication, signal, alarm, clock, public address, sound, and video systems.

PART 2 – QUALITY ASSURANCE

2.01 NEC COMPLIANCE.

- A. Comply with applicable portions of NEC as to type products used and installation of electrical power connections (terminals and splices), for junction boxes, motor starters, and disconnect switches.
- B. NEMA Compliance. Comply with applicable portions of NEMA standards pertaining to electrical connections for equipment.
- C. ANSI Compliance. Comply with applicable ANSI standards pertaining to products and installation of electrical connections.
- D. Splices and terminations of types indicated.

2.02 METAL CONDUIT, TUBING, AND FITTINGS

- A. General. Provide metal conduit, tubing and fittings of types, grades, sizes, and weights (wall thicknesses) indicated for each type service. Where types and grades are not indicated, provide proper selection as determined for installer to fulfill wiring requirements; comply with NEC requirements for raceways. Provide products

complying with Division 26 basic materials and methods section “Raceways”, and in accordance with the following listing of metal conduit, tubing, and fittings:

1. Rigid Steel Conduit Flexible Metal Conduit Fittings.
2. Rigid Metal Conduit Fittings Liquid-Tight Flexible Metal Conduit.
3. Electrical Metallic Tubing Liquid-Tight Flexible Metal Conduit Fittings.
4. Flexible Metal Conduit.

2.03 WIRE, CABLE, AND CONNECTORS

- A. General. Provide wires, cables and connectors complying with Division 26 basic materials and methods section “Wire and Cables”.
- B. Wire. Unless otherwise indicated, provide wires/conductors for electrical connections which match wires/conductors of wiring supplying power.
- C. Connectors and Terminals. Provide electrical connectors and terminals as recommended by connector and terminal manufacturer for intended applications.

2.04 ELECTRICAL CONNECTION ACCESSORIES

- A. Provide electrical insulating tape, heat-shrinkable insulating tubing and boots, solder, electrical soldering flux, wire nuts and cable ties as recommended for use by accessories manufacturers for type services indicated.

PART 3 – EXECUTION

3.01 INSTALLATION OF ELECTRICAL CONNECTIONS

- A. Install electrical connections as indicated; in accordance with connector manufacturer's written instructions and with recognized industry practices, and complying with requirements of NEC and NECA's “Standard of Installation” to ensure that products fulfill requirements.
- B. Connect electrical power supply conductors to equipment conductors in accordance with equipment manufacturer's written instructions and wiring diagrams. Wherever possible, mate and match conductors of electrical connections for proper interface between electrical power supplies and installed equipment.
- C. Coordinate installation of electrical connections for equipment with equipment installation work.
- D. Cover splices with electrical insulation equivalent to, or of higher rating, than insulation on conductors being spliced.

- E. Prepare cables and wires by cutting and stripping covering armor, jacket, and insulation properly to ensure uniform and neat appearance where cables and wires are terminated.
- F. Trim cables and wires as short as practical and arrange routing to facilitate inspection, testing and maintenance.
- G. Tighten wire-binding connector screws firmly.
- H. Provide flexible conduit for motor connections and for other electrical equipment connections where subject to movement and vibration.
- I. Provide liquid-tight flexible conduit for connection of motors and for other electrical equipment where subject to movement and vibration, and also where subjected to one or more of the following conditions:
 - 1. Exterior location.
 - 2. Moist or humid atmosphere where condensate can be expected to accumulate.
 - 3. Corrosive atmosphere.
 - 4. Subjected to water spray.
 - 5. Subjected to dripping oil, grease, or water.
- J. Refer to basic materials and methods section for identification of electrical power supply conductor terminations with markers approved as to types, colors, letter, and marker sizes, by Architect/Engineer. Affix markers at each point of termination, as close as possible to each point of connection.

END OF SECTION

SECTION 26 05 13

WIRES AND CABLES

PART 1 – GENERAL

1.01 DESCRIPTION OF WORK

- A. Extent of electrical wire and electrical cable work is indicated by drawings and schedules.
- B. Types of wire, cable and connectors in this section include the following:
 - 1. Copper Conductors.
 - 2. Tab Type Connectors.
 - 3. Split-Bolt Connectors.
- C. Applications for wire, cable and connectors required for project as follows:
 - 1. Power Distribution circuitry.
 - 2. Lighting Circuitry.
 - 3. Appliance and Equipment circuitry.
 - 4. Motor-Branch Circuitry.

PART 2 – QUALITY ASSURANCE

2.01 COMPLIANCE

- A. Comply with NEC as applicable to construction and installation of electrical wire, cable, and connectors.
- B. UL Compliance. Comply with UL standards pertaining to wire, cable and connectors.
- C. UL Labels. Provide electrical wires, cables and connectors which have been UL listed and labeled.
- D. NEMA/ICEA Compliance. Comply with applicable portions of NEMA/Insulated Cable Engineers Association standards pertaining to material, construction and testing of wire and cable.

- E. ANSI/ASTM. Comply with applicable portions of ANSI/ASTM standards pertaining to construction of wire and cable.

PART 3 – EXECUTION

3.01 ACCEPTABLE MANUFACTURERS

- A. Manufacturers. Subject to compliance with requirements, provide products of one of the following (for each type of wire, cable, and connector):
 - 1. Wire and Cable.
 - a. General Cable Corporation.
 - b. Southwire Company.
 - c. Triangle PWC, Inc.
 - 2. Connectors.
 - a. AMP, Inc.
 - b. Burndy Corporation.
 - c. Ideal Industries, Inc.
 - d. Thomas and Betts Company.

3.02 WIRE, CABLE, AND CONNECTORS

- A. General. Except as otherwise indicated, provide wire, cable, and connectors of manufacturer's standard materials, as indicated by published product information; designed and constructed as recommended by manufacturer, and as required for installation.
- B. Wire. Provide factory-fabricated wire of sizes, ratings, materials, and types indicated for each service. Where not indicated, provide proper selection as determined by installer to comply with project's installation requirements and NEC standards. Select from the following types, materials, conductors, configurations, insulation, and coverings:
 - 1. UL Type: MTW.
 - 2. UL Type: THHN.
 - 3. UL Type: THWN.

- C. Material: Copper.
 - 1. Conductors: Solid (AWG 20 to AWG 8 only).
 - 2. Conductors: Concentric-lay-stranded (standard flexibility).
 - 3. Outer Covering: Thermoplastic.
- D. Cable. Provide factory-fabricated, metal connectors of sizes, ratings, materials, types, and classes as indicated for each service. Where not indicated, provide proper selection as determined by installer to comply with installation requirements and NEC standards.

3.03 CONNECTORS

- A. Provide factory-fabricated, metal connectors of sizes, ratings, material, types, and classes as indicated for each service. Where not indicated, provide proper selection as determined by installer to comply with installation requirements and NEC standards. Select from the following types, classes, kinds, and styles.
 - 1. Type: Pressure.
 - 2. Class: Non-insulated.
 - 3. Kind: Copper (for Cu to Cu connection).
 - 4. Style: Butt connection.
 - 5. Style: Split-bolt parallel connection.
 - 6. Style: Tap connection.
 - 7. Style: Pigtail connection.

PART 4 – INSTALLATION

1.01 GENERAL

- A. Install electrical cables, wires and connectors as indicated, in compliance with manufacturer's written instruction, applicable requirements of NEC and NECA's "Standard of Installation", and in accordance with recognized industry practices.
- B. Coordinate cable and wire installation work with electrical raceway and equipment installation work, as necessary for proper interface.

- C. Use pulling compound or lubricant, where necessary; compound must not deteriorate conductor or installation.
- D. Keep conductor splices to a minimum.
- E. Install splices and tapes which have mechanical strength and insulation rating equivalent-or-better than conductor.
- F. Field Quality Control. Prior to delivery, test cable and wire for continuity of circuitry, and also for short circuits. Correct malfunctions when detected.
- G. Subsequent to wire and cable hook-ups, energize circuitry and demonstrate functioning in accordance with requirements.

END OF SECTION

SECTION 26 05 26

GROUNDING

PART 1 – GENERAL

1.01 DESCRIPTION OF WORK

- A. Extent of grounding work is indicated by drawings and schedules.
- B. Application of grounding work in this section includes the following:
 - 1. Underground Metal Piping.
 - 2. Metal Building Frames.
 - 3. Grounding Electrodes.
 - 4. Separately Derived Systems.
 - 5. Service Equipment.
 - 6. Enclosures.
 - 7. Equipment.
- C. Requirements of this section apply to electrical grounding work specified elsewhere in these specifications.
- D. Conductors. Copper cable; strand dia. 0.045 foot (0.045'); 14 strands.
- E. Ground Rods. Solid copper five-eighths inch (5/8") dia. by 10 feet (10').

PART 2 – INSTALLATION

2.10 GENERAL

- A. Install electrical grounding systems where shown, in accordance with applicable portion of NEC, with NECA's "Standard of Installation", and in accordance with recognized industry practices to ensure that products comply with requirements and serve intended functions.

PART 3 – EXECUTION (NOT USED)

END OF SECTION

26 05 26 - 1

Attachment: HH121_LS7 Rehabilitation_Bid Set Specs (1716 : Lift Station #7 Rehabilitation 17WW07)

SECTION 26 05 33.13

CONDUIT FOR ELECTRICAL SYSTEMS

PART 1 – GENERAL

1.01 DESCRIPTION OF WORK

- A. General. Provide metal conduit, tubing and fittings of types, grades, sizes, and weights (wall thicknesses) for each service indicated. Where types and grades are not indicated, provide proper selection determined by installer to fulfill wiring requirements, and comply with applicable portions of NEC for raceways.

1. Rigid Steel Conduit. FS WW-C-0581 and ANSI C80.1.
2. Rigid Metal Conduit Fittings. FS W-F-408.
3. Use Type 1 Fittings for rain-tight connections.
4. Use Type 1 Fittings for concrete tight connections.
5. Use Type 3 Fittings for other miscellaneous connections.
6. Electrical Metallic Tubing (EMT). FS WW-C-563 and ANSI C80.3.

NOTE: IN GENERAL, EMT RACEWAYS SHALL NOT BE USED ON THIS PROJECT

- B. EMT Fittings. FS W-F-408.

1. Use Type 1 Fittings for rain-tight connections.
2. Use Type 2 Fittings for concrete tight connections.
3. Use Type 3 Fittings for other miscellaneous connections.

- C. Flexible Metal Conduits. FW WW-C-566, of the following type:

1. Type 2. Zinc-coated steel.
2. Flexible Metal Conduit Fittings. FS W-F-406, Type 1, Class 1, and Style A.
3. Liquid-Tight Flexible Metal Conduit. Provide liquid-tight flexible metal conduit; construct of single strip, flexible, continuous, interlocked, and double-wrapped steel; galvanized inside and outside; coat with liquid-tight jacket of flexible polyvinyl chloride (PVC).

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

Attachment: HH121_LS7 Rehabilitation_Bid Set Specs (1716 : Lift Station #7 Rehabilitation 17WW07)

SECTION 26 05 33.16

BOXES FOR ELECTRICAL SYSTEMS

PART 1 – GENERAL

1.01 DESCRIPTION OF WORK

- A. Extent of electrical box and electrical fittings work is indicated by drawings and schedules.
- B. Types of electrical boxes and fittings in this section include the following:
 - 1. Outlet Boxes.
 - 2. Junction Boxes.
 - 3. Pull Boxes.
 - 4. Conduit Bodies.
 - 5. Bushings.
 - 6. Knockout Closures.

PART 2 – QUALITY ASSURANCE

2.01 COMPLIANCE

- A. Comply with NEC as applicable for construction and installation of electrical wiring boxes and fittings.
- B. UL Compliance. Provide electrical boxes and fittings which have been UL listed and labeled.
- C. ANSI/NEMA Standards Compliance. Comply with ASNI 134.1 (NEMA Standards PUB No. OS 1) as applicable to sheet-steel outlet boxes, device boxes, covers, and box supports.

2.02 FABRICATED MATERIALS

- A. Interior Outlet Boxes.
 - 1. Provide galvanized flat rolled sheet steel interior outlet wiring boxes, of types, shapes, and sizes, including box depths, to suit each respective location and installation; construct with stamped knockouts in back and sides, and

with thread screw holes with corrosion-resistant screws for securing box covers and wiring devices.

2. Manufacturer. Subject to compliance with requirements, provide interior outlet boxes of one of the following:

- a. Adalet-PLM Div., Scott and Fetzer Co.
- b. Appleton Electric Company.
- c. Bell Electric/Square D Co.
- d. RACO, Inc.
- e. Steel City/Midland-Ross Corp.

B. Weatherproof Outlet Boxes.

1. Provide corrosion-resistant cast metal weatherproof outlet wiring boxes, of types, shapes, and sizes, including depth of boxes, with threaded conduit ends, cast-metal face plates and spring-tipped waterproof caps suitably configured for each application, including face plate gaskets and corrosion-resistant fasteners.
2. Manufacturer. Subject to compliance with requirements, provide weatherproof outlet boxes of one of the following:

- a. Bell Electric/Square D Co.
- b. Harvey Hubbel, Inc.
- c. O-Z/ Gedney Co.

C. Junction and Pull Boxes.

1. Provide galvanized code-gauge sheet junction and pull boxes, with screw-on covers; of types, shapes, and sizes, to suit each respective location and installation; with welded seams and equipped with stainless steel nuts, bolts, screws, and washers.
2. Manufacturer. Subject to compliance with requirements, provide junction and pull boxes of one of the following:

- a. Adelet-PLM Div., Scott Fetzer Co.
- b. Appleton Electric Co.
- c. Bell Electric/ Square D Co.
- d. Spring City Elect. Mfg. Co.

D. Conduit Bodies.

1. Provide galvanized cast-metal conduit bodies, of types, shapes, and sizes, to suit respective location, construct with thread-conduit-entrance ends, removable covers, and corrosion-resistant screws.

2. Manufacturer. Subject to compliance with requirements, provide conduit bodies of one of the following:

- a. Appleton Electric Co.
- b. Killark Electric Mfg. Co.
- c. O-Z/Gedney Co.

E. Bushings, Knockout Closures, and Locknuts.

1. Provide corrosion-resistant punched-steel box knockout closures, conduit locknuts and malleable iron conduit bushings, offset connectors, of types and sizes, to suit respective uses and installations.

PART 3 – EXECUTION

3.01 INSTALLATION OF ELECTRICAL BOXES AND FITTINGS

A. General.

1. Install electrical boxes and fittings where indicated, complying with manufacturer's written instruction, applicable requirements of NEC and NECA's "Standard of Installation", and in compliance with recognized industry practices to ensure that products fulfill requirements.
2. Coordinate installation of electrical boxes and fittings with wire/cable and raceway installation work.
3. Provide weatherproof outlets for interior and exterior locations exposed to weather and moisture.
4. Provide knockout closure to cap unused knockout holes where blanks have been removed.
5. Install boxes and conduit bodies in those locations to ensure ready accessibility of electrical wiring.
6. Avoid using round boxes where conduit must enter box through side of box, which would result in difficult and insecure connections when fastened with locknut or bushing on rounded surface.
7. Fasten boxes rigidly to substrates or structural to which attached, or solidly embedded electrical boxes in concrete or masonry.
8. Provide electrical connections for installed boxes.

END OF SECTION

26 05 33.16 - 3

SECTION 26 05 43

UNDERGROUND DUCTS AND RACEWAYS FOR ELECTRICAL SYSTEMS

PART 1 – GENERAL

1.01 DESCRIPTION OF WORK

A. Underground Duct Lines.

1. Description of Assembly

- a. Underground duct lines where shown shall be of individual conduits encased in concrete. The conduit shall be of plastic, unless indicated or specified otherwise. The conduit used shall not be smaller than four inches (4") in diameter, inside, unless otherwise noted. The concrete encasement surrounding the duct bank shall be reinforced as shown and rectangular in cross-section, having a minimum concrete thickness of three inches (3"). Conduit shall be separated by a minimum concrete thickness of three inches (3").
- b. The concrete work shall conform to Sections on "Concrete". The top of the concrete envelope shall be not less than 18 inches (18") below grade. Concrete shall be installed in a continuous pour to eliminate joints in the duct run. Duct lines shall have a continuous slope downward toward manholes and away from buildings with a pitch of not less than 3 inches (3") in 100 feet (100'). Changes in direction of runs exceeding a total of 10 degrees (10°) either vertical or horizontal, shall be accomplished by long sweep bends having a minimum radius of curvature of 25 feet (25'), except that manufactured bends may be made up of one or more curved or straightened sections or combinations thereof. Manufactured bends shall have a minimum radius of 36 inches (36"). Right angle bends shall be rigid steel black mastic coated.
- c. Conduits shall terminate in end-bells where duct lines enter manholes. Separators shall be of precast concrete, high impact polystyrene, steel, or any combination of these. The joints of the conduits shall be staggered by rows so as to provide a duct line having the maximum strength. During construction, partially complete duct lines shall be protected from the entrance of debris, such as mud, sand, and dirt by means of suitable conduit plugs. As the duct line is completed, a testing mandrel not less than 13 inches (13") long with a diameter 1/4 inch (1/4") less than the size of the stiff bristles shall be drawn through until the conduit is clear of all particles of earth, sand, or gravel; conduit plug shall then be immediately installed.

- d. Plastic conduit, fittings and joints shall not have been stored in the sun or weather. In any excessively heated space, or unevenly supported during storage. Use and installation shall be in accordance with NEC requirements for the installation of non-metallic rigid conduit. Plastic conduit shall be protected against the direct rays of the sun prior to installation. Conduit shall be Carlon Type EB, Queen City Plastics, or equal. Conduit shall be U.L. listed and conform to NEMA Standard TC6-1972.
- e. Trenches for duct banks shall be completely dry before setting conduits or pouring concrete. Well pointing as required will be provided if necessary to keep trench dry.
- f. Wires and cables in manhole shall be placed on cable racks. Manhole shall be cleaned of all loose materials, dirt, and debris immediately after completion of new work and shall be in a clean condition with insulators. Racks shall be McGraw Edison NOB-LOC type, Chance, or equal.
- g. Backfilling shall be in layers not more than 8 inches (8") deep, and shall be thoroughly tamped. The first layer shall be earth or sand, free from particles that would be retained on a 1/4" inch (1/4") sieve. The succeeding layers shall be excavated material having stones no larger than would pass through a 4-inch (4") ring. The backfill shall be level with adjacent surface, except that in sodded or paved areas, a space equal to the thickness of the sod or paving shall be left.
- h. The surface disturbed during the installation of duct shall be restored to its original elevation and condition if not refinished in connection with site work.
- i. All unused conduit openings shall be plugged or capped with a suitable device designed for the purpose; caulking compound shall not be used for plugging conduit openings.
- j. One (1) No. 4 bare stranded copper counterpoise shall be run above all duct banks and shall be run into all manholes and handholes and grounded. Counterpoise shall run to building and be grounded at each building service ground.

B. Raceways.

- 1. Extent of raceways is indicated by drawings and schedules. Types of raceways in this section include the following:
 - a. Electrical Metallic Tubing.
 - b. Flexible Metal Conduit.
 - c. Intermediate Metal Conduit.
 - d. Liquid-Tight Flexible Metal Conduit.
 - e. Rigid Metal Conduit.
 - f. Rigid Nonmetallic Conduit.
 - g. Surface Metal Raceways.

2. NEMA Compliance. Comply with applicable requirements to NEMA standards pertaining to raceways.
3. UL Compliance and Labeling. Comply with provisions of UL safety standards pertaining to electrical raceway systems; and provide products and components which have been UL listed and labeled.
4. NEC Compliance. Comply with requirements as applicable to construction and installation of raceway systems.

NOTE: IN GENERAL, EMT RACEWAYS SHALL NOT BE USED ON THIS PROJECT

1.02 WIREWAYS

- A. General. Provide electrical raceways of types, grades, sizes, weights (wall thicknesses), number of channels, for each type service indicated. Provide complete assembly of raceway including, but not necessarily limited to, couplings, offsets, elbows, expansion joints, adapters, hold-down straps, end caps and other components and accessories as needed for complete system. Where types and grades are not indicated, provide proper selection as determined by installer to fulfill wiring requirements, and comply with applicable provisions of NEC for electrical raceways.

1.03 SUBMITTALS

- A. Submit shop drawings or cut sheets on:
 1. Conduit.
 2. Fittings.
 3. Separators.
 4. PVC solvent.

PART 2 – PRODUCTS

2.01 INSTALLATION OF ELECTRICAL RACEWAYS

- A. Install electrical raceways where indicated; in accordance with manufacturer's written instructions, applicable requirements of NEC and NECA "Standard of Installation", and comply with recognized industry practices.
- B. Coordinate with other work, including metal can concrete deck work, as necessary to interface installation of electrical raceways and components with other work.

- C. Coat under floor metal raceways with bitumastic type protective coating prior to placing concrete.
- D. Level and square raceway runs, and install at proper elevations/heights.
- E. Complete installation of electrical raceways before starting installation of cables/wires within raceways.
- F. Install PVC-coated conduit and fittings in highly corrosive atmospheres, and elsewhere as indicated.
- G. Install flexible conduit for motor connections and for other electrical equipment connections where subject to movement and vibration.
- H. Install liquid-tight flexible conduit for connection of motors and for other electrical equipment where subject to movement and vibration and also where subject to one or more of the following conditions:
 - 1. Exterior location, moist or humid atmosphere where condensate can be expected to accumulate, corrosive atmosphere, subjected to water spray, subjected to dripping oil, grease, or water.
- I. Wherever possible, install horizontal raceway runs above water and steam piping.

PART 3 – EXECUTION (NOT USED)

END OF SECTION

SECTION 26 05 53

ELECTRICAL IDENTIFICATION

PART 1 – GENERAL

1.01 DESCRIPTION OF WORK

- A. Extent of electrical identification work is indicated by drawings and schedules.
- B. Types of electrical identification work specified in this section include the following:
 - 1. Electrical Power, Control and Communication Conductors, and Danger Signs.
 - 2. Refer to appropriate section “Identification System”, for equipment and system nameplates, and performance data, not work of this section.

PART 2 – PRODUCTS

2.01 Acceptable Manufacturers.

- A. Subject to compliance with requirements, provide electrical identification products of one of the following (for each type of marker):
 - 1. W.H. Brady Co.
 - 2. Ideal Industries, Inc.

2.02 Cable/Conductor Identification Bands.

- A. General. Provide manufacturer’s standard vinyl-cloth, self-adhesive cable/conductor markers of wrap-around type, either pre-numbers plastic coated/type, or write-on type with clear plastic self-adhesive cover flap; numbered to show circuit identification.

PART 3 – EXECUTION

3.01 EQUIPMENT/SYSTEM IDENTIFICATION

- A. General.
 - 1. Install engraved plastic-laminate sign on each major unit of electrical equipment in building; including central or master unit of each electrical system including communication/control/signal systems, unless unit is

specified, with its own identification. Provide single line text, one-half inch (1/2") high lettering on one and a half foot (1-1/2') high sign, and white lettering in black field. Provide text matching terminology and numbering of the contract documents and shop drawings. Provide signs for each unit of the following categories or electrical work.

2. Panelboards, electrical cabinets, and enclosures. Access panel/doors to electrical facilities; major electrical switchgear; motor control centers and transformers.
3. Install signs at locations indicated or, where not otherwise indicated, at location for best convenience of viewing without interference with operation and maintenance of equipment. Secure to substrate with fasteners, except use adhesive where fasteners should not or cannot penetrate substrate.

END OF SECTION

SECTION 26 27 26

WIRING DEVICES

PART 1 – GENERAL

1.01 DESCRIPTION OF WORK

- A. The extent of wiring device work is indicated by drawings and schedules. Wiring devices are defined as single discrete units of electrical distribution systems which are intended to carry but not utilize electric energy.
- B. Types of electrical wiring devices in this section include the following:
 - 1. Receptacles.
 - 2. Switch.
 - 3. Wall Plates.
 - 4. Plugs.
 - 5. Plug Connectors.

PART 2 – QUALITY ASSURANCE

2.01 COMPLIANCE.

- A. Comply with NEC as applicable to construction and installation of electrical wiring devices.
- B. UL Compliance and Labeling. Provide electrical wiring devices which have been UL listed and labeled.
- C. NEMA Compliance. Comply with NEMA standards for general and specific purpose wiring devices.
- D. Submittals.
 - 1. Product Data. Submit manufacturer's data on electrical wiring devices.

PART 3 – PRODUCTS

3.01 MANUFACTURER

- A. Subject to compliance with requirements, provide products of one of the following (for each type of wiring device):
 - 1. Harvey Hubbell, Inc.
 - 2. Levington Mfg. Co.
- B. Fabricated Wiring Devices
 - 1. General. Provide factory-fabricated wiring devices, in types colors, and electrical rating, for applications indicated, and complies with NEMA Standards Pub. No. WD1. Where types and grades are not indicated, provide proper selection as determined by installer to fulfill wiring requirements, and complying with NEC and NEMA standards for wiring devices. Provide ivory color devices and wall plates except as otherwise selected; color selection to be verified by CONTRACTOR with ENGINEER.

3.02 RECEPTACLES

- A. Heavy-Duty Duplex. Provide heavy-duty duplex receptacles, two (2)-pole, three (3)-wire grounding, 20-amperes, 125-volts, with metal plaster ears, back wiring, NEMA configuration 5-20R, unless otherwise indicated.
- B. Ground Fault Interrupter. Provide general-duty duplex receptacles, ground-fault circuit interrupters; feed-thru type, capable of protecting connected downstream receptacles on single circuit, grounding type UL-rated Class A, Group 1, 20-amperes rating, 120-volts, 60 Hz; with solid-state ground-fault sensing and signaling; with five (5) milliamperes ground-fault trip level; equip with 20-ampere plug configuration, NEMA 5-20R.

3.03 PLUGS AND CONNECTORS

- A. Plugs. Provide 15-amperes, 125-volts, 3-wire grounding, armored cap plugs, parallel blades with cord clamp, and four-tenths inch (0.4") cord hole; match NEMA configuration with power sources.
- B. Connectors. Provide 15-amperes, 125-volts, bakelite-body armored connectors three (3)-wire grounding, parallel blades, double wipe contact, with cord clamp, and four-tenths inch (0.4") cord hole, match NEMA configuration to mating plugs.

3.04 SWITCHES

- A. Snap. Provide general-duty flush single-pole toggle switches, 20-ampere, 277-volts AC, with mounting yoke insulated from mechanism, equip with plaster ears, switch handle, and side wired screw terminals.

PART 4 – WIRING DEVICES

4.01 INSTALLATION

- A. Install wiring devices as indicated, in compliance with manufacturer's written instructions, applicable requirements of NEC and NECA's "Standard of Installation", and in accordance with recognized industry practices to fulfill project requirements.
- B. Coordinate with other work; include painting, electrical box, and wiring work, necessary to interface installation of wiring devices with other work.
- C. Install wiring devices only in electrical boxes which are clean, free from excess building materials, dirt, and debris.
- D. Install galvanized steel wall plates in unfinished spaces.
- E. Delay installation of wiring devices until wiring work is completed.
- F. Delay installation of wall plates until after painting work is completed.

4.02 GROUNDING.

- A. Provide electrically continuous, tight grounding connections for wiring devices, unless otherwise indicated.

4.03 TESTING.

- A. Prior to energizing circuitry, test wiring devices for electrical continuity and proper polarity connections. After energizing circuitry, test wiring devices to demonstrate compliance with requirements.

END OF SECTION

SECTION 31 22 00

SITE GRADING

PART 1 – GENERAL

1.01 WORK INCLUDES

- A. Excavation and embankment necessary for grading the site shall be considered to include that required for roads, walks, culvert installations, and drainage ditches and channels.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.01 PREPARATION

- A. After the removal of topsoil, the then existing surface is to be excavated or filled to the elevations and slopes indicated on the Drawings, or as directed by the ENGINEER. Additional fill, if required, and is not available elsewhere, shall be excavated from borrow areas selected by the CONTRACTOR, but subject to the approval of the ENGINEER. Unless otherwise provided, all borrow pits shall be located entirely outside the limits of the site.
- B. On areas where roadway pavement is to be placed, the subgrade therefore shall be no more than 0.10 foot (0.10') above or below the established grade; in other areas, the finished grade shall be not more than 0.15 foot (0.15') above or below the established grade.
- C. Where rock is encountered at road subgrade or finished grade in areas other than roads, it shall be removed for a depth of six inches (6") below such subgrade or finished grade elevation.
- D. Subgrades and shoulders for the access and service roads shall be constructed to the lines and grades indicated, and in conformance with the applicable requirements of the "Standard Specifications" for the Florida State Department of Transportation.

3.02 EMBANKMENT

- A. On hillsides in which the existing slope is steeper than four (4) to one (1), the ENGINEER may require the surface to be plowed to provide binding of the embankment with the original ground. When, in the opinion of the ENGINEER, existing slopes are excessive, the ENGINEER may require the original ground to be cut into the steps or berms.

- B. All materials removed from classes of excavation, which are determined as suitable by the ENGINEER, shall be used in the formation of embankments. Excavated material which is not required for embankments shall be disposed of by the CONTRACTOR, at his responsibility and expense, outside the limits of the site, unless the ENGINEER gives notice of some point of disposal within the site. No material shall be disposed of in any flood channel area.
- C. Earth or other friable materials shall be placed in successive horizontal layers of loose material not more than nine inches (9") in depth, spread uniformly by use of graders or other approved devices, and rolled until thoroughly compacted with an approved three (3) wheel power roller weighing not less than 10 tons. The ENGINEER may permit the CONTRACTOR to use approved sheep-foot tamping rollers. Embankments at points inaccessible to the roller shall be made in horizontal layers of loose material not exceeding six inches (6") in depth and thoroughly compacted by mechanical tampers.
- D. Where rock only is available, it shall be placed in loose layers not exceeding two feet (2') in depth and rolled as provided above. Rock fills shall only be considered as such where the earth or other finer materials is uniformly distributed and is considerably less than sufficient to fill the voids and interstices; otherwise it shall be considered and placed as earth fill. The top layer of rock fills shall not exceed eight inches (8") in depth, and the interstices shall be thoroughly filled with small spall, shale, gravel, or other similar approved material and thoroughly compacted. This top layer of rock shall be kept at least eight inches (8") below the elevation of subgrade for payments, and finished grade elsewhere, with the balance of the fill formed by topsoil or other approved material, as required.
- E. No roots, leaves, grass, or any form of vegetation shall be placed or allowed to remain in filled or graded areas.
- F. The CONTRACTOR shall be responsible for the stability of all embankments and shall replace all sections which, in the opinion of the ENGINEER, have been damaged or displaced due to carelessness or neglect on the part of the CONTRACTOR due to natural causes, such as storms.
- G. During grading operations, cuts and fills shall be kept shaped and drained at all times.

END OF SECTION

SECTION 31 23 00

EXCAVATION, BACKFILL, AND EMBANKMENT

PART 1 – GENERAL

1.01 SCOPE

- A. The work covered by this section and required by this Contract includes the completion of all excavation, backfilling and embankment to the lines and grades indicated by the drawings, as further specified below, and necessary to the following operations:
1. Stripping, storing and replacing topsoil;
 2. Excavation and backfill for pipe trenches;
 3. Excavation and embankment for road, grading and drainage of the site;
 4. Excavation and backfill for buildings and structures; and
 5. Borrow excavation.

1.02 CHARACTER OF MATERIAL.

- A. The CONTRACTOR must satisfy himself regarding the character and amount of loam, clay, sand, quicksand, muck, gravel, rock, water, and all other material to be encountered in the work to be performed.

1.03 DESCRIPTION

- A. The CONTRACTOR shall excavate, protect, and backfill all foundations, trenches, tunnels, and other excavations that may be necessary for completing the work to be done under this Contract. All excavation shall be in open cuts, except where and to such extent as the ENGINEER may authorize or direct that the same be done in tunnel, or where such is specified in the Special Requirements or Contract drawings. Trenches may, in general, be excavated and backfilled either by machinery, or by hand as the CONTRACTOR may elect; provided, however, that the ENGINEER shall be empowered, wherever he shall decide that such necessity exists, to direct that hand excavation be employed; and, provided, further that backfilling by hand shall be done to the extent hereinafter specified. The CONTRACTOR shall have no claim for extra compensation due to the fact that hand, instead of machine, excavation may be necessary from any cause whatever.

- B. The CONTRACTOR shall perform all excavation of every description and of whatever substances encountered, to the lines and grades or depths indicated by the drawings, as specified herein, or as directed by the ENGINEER. Embankments shall be prepared in accordance with the Specifications, and as necessary to bring the ground surface to the subgrade elevation for roads and to finished grade elevations for other areas as shown on the drawings, or directed by the ENGINEER. All excavated material not required for backfill or embankment shall be removed and wasted or otherwise disposed of as directed or specified.
- C. The term “subgrade” as used herein shall have the meaning given below:
1. The bed of a trench prepared as specified to receive pipes or other conduits;
 2. The area upon which the lower surface of roadway paving, walks, gutters, or curb rests;
 3. The surface of excavation or embankment areas prepared to receive topsoil; and
 4. The areas upon which rest the planned bottom of footings, foundations, or slabs.

PART 2 – MATERIALS

2.01 TOPSOIL

- A. Stripping. The area from which topsoil is to be stripped and the locations where it is to be stored shall be as shown on the drawings or as specified below. The topsoil shall be stripped to a depth of not less than six inches (6"). On all areas where any type of grading is to be performed, including the areas within the lines of buildings and structures, the topsoil shall be carefully removed and spread either on areas already graded or prepared for topsoil, or in stockpiles conveniently located to the areas which are later to receive application of topsoil.
- B. Spreading. On areas intended to receive topsoil, the compacted subgrade shall be scarified to a depth of two inches (2") for bonding topsoil with subsoil. The topsoil shall then be evenly spread, compacted, and graded to the finished elevations shown on the drawings or as specified by the ENGINEER. Compaction shall be effected by a single pass of an approved roller.

2.02 REMOVAL AND STORAGE OF MATERIAL

- A. In locations where the working space is limited, the material excavated from the first one hundred feet (100') of any trench, or from such additional length as may be required, shall upon order of the ENGINEER, be removed at the CONTRACTOR's own cost and expense, as soon as excavated. The materials subsequently excavated shall be used to refill the trench. In no case, will the CONTRACTOR be allowed to

cast excavated material beyond curb of right-of-way lines, or on sidewalks or lawns, and the failure or refusal of the CONTRACTOR to comply with this requirement shall be sufficient cause for the ENGINEER to stop all work under the Contract.

- B. In case more material is excavated from any trench than can be backfilled over the completed sewer or can be stored within the limits of the right-of-way, leaving space for the traffic and drainage as herein provided, the excess material shall be removed to some convenient place, provided by the CONTRACTOR. The CONTRACTOR shall at his own cost and expense bring back as much of the material so removed, as may be required to properly backfill the trench, if of the proper kind; or, if so directed by the ENGINEER, the CONTRACTOR shall, at his own cost and expense, furnish such other suitable material as may be necessary.
- C. When it is necessary to haul soft or wet material over the streets, the CONTRACTOR shall provide suitable tight vehicles, or a pattern approved by the ENGINEER for this purpose.

2.03 SHEETING, BRACING, AND SHORING

- A. The CONTRACTOR shall furnish the material for, and do all timber shoring, bracing, and sheeting necessary to perform and protect the excavation, and as required by the ENGINEER to protect the work, other structures, the public, and the CONTRACTOR's employees. If trench protection is necessary, per OSHA requirements, the CONTRACTOR shall account for the anticipated expense in the appropriate bid item, or in the unit cost for pipe installed, or a combination of both. If the ENGINEER deems that sheeting, bracing, or shoring is necessary, it shall be supplied by the CONTRACTOR at no additional expense to the OWNER. Such sheeting, etc. may be removed as the work progresses, but where, in the opinion of the ENGINEER, damage may result through removal; it shall be left in place with payment therefore made as hereinafter provided. The right of the ENGINEER to order sheeting, etc. left in place shall not render the issuance of such order obligatory on the part of the ENGINEER.
- B. All sheeting, etc. shall be arranged so that it may be withdrawn, as the trenches are backfilled, without injury to the pipe and its appurtenances, and without injury to or settlement of adjacent structures and pavements. All voids caused by withdrawal shall be immediately filled with sand or other satisfactory material and compacted by ramming or other method satisfactory to the ENGINEER.
- C. No timber sheeting, bracing or shoring shall be left within 18 inches (18") of any natural ground surfaces or within 12 inches (12") of the subgrade of any rigid or flexible type pavement, or railroad roadbed. In any trench shoring system, no vertical member shall remain directly over the pipe and no horizontal member shall remain within 12 inches (12") of any pipe. After backfilling is started, no sheeting shall extend below the horizontal diameter of the pipe without the ENGINEER's approval. Sheeting left in place shall be cut off at such point as the ENGINEER may order, and the portions cut off shall be removed from the work.

- D. If the ENGINEER determines that the material furnished is not of proper size or quality, or not properly placed, the CONTRACTOR shall furnish and place other and satisfactory material in an acceptable manner, and shall not be entitled to additional compensation for such corrective work.

PART 3 – EXECUTION

3.01 ORDER OF WORK

- A. The CONTRACTOR shall submit a progress schedule as specified in Article 2.40 and shall carry on his work in strict accordance therewith. Deviations from the progress schedule may be made only with the approval of the ENGINEER.
- B. Manholes shall be constructed either at the same time as the main sewer or immediately after its completion.

3.02 SEWER LINES AND GRADES.

Sewer lines and grades shall be laid out and maintained during construction in the following manner.

- A. Prior to the commencement of trench excavation, the CONTRACTOR shall prepare and submit to the ENGINEER for approval, detailed cut sheets provided by the CONTRACTOR's surveyor. The surveyor shall be registered in the State of Florida. Cut sheet shall show; the beginning and ending of manholes; the distance between manholes; the grade, size and type of line, the depth of cut; etc. The form of cut sheets shall be satisfactory to the ENGINEER. All expense for the preparation of cut sheets shall be borne by the CONTRACTOR and be included in the unit price per foot of pipe. Cut sheets must be approved by the ENGINEER in writing before pipe laying operations may be permitted. It shall be the responsibility of the CONTRACTOR to prepare cut sheets far enough in advance of his anticipated trenching schedule so that avoidable delay in the work will not occur.
- B. Before beginning the excavation for any run of main sewer, the CONTRACTOR's forces, under the direction of the ENGINEER, shall:
 - 1. Set control points for line and grade as given on the Drawings or as otherwise determined by the ENGINEER. In unpaved or unsurfaced areas, these points shall be placed on the top of stakes securely driven into the ground. In paved areas, there may be spikes driven into the paving or crosses cut into the paving, and in either case, enclosed in a painted circle. Stakes or points shall be sufficiently offset from the centerline so as to be undisturbed during the excavation and pipe laying operations. The offset shall be on the side of the centerline opposite to that on which excavation will be thrown.

2. As the rough excavation is completed, the CONTRACTOR's surveyor shall place grade or batter boards of finished, straight lumber across the trench opposite each stake or point. The grade boards shall be securely supported so as not to be subject to accidental displacement. The top of each board shall be leveled and set at the same distance above the sewer invert. A nail shall then be driven into the top of each board on the centerline of the sewer and each nail connected by a string line pulled taut.
 3. The preparation of the final subgrade and the pipe laying shall then proceed in the manner specified herein, beginning at the manhole having the lower invert and working upgrade and using the string line as control for maintaining sewer grade and horizontal alignment. A straight wooden pole suitably marked and with a right-angled offset at the bottom to project past the bell of the pipe and rest upon the pipe invert, shall be used to check the vertical distance from string line to invert.
- C. The use of laser beams shall be acceptable as a method of controlling pipe alignment and grade.

3.03 WIDTH AND DEPTH OF TRENCHES

- A. From the subgrade elevation to an elevation at least 12 inches (12") above the top of the outside barrel of the pipe, the banks of trenches in all cases shall be excavated to vertical lines, and the trenches shall be not less than 12 inches (12") nor more than 16 inches (16") wider nor more than eight inches (8") in width is provided on each side of the barrel of the pipe. If sheeting is required, the foregoing dimensions shall be applicable to the inside faces of the sheeting.
- B. From a point twelve inches (12") above the top of the outside barrel of the pipe to the surface, the banks of trenches in all streets, roads, or highways, paved or unpaved, shall be kept as nearly vertical as possible, and in no case, shall the width of trench at the top exceed the outside diameter of the pipe plus 40 inches (40"). If the specified maximum width of trench cannot otherwise be maintained, the CONTRACTOR shall install temporary sheeting at his own cost and expense. Where sewers are to be constructed on rights-of-way or easements in open country, the specified maximum width of trench at the top may be exceeded only if the construction is kept entirely within the limits of the easements or rights-of-way and can be carried on without damage to adjoining property.
- C. Except at locations where excavation of rock or unsuitable material is required, care shall be taken not to excavate below the depths specified, when rock is encountered, it shall be removed to a depth six inches (6") below the outside bottom of the pipe at the barrel. When the material encountered at subgrade is unstable, it shall be removed from under the pipe and on each side of the pipe for a distance of one (1) diameter of the pipe. Such rock or unsuitable material excavation below subgrade shall be backfilled with moist clay, sand, bankrun gravel, or other suitable material compacted to the satisfaction of the ENGINEER, and the bed thus formed shaped as required

above. In rock excavation, if trenches are shattered by blasting below the lines of excavation specified herein, the trench shall be refilled to subgrade with sand, well tamped earth, or concrete, if required by the ENGINEER, at the CONTRACTOR's expense. If earth trenches are excavated beyond the specified depths, they shall be backfilled to the proper grade with suitable, thoroughly tamped material at the expense of the CONTRACTOR.

3.04 PREPARATION OF FOUNDATION

- A. In earth trenches, the bottom thereof shall be carefully rounded to fit the lower ninety degrees (90°) of the circumference of the pipe, i.e., so that one-fourth (1/4) of the external circumference of the pipe will rest firmly on the undisturbed soil. Bell-holes shall be excavated to ensure that the barrel of the pipe will rest for its entire length upon the trench bottom.
- B. Bell-holes shall be properly cut to provide free support of the pipe barrel and shall be directed by the ENGINEER. All irregularities and cavities, either in earth or rock excavation, in the bottom of trenches or tunnels, shall be filled up to a level which will support ninety degrees (90°) of the lower pipe circumference with selected material free from large gravel, rocks, and stones, firmly compacted before pipe lines are laid therein.
- C. Where, in the opinion of the ENGINEER, the ground does not afford a sufficiently firm foundation, the CONTRACTOR shall construct a timber foundation, or shall excavate the trench to such increased depth as may be directed, and then shall bring up the bottom of the trench to the required level and form with such material and in such manner as the ENGINEER may direct.

3.05 CONCRETE CRADLE AND ENCASEMENT

- A. The profiles generally indicate the approximate vertical limits where concrete cradle and encasement are necessary to support the anticipated loads on completed sewers for the widths of trench as required for each size and class of pipe, based on the crushing strength of the pipe.
- B. The CONTRACTOR is warned that if the trench widths or clearances between pipe and trench walls or face of sheeting, as specified above, are exceeded, he will be required to furnish in all locations at his own expense either concrete cradle or encasement as directed by the ENGINEER.
- C. It is anticipated that subsurface conditions may require a cradle for a portion of the project to provide an adequate foundation, even though the ultimate anticipated load on the pipe is less than the minimum crushing strength for sand bearing. The CONTRACTOR shall place the cradle or encasement at the location, and of the materials, as directed and required by the ENGINEER. The CONTRACTOR will not be paid for any cradle beyond the required widths of trench.

- D. All excavation made beyond the required limits shall be at the CONTRACTOR's expense.

3.06 LENGTH OF OPEN TRENCH

- A. The ENGINEER shall have the right to limit the amount of trench opened in advance of pipe laying and the amount of pipe laid in advance of backfilling, but in no case, except when leakage tests are required by the ENGINEER, shall these amounts exceed three hundred feet (300') and one hundred feet (100'), respectively. Trench excavation shall be fully completed, except for the shaping of the bottom of the trench, at least 20 feet (20') in advance of the pipe placement and shall be kept free from obstructions, except that at the close of work at night, or at the discontinuance of work, the pipe laying may be completed to within five feet (5') of the end of the open trench.
- B. The ENGINEER shall be empowered, at any time, to require the refilling of open trenches over completed pipe lines, if, in his judgment, such action is necessary, and the CONTRACTOR shall thereby have no claim for extra compensation even though to accomplish said refilling, he is compelled temporarily to stop excavation or other work at any place.
- C. If the work is stopped on any trench, for any reason except by order of the ENGINEER, and the excavation is left open for an unreasonable length of time (in the opinion of the ENGINEER) in advance of construction, the CONTRACTOR shall, if so directed, refill such trench at his own cost and shall not again open said trench until he is ready to complete the structure therein.

3.07 ACCOMMODATION OF TRAFFIC

- A. Streets shall not be unnecessarily obstructed and, unless the ENGINEER, in writing, shall authorize the complete closing of the street, the CONTRACTOR shall take such measures at his own expense as may be necessary to keep the street or road open and safe for traffic.
- B. The CONTRACTOR shall construct and maintain without extra compensation such adequate and proper bridges over excavations as may be necessary or as directed for the safe accommodation of pedestrians or vehicles. The CONTRACTOR shall furnish and erect without cost to the OWNER substantial barricades at crossings of trenches, or along the trench, to protect the traveling public.
- C. The CONTRACTOR shall not obstruct fire hydrants.
- D. The roadway on one side of the line of work shall be kept open at all times.
- E. The streets, crosswalks and sidewalks shall be kept clean, clear, and free for the passage of vehicles or pedestrians, unless otherwise authorized in writing by the ENGINEER. A straight and continuous passageway on sidewalks and over

crosswalks, at least three feet (3') in width, shall be preserved free from all obstruction.

- F. Where deemed necessary, such additional passageway as may be directed shall be maintained free from obstructions.
- G. In narrow or congested streets or alleys, when so directed, the CONTRACTOR shall complete his work up to a point designated by the ENGINEER before opening the work ahead, in order to give access to garages and other places. The CONTRACTOR shall in all cases so arrange his work as to cause the least inconvenience to property owners consistent with the proper precaution of the work as determined by the ENGINEER.

3.08 ACCOMMODATION OF DRAINAGE

- A. Gutters, sewers, drains and ditches shall be kept open at all times for surface drainage. No damming or ponding of water in gutters or other waterways will be permitted, except where stream crossings are necessary and then only to an extent which the ENGINEER shall consider necessary. The CONTRACTOR will be responsible for all clean-up to existing utilities caused by their activities.
- B. The CONTRACTOR shall not direct any flow of water across or over pavements except through approved pipes or properly constructed troughs and he shall, when so required at his own expense and cost, provide pipes or troughs of such sizes and lengths as may be required and place the same as directed.
- C. The grading in the vicinity of sewer trenches shall be controlled so that the ground surface is properly pitched to prevent water running into trenches.

3.09 PUMPING

- A. The CONTRACTOR shall keep all excavations free from water, at his own expense, while structural work is in progress, and to such extent as may be necessary while excavation work along is being carried on.
- B. The CONTRACTOR shall build all dams and other devices necessary for this purpose, including lowering the water table below trench bottom by well points and pumping, and provide and operate pumps of sufficient capacity for dewatering the excavations.
- C. He shall provide for the disposal of the water removed from excavation in such manner as shall not cause injury to the public health, to public or private property, to the work of other contractors, to any portion of the work completed or in progress, or produce any impediment to the use of the highways, roads, lanes, and streets by the public.

- D. Any dewatering required shall be performed at the CONTRACTOR's expense. Payment for dewatering shall be included in the CONTRACTOR's bid prices for pipe or other structures requiring dewatering for installation. If holes made for installation of well points are installed in a roadway, shoulder, or under a structure, these holes shall be filled with lean grout prior to backfill and compaction. Any permits needed for dewatering shall be obtained and paid for by the CONTRACTOR.

3.10 EMBANKMENT

- A. Where embankment is necessary to support the foundations of the pipe or structure, it shall be made to the height, width and slopes shown on the drawings, or as directed. The entire embankment, or such portion thereof as may be deemed necessary by the ENGINEER, shall be made prior to the construction of the sewer, structure, or the foundation thereof, at such time and in such order as the ENGINEER may direct; and the embankment, sewer, or structure, and appurtenances, which may be laid thereon or therein, shall be maintained by the CONTRACTOR, at his own cost and expense, until the completion of the period of one (1) year from and after the date of the Certificate of Completion and Acceptance.
- B. After carefully grubbing and clearing the ground, removing all loose rock and stone, and all muck and improper material, to such a depth as the ENGINEER may determine, the embankment shall be built up of good loam, gravel or sand, or other selected and approved material, free from all stone above four inches (4") diameter, and not containing in any place a proportion of stones exceeding one (1) part stone to three (3) parts earth.
- C. In cast material, which is unsatisfactory for the foundation of any embankment is encountered, said material shall be removed to such depth, and for such length and width as may be directed by the ENGINEER. Payment for the removal of material unfit for the foundation of an embankment will be made at the price bid or stipulated per cubic yard for excavation below subgrade.
- D. The material for embankment shall be deposited in layers of not more than nine inches (9") in thickness; each layer shall be separately compacted by heavy, grooved iron rollers, or where such rollers cannot be used, by heavy paver's rammers. The embankment shall be watered during rolling, if so required. No breaks or irregularities in the distribution of the material or the formation of the layers will be allowed. The whole embankment shall be carried up evenly to the height given by the ENGINEER in such a manner as to make a compact and solid foundation. When pipe is to be laid in a fill, the embankment shall be brought to a height of at least one foot (1') above the proposed top of the pipe before the trench is excavated. The embankment shall then be excavated to the proper form and grade, and the sewer placed thereon; after which the embankment shall be carried up to a height of not less than three feet (3') above the top of the sewer, the material being placed and rolled or rammed in layers as above described.

3.11 BACKFILLING TRENCHES

- A. It is the intent of the following requirements for the backfilling of trenches to specify materials and methods which will:
 - 1. Result in thorough compaction of the backfilled material without the displacement of the grade or alignment of the sewer line and its appurtenances, and
 - 2. Eliminate settlement of the backfilled material.
- B. If displacement of the sewer or settlement of the backfilled material does occur, it will be considered as conclusive evidence of improper workmanship or the inclusion of unsuitable materials or both, and it shall be the CONTRACTOR's responsibility, at his own expense, to remove and recompact the settled material and regrade and realign the sewer. During the course of the backfilling operation, the ENGINEER may, at any location of depth of trench, make tests to determine whether the CONTRACTOR's compaction operations are sufficient to meet the requirements specified below.
- C. The procedure of backfilling shall be as follows:
 - 1. After the structure, pipe, or conduit and its appurtenances have been installed or constructed, the excavation, to a height of at least two feet (2') above the top of pipe or conduit, shall be refilled with clean earth deposited in four inch (4") layers and solidly rammed down and tamped around the pipe, or conduit and under it, with mechanical tampers and proper tools made for this purpose. The operation shall be done in such manner as not to disturb the structure. The area around the pipe shall be hand-tamped.
 - 2. The earth, to the height specified above, shall be carefully thrown in with hand shovels; under no condition shall any other means than hand shoveling, such as pushing in with heavy equipment be used.
 - 3. The remainder of the trench, except as described below, shall then be refilled evenly to the required height in layers, each layer not to exceed six inches (6") in thickness after compaction. Mechanical tampers shall be used so as to produce a density of backfill (as determined by weight) at the bottom of each layer of not less than 95 percent (95%) of the optimum density of that material based upon the AASHTO T-180 modified proctor. The earth shall be properly rammed as directed, and wetted as required as the work progresses.
 - 4. Care shall be taken to carry the fill up evenly on opposite side of the sewer, other trench excavations, and around the sides of all structures.

- D. If, in the opinion of the ENGINEER, the material being used for backfilling is of such character that satisfactory results cannot be obtained by tamping and ramming, the CONTRACTOR shall backfill and puddle the excavations in such manner and at such times as the ENGINEER may direct.
- E. If the material excavated is not clean earth, as above specified, the best of the materials excavated shall be used in backfilling, in position and manner as directed by the ENGINEER.
- F. In rock trenches, selected earth, sand, or gravel shall be provided and used as backfill in the manner hereinbefore described to a height of two feet (2') above the top of the sewer. The backfill for the balance of the trench in all cases shall be of good earth, sand, or gravel, which may contain stones not more than six inches (6") in largest dimensions, but not in proportion exceeding 20 percent (20%) of the total volume of backfill.
- G. No bulkheads, or retaining walls for the backfilling, will be allowed in the trenches over the sewer, except for temporary use.
- H. Should there be a deficiency of proper material for refilling the CONTRACTOR shall furnish acceptable material at his own cost and expense.
- I. No house ashes, putrescible refuse or other material of unsatisfactory character shall be used in refilling, and the CONTRACTOR shall not permit the trench to be used as a dumping ground for refuse.
- J. Testing of backfill in trenches shall be performed as deemed necessary by the ENGINEER or his representatives; the CONTRACTOR will supply and pay for the testing.

3.12 BORROW EXCAVATION

- A. In cases where the amount of embankment exceeds the amount of excavation within the limits of the site as indicated by the Drawings, and where material is not available from other sources of contracts, the CONTRACTOR shall obtain sufficient, suitable material from borrow pits located entirely beyond the limits of the site unless the ENGINEER gives written permission to obtain such material from an area within the site.
- B. The CONTRACTOR shall notify the ENGINEER sufficiently in advance of borrow excavation requirements to permit the ENGINEER to determine necessity and to view the proposed borrow pit.
- C. Borrow obtained from within the site shall be removed to uniform lines and grades satisfactory to the ENGINEER, and in such a manner as will not detract from the general appearance of the improvement and shall not create unsatisfactory conditions.

- D. All borrow pits shall be stripped of brush, roots, grass and other vegetation prior to removal of material for embankment purposes.

3.13 BUILDINGS AND STRUCTURES

A. Excavation.

1. All excavation for buildings and structures shall be performed in the dimensions indicated on the Drawings. If suitable bearing is not encountered at the planned footing or foundation elevations, the excavation shall be carried to such elevations as are approved by the ENGINEER.
2. Prior to construction of foundations, the excavation shall be inspected by the ENGINEER and no foundation work shall be started prior to the ENGINEER's approval of the excavation. Care shall be exercised to avoid excavation below the depths indicated on the Drawings or as directed by the ENGINEER.
3. Where excavation is made below plan elevation or below elevations directed by the ENGINEER. Where excavation is made below plan elevation or below elevations directed by the ENGINEER, through the fault of the CONTRACTOR, the excavation shall be restored to the proper elevation in the manner described for backfill below, or the heights of walls or footings shall be increased, as may be directed by the ENGINEER, at the expense of the CONTRACTOR.

B. Drainage.

1. Grading in the vicinity of structures shall be controlled to prevent water running into excavated areas. Any accumulation of water in excavations shall be removed by pumping or other means at the CONTRACTOR's expense.

C. Backfill.

1. After completion of footings and walls, and the removal of forms, and prior to backfilling, the excavation shall be cleaned of all trash and debris.
2. Backfill material shall consist of the excavation or other materials free from trash, lumbar or other debris. It shall be placed in horizontal layers not exceeding six inches (6") in depth, moistened if required and compacted by hand or mechanical tampers to a density to prevent excessive settlement.

3.14 RESPONSIBILITY FOR CONDITION OF EXCAVATION

- A. The CONTRACTOR shall be responsible for the condition of all excavations made by him. All slides and cave-ins shall be removed without extra compensation, at whatever time and under whatever circumstances they may occur.
- B. The failure of the ENGINEER to order the use of bracing or sheeting or a better quality, grade or section, or larger sizes of steel or timber, or to order sheeting, bracing, struts, or shoring to be left in place, or the failure to give orders or directions as to the manner or methods of placing or driving sheeting, bracing jacks, wales, rangers, or other members, shall not in any way or to any extent relieve the CONTRACTOR of any responsibility concerning the condition of excavation or of any of his obligations under the Contract; nor shall any delay, whether caused by any action or want of action on the part of the CONTRACTOR, or by any act of the OWNER, or his agents, or employees, resulting in the keeping of an excavation open longer than would otherwise have been necessary, relieve the CONTRACTOR or from the necessity of properly and adequately protecting the excavation from caving or slipping, nor from any of his obligations under the Contract relating to injury of persons or property, nor entitle him to any claim for extra compensation.

3.15 PROTECTION OF PROPERTY AND STRUCTURES

- A. The CONTRACTOR shall, at his own expense, sustain in their places, and protect from direct or indirect injury, all pipes, tracks, walls, buildings, and other structures or property in the vicinity of his work, whether above or below the ground, or that may appear in the excavation. He shall at all times have a sufficient quantity of timber and plank, chains, ropes, trench boxes, and other material and equipment, on the ground and shall use them as necessary for sheeting his excavations and for sustaining or supporting any structures that are uncovered, undermined, endangered, threatened or weakened.
- B. The CONTRACTOR shall take all risks attending the presence of proximity of pipes, poles, tracks, walls, buildings, and other structures and property, of every kind and description, in or over his excavation, or in the vicinity of his work, whether above or below the surface of the ground; and he shall be responsible for all damages and assume all expense for direct or indirect injury, caused by his work, to any of time, or to any person or property by reason of injury to them, whether such structures are not shown on the Drawings.
- C. Where necessary, in order to keep one side of the street or roadway free from any obstruction or to keep the material piled alongside the excavation from falling on private property outside the right of way, a safe and suitable fence shall be placed alongside the excavation.
- D. In the event of encountering quicksand, subsurface streams or similar dangerous contingencies, or where passing especially heavy building or any structures which by their construction or position might bring a great pressure upon the excavations the

right is reserved by the ENGINEER to direct that such buildings, or structures, shall be underpinned, or supported and protected, or that special sheeting shall be driven in such a manner and to such depth, as may be directed, or that only a short length of excavation shall be opened at one time; and furthermore, if necessary, that the excavation shall be securely sheeted and braced on all sides, after the manner of a shaft, and that the permanent work shall be constructed in the same manner and the shaft backfilled before another opening is made. Any work done as above directed shall be at the cost and expense of the CONTRACTOR.

- E. The ENGINEER reserves the right under such conditions to stop the excavation or any other part of the work, and to require the CONTRACTOR to complete the structure and the backfilling up to such a point as the ENGINEER may direct before proceeding further with the excavation; and the CONTRACTOR shall not thereby become entitled to demand or to receive any allowance or compensation, other than an extension of the contract time for as many days as the ENGINEER may determine that the work was delayed by such stoppage.

3.16 OBSTRUCTION SHOWN ON DRAWINGS

- A. Certain information regarding the reputed presence, size, character, and location of existing underground structures, pipes and conduits has been shown on the Contract Drawings. There is no certainty of the accuracy of this information. The location of underground structures shown may be inaccurate and other obstructions not shown may be encountered.
- B. The CONTRACTOR hereby distinctly agrees that the OWNER is not responsible for the correctness or sufficiency of the information given; that in no event is this information to be considered as a part of the Contract; that he shall have no claim for delay or extra compensation on account of incorrectness of information given, or on account of the insufficiency or absence of information regarding obstructions either revealed or not revealed by the Drawings; and that he shall have no claim for relief from an obligation of responsibility under the Contract, in case the location, size or character of any pipe or other underground structure is not as indicated on the Drawings; or in case any pipe or other underground structure is encountered that is not shown on the Drawings.
- C. The CONTRACTOR is solely and completely responsible for contacting utility providers and locating services to field locate existing utilities 48 hours in advance of his activities. If inadequate locations are made, or if hand-digging of "test holes" is deemed necessary, this shall be accomplished and affected by the CONTRACTOR at no additional expense to the OWNER.

3.17 REMOVAL OF OBSTRUCTIONS

- A. Should the position of any pipe, conduits, pole, or other structures, above or below the ground be such as, in the opinion of the ENGINEER, to require its removal, realignment, or change due to work to be done under the Contract, the work of

removal, realignment, or change will be done as extra work, or will be done by the OWNER of the obstructions, without cost to the CONTRACTOR; but the CONTRACTOR shall uncover and sustain the structures, at his own expense, before such removal and before and after such realignment or change as constituting part of the Contract; and the CONTRACTOR shall not be entitled to any claim for damage or extra compensation on account of the presence of said structure, or on account of any delay in the removal or rearrangement of the same.

- B. The CONTRACTOR shall, without extra compensation, break through and reconstruct, if necessary, the invert or arch of any sewer, culver, or conduit that may be encountered, if the said structure is in such a position that in the judgment of the ENGINEER, as not to require its removal, realignment, or complete reconstruction.
- C. The CONTRACTOR shall not interfere with any persons, firms, or corporations, or with the OWNER in protecting, removing, changing, or replacing their pipes, conduits, poles, or other structures; but he shall suffer said persons, firms, or corporations, or the OWNER to take all such measures as they may deem necessary or advisable for the purpose aforesaid, and the CONTRACTOR shall thereby be in no way relieved of any of his responsibilities under this Contract. At railway or railroad track crossings or paralleling, any expense to which the OWNER of the trackage is put in shoring up tracks, or in maintaining traffic, shall be borne by the CONTRACTOR, whether the same is billed directly to him, or the OWNER. Should any such bill be unpaid by the CONTRACTOR, before final payment under the Contract is made, the OWNER shall be empowered to pay said bill and retain the amount thereof, from any monies due, or to become due the CONTRACTOR.
- D. Except where trees are in rights-of-way, in immediate proximity to the excavation, they shall not be cut down except by authorization of the ENGINEER and the CONTRACTOR shall have no claim for the extra compensation owing to the fact that he may be required to excavate by hand, or tunnel in the vicinity of trees that may be left standing.

3.18 CHANGE OF EXCAVATION LOCATION

- A. In case the ENGINEER shall direct that the location of a trench or other excavation be changed from that shown on the Drawings, on account of the presence of an obstruction, or from other cause, or if a changed location shall be authorized upon the CONTRACTOR's request, the CONTRACTOR shall not be entitled to extra compensation, or to a claim for damage, provided that the change is made before the excavation is begun. If, however, such change, made at the direction of the ENGINEER, involves the abandonment of excavation already made, such abandoned excavation, together with the necessary refill, will be classed as miscellaneous excavation. In the event that the excavation is abandoned in favor of a new location, at the CONTRACTOR's request, the abandoned excavation and refill shall be at the CONTRACTOR's expense.

- B. Minor changes in alignment of pipe or other structures to accommodate the actual location of existing facilities shall be considered typical of construction activities and no additional compensation will be made for changes of this nature.

3.19 CLEANUP

- A. As the trenches are filled in and the work completed, the CONTRACTOR shall immediately and at his own cost and expense remove and dispose of all surplus earth, stone or other material from the work, in such manner and at such point or points, as he may select or provide, subject to the approval of the ENGINEER; or he may deposit the same, either with or without rehandling, at any point or points on the line of the work covered by the Contract, if so directed by the ENGINEER; and shall leave all roads, sidewalks and other places free, clear and in good order. In case the CONTRACTOR shall fail or neglect to do so, or to make satisfactory progress in doing so within 24 hours after the receipt of a written notice from the ENGINEER, the OWNER may remove such surplus material and clear the roadways, sidewalks and other places, and the cost of said work shall be charged to the CONTRACTOR and deducted from any monies due or to become due him under the Contract.
- B. All surplus earth or other material wasted on public property shall be evenly spread and left in a neat and smooth condition. All removed materials shall become the property of the OWNER, if they so desire. If the OWNER does not want the removed materials, surplus materials will be removed by the CONTRACTOR at no extra cost to the OWNER.
- C. As soon as the trenches are refilled, all surplus earth, sand or rubbish shall be removed and kept removed to a point not more than two hundred feet (200') from the head of the open trench, unless otherwise authorized by the ENGINEER.

3.20 MAINTENANCE OF BACKFILLED TRENCH SURFACES

- A. The CONTRACTOR shall crown to such height, as directed by the ENGINEER, the top of all backfilled trench excavations. The CONTRACTOR shall also maintain these crowned surfaces to the satisfaction of the ENGINEER, without additional compensation, from the time of crowning operation to and including a period of eight (8) months beyond date of a Certificate of Completion of the work under this contract.
- B. The CONTRACTOR shall be responsible for any injury or damage resulting from lack of required trench maintenance during the prescribed maintenance period. If the CONTRACTOR does not satisfactorily provide specified maintained surfaces or begin repairs of such surfaces when needed, within 24 hours after written notice from the ENGINEER, such work may be done by the OWNER and the cost thereof charged against the CONTRACTOR.

END OF SECTION

31 23 00 - 16

Attachment: HH121_LS7 Rehabilitation_Bid Set Specs (1716 : Lift Station #7 Rehabilitation 17WW07)

SECTION 31 23 19

DEWATERING

PART 1 – GENERAL

1.01 DESCRIPTION OF WORK

- A. Scope: In general, the work specified in this section of the specifications shall consist of supplying labor, materials, and plant, and performing all work necessary to lower and control the groundwater levels and hydrostatic pressures to permit all excavations and construction specified under this Contract to be performed in the dry.
- B. Examination of Site: The CONTRACTOR shall take all steps that he considers necessary to familiarize himself with the site conditions, the ground conditions, and the groundwater conditions. It is expressly understood that neither the OWNER nor the ENGINEER will be held responsible for any interpretations or conclusions drawn by the CONTRACTOR.

PART 2 – PRODUCTS

2.01 METHOD AND EQUIPMENT

- A. The CONTRACTOR may use any dewatering method he deems feasible so long as it results in working in the dry and in stable soil conditions. It is the intent of these specifications that an adequate dewatering system be installed to lower and control the groundwater in order to permit excavation, construction of the structures, construction of pipelines, and the placement of the fill materials, all to be performed under dry conditions. The dewatering system shall be adequate to pre-drain the water-bearing strata above and below the bottom of the foundations, the drains, the sewers, and all other excavations. An adequate weight of fill material shall be in place prior to discontinuing operation of dewatering to prevent buoyancy of the structure.

PART 3 – EXECUTION

3.01 GENERAL

- A. The CONTRACTOR shall be solely responsible for the arrangement, location, and depths of the dewatering system necessary to accomplish the work described under this section of the specifications. The dewatering shall be accomplished in a manner that will reduce the hydrostatic head below any excavation to the extent that the water level and piezometric water levels in the construction area are below the prevailing excavation surface; will prevent the loss of fines, seepage,

boils, quick conditions, or softening of the foundation strata; will maintain stability of the sides and bottom of the excavation; and will result in all construction operations being performed in the dry.

- B. Disposal of Water: The CONTRACTOR shall promptly dispose of all water removed from the excavations in such a manner as will not endanger public health, damage public or private property, or affect adversely any portion of the work under construction or completed by him or any other Contractor. CONTRACTOR shall obtain written permission from the OWNER of any property involved before digging ditches or constructing water courses for the removal of water.
- C. Siltation and Erosion:
1. The CONTRACTOR shall take steps and make suitable provisions to minimize siltation and erosion which may result from, or as a result of, his operations during the course of construction of this project.
 2. The methods and provisions utilized by the CONTRACTOR to minimize siltation and erosion shall be approved by the ENGINEER and shall be in conformance with current Florida Department of Environmental Protection and St. Johns River Water Management District practices and regulations.
- D. Inadequate System: If the dewatering requirements are not satisfied due to inadequacy or failure of the dewatering system, then loosening of the foundation strata, or instability of the slopes, or damage to the foundations or structures may occur. The supply of all labor, materials, and plant, and the performance of all work necessary to carry out additional work for reinstatement of the structures of foundation soil resulting from such inadequacy or failure shall be undertaken by the CONTRACTOR to the approval of the ENGINEER, and at no additional expense to the OWNER.

END OF SECTION

SECTION 31 23 33

TRENCHING, BACKFILLING, AND COMPACTING

PART 1 – GENERAL

1.01 DESCRIPTION OF WORK

- A. The extent of trenching, backfilling, and compacting is shown on the drawings.
- B. This section includes furnishing equipment, labor, and materials, and performing all operations necessary and incidental to perform the required work.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.01 CLEARING OF THE SITE

- A. The site of the work shall be cleared of all trees, shrubs, paving and objectionable material, which interfere with the prosecution of the proposed work. Trees and shrubs which will not interfere with construction shall be protected from damage. Clearing shall be considered as an incidental item of excavation.

3.02 EXCAVATION

A. General:

- 1. Perform excavation described of whatever substance encountered to the dimensions and depths specified or shown on the drawings. Undercutting will not be permitted, except when ordered by the ENGINEER. Material suitable for backfill shall be stockpiled near the site. Rock or other material undesirable for backfill shall be spoiled outside the area in a neat manner, as directed by the ENGINEER. Where it is necessary to cut roots projecting into an excavation or where it is necessary to trim branches for equipment clearance, all severed root ends, or cuts to branches over a half inch (1/2") diameter shall be treated with an asphalt base pruning paint. Backfill over exposed roots as soon as possible.

B. Rock:

- 1. Where encountered in the trench bed, rock shall be excavated to a depth of one-quarter (1/4) of the pipe diameter below the bottom of the pipe but in no case less than four inches (4"). All undercut trench excavation shall be

backfilled and tamped with materials as specified in the following paragraphs under Unstable Subgrade.

C. Unstable Subgrade:

1. In the event that unsuitable material is encountered at or below the excavation depth specified or shown on the drawings, the ENGINEER shall be notified. Such material shall be removed and replaced with suitable material. Methods and materials used for replacement shall be one of the following as directed by the ENGINEER in writing.
 - a. Suitable earth or sand compacted in the trench. Materials shall be furnished as a part of the Bid Proposal item covering excavation and backfill.
 - b. Gravel or crushed limerock, compacted in the trench and paid for under the appropriate item.
 - c. Existing materials stabilized after removal and then replaced and compacted in the trench at no additional cost to the OWNER.
2. The ENGINEER shall determine the methods and materials to be used, based upon the condition of the excavation, the pipe structure to be supported, and the availability and character of stabilizing materials.

D. Trenches:

1. Keep pipe laying operation as close to the excavation operation as possible during the prosecution of the work. The ENGINEER reserves the right to stop the excavation at any time when, in his opinion, the excavation is opened too far in advance of the pipe laying.
2. Pipe trenches shall be only of sufficient width to provide a free working space on each side of the pipe. To prevent excess pressure on the pipe, the maximum width of trench at the top of the pipe and at the bottom of the trench shall not be greater than two feet (2') more than the greatest exterior diameter of the pipe. If this maximum width is exceeded, it shall be the CONTRACTOR's responsibility to provide, at no additional cost to the OWNER, such additional bedding or select backfill materials as the ENGINEER may require. The excavation below the spring line shall be made to conform as near as possible to the shape of the lower third of the pipe. To protect the pipe lines from unusual stresses, all work shall be done in open trenches. Excavation shall be made for bells of all pipes and of sufficient depth to permit access to the joint for construction and inspections. In no case, will the bells be used to support the body of the pipe.

3. In order to avoid existing utilities, at times it may be necessary for the pipe to be laid deeper than the minimum cover specified in the preceding paragraph. At such time the CONTRACTOR will not be allowed extra compensation for additional excavation involved.
4. In case excavation has been made deeper than necessary, a layer of concrete, fine gravel, or other material satisfactory to the ENGINEER shall be placed, at no extra cost, to secure a firm foundation for the lower third of each pipe. Where possible, excavated material shall be placed so as not to interfere with public travel. Bridging shall be provided to afford necessary access to public or private premises. Bridging shall be considered as part of the excavation operation and shall be supplied at no additional cost to the OWNER.

E. Structural (For inlets, manholes, and similar structures):

1. Remove sufficient material to allow proper space for erecting and removing forms. The elevations of the bottoms of footings, if shown on the drawings, shall be considered as approximate only, and the ENGINEER may order, in writing, such changes in dimensions or elevations of footings as may be deemed necessary to secure a satisfactory foundation. Excavation for structures shall be sufficient to leave at least 12 inches (12") in the clear between their outer surfaces and the embankment or timber that may be used to protect them. Backfill of earth under structures will not be permitted. Excess excavation for structures shall be filled with thoroughly compacted sand, gravel, or concrete at the expense of the CONTRACTOR.
2. After excavation for a structure is completed, the CONTRACTOR shall notify the ENGINEER to that effect. No concrete or reinforcing steel shall be placed until the ENGINEER has approved the depth of the excavation and the character of the foundation material.

F. Sheeting and Shoring:

1. The CONTRACTOR shall provide all trench and structural bracing, sheeting or shoring necessary to construct and protect the excavation, existing utilities, structures, and private property of all types and as required for the safety of the employees. Sheeting shall be removed or cut off by the CONTRACTOR during backfilling operations as directed by the ENGINEER. Removal of shoring for structures shall be done in such a manner as not to disturb or mar finished masonry or concrete surfaces.

3.03 DRAINAGE

- A. Grading shall be controlled in the vicinity of excavations so that the surface of the ground will be properly sloped to prevent water from running into trenches or other excavated areas. Any water which accumulates in the excavations shall be removed promptly by well point or by other means satisfactory to the ENGINEER in such a manner as to not create a nuisance to adjacent property or public thoroughfare. Trenches shall be kept dry while pipe is being laid. Bridging of dewatering pipe shall be provided where necessary. Pumps and engines for well point systems shall be operated with mufflers, and at a minimum noise level suitable to a residential area. The CONTRACTOR will not be allowed to discharge water into the OWNER's storm drainage system without the written approval of the ENGINEER. Approval will be subject to the condition that the storm sewer be returned to its original condition.
- B. The CONTRACTOR is responsible for carrying the water to the nearest ditch or body of water and for obtaining the necessary permission to use same. The CONTRACTOR shall be financially responsible for any nuisance created due to carrying off water from his drainage system.

3.04 BACKFILL

- A. Trenches:
 - 1. Trenches shall be backfilled immediately after the pipe is laid unless other protection for the pipe line is provided. Clean earth, sand, crushed limerock, or other material approved by the ENGINEER shall be used for backfill. Backfill material shall be selected, deposited and compacted (simultaneously on both sides of the pipe) so as to eliminate the possibility of lateral displacement of the pipe. Backfill material shall be solidly tamped around the pipes in layers to a level at least one foot (1') above the top of the pipe. Each layer shall be compacted to a maximum thickness of six inches (6").
 - 2. In unpaved areas, the remainder of the backfill shall be deposited and then compacted by puddling, water flooding or mechanical tampers. Mechanical tamping of layers in unpaved areas shall be to a maximum thickness of 12 inches (12"). In areas to be paved or repaved, the entire depth of backfill shall be deposited in layers and compacted by hand or mechanical tampers to a maximum thickness of six inches (6"). Compaction shall be carried out to achieve a density of at least 98 percent (98%) of the maximum density as determined by AASHTO, Method T-180. Under areas to be paved, puddling may be used for backfill consolidation after tamping to one foot (1') over the pipe, as specified, provided the method is first approved by the ENGINEER and the density requirements are met.

3. In areas to be paved, density tests for determination of the specified compaction shall be made by a testing laboratory and spaced one in every 300 feet (300') of trench cut. It is the intent of this specification to secure a condition where no further settlement of trenches will occur. When backfilling is completed, the roadway base for pavement replacement may be placed immediately. It will be the responsibility of the CONTRACTOR to restore the surface to the original grade wherever settlement occurs.

B. Structural:

1. After completion of foundation footings and walls and other construction below the elevation of the final grades, and prior to backfilling, forms shall be removed and the excavation shall be cleared of all trash and debris. Material for backfilling shall consist of the excavation, borrow sand or other approved materials, and shall be free of trash, lumber, or other debris. Backfill shall be placed in horizontal layers not in excess of nine inches (9") in thickness, and have moisture content such that a density may be obtained to prevent excessive settlement or shrinkage. Each layer shall be compacted by hand or approved machine tampers with extreme care being exerted not to damage pipe or structures. Backfill shall be placed and compacted evenly against the exposed surfaces to prevent undue stress on any surface.

3.05 RESTORATION OF SURFACE IMPROVEMENTS

- A. Roadways, including shoulders, alleys, and driveways of shell, limerock, stabilized soil or gravel, grass plots, sod, shrubbery, ornamental trees, signs, fences, or other surface improvements on public or private property which have been damaged or removed in excavating, shall be restored to conditions equal to or better than conditions existing prior to beginning work. Restoration of shoulders shall consist of sodding, seeding and mulching, or stabilizing with limerock as selected by the ENGINEER. The cost of doing this work shall be included in the cost of the various applicable items.
- B. Materials for unpaved roadways, road shoulders, alleys, or drive-ways, shall be compacted to a minimum of 98 percent (98%) of the maximum density as determined by AASHTO, Method T-180. The cost of this work and furnishing new materials shall be included in the cost of the applicable items of work as no separate payment will be made, unless a separate bid item is provided.

3.06 FINE GRADING

- A. Finished areas around structures shall be graded smooth and hand raked and shall meet the elevations and contours shown on the drawings. Lumber, earth clods, rocks, and other undesirable materials shall be removed from the site.

3.07 DISPOSAL OF MATERIAL

- A. Such portions of the excavated materials as needed and as suitable shall be used for backfilling and grading about the completed work to the elevations as shown on the drawings or as directed. Excavated material in excess of the quantity required for this purpose shall be disposed of by the CONTRACTOR. The CONTRACTOR shall leave the earth over the trenches or other excavations in a neat and uniform condition acceptable to the OWNER.

3.08 TESTS

- A. The CONTRACTOR shall furnish facilities for making all density tests and make such restorations as may be necessary due to test operations. All density tests on backfill or base replacement will be made by a commercial testing laboratory employed by the OWNER and at such locations as may be recommended by the ENGINEER. The CONTRACTOR shall pay for all tests where the densities, as determined by the specified tests, fall below the required minimums (failed tests).

END OF SECTION

SECTION 32 10 00

PAVING

PART 1 – GENERAL

1.01 WORK INCLUDED

- A. The work covered and described in this section includes the furnishing and construction of paved surfaces, including roadways, driveways, bicycle paths, shoulders, and other paved surfaces, or paving work as shown or indicated on the drawings, specified herein, and as listed in this contract.
- B. All work shall conform to the applicable Technical Specifications of Florida Department of Transportation “Standard Specifications for Road Bridge Construction (Divisions II and III) and Design Standards”, latest edition, including any amendments thereto. The CONTRACTOR shall acquire his own copies of the Department of Transportation Standards. In the event of conflict between the Department of Transportation Standards and the specifications listed in these documents, the OWNER/ENGINEER shall determine which shall govern. Reference to the Department of Transportation Standards, to the Department or its representatives shall be interpreted for this contract to be the OWNER/ENGINEER or their authorized representative.

PART 2 – MATERIALS

2.01 SUBBASE

- A. The materials used should be high bearing value soil, sand-clay, ground limestone, crushed limerock, coquina, or any other material suitable for stabilization. Muck shall not be used.

2.02 BASE COURSE

- A. The base course material used shall be that specified in the plan sheets or contract documents. If no base material is specified, limerock shall be used, unless otherwise indicated. All base material shall be approved by the OWNER/ENGINEER and supplied by the CONTRACTOR.
- B. The limerock base material shall have a minimum of 70 percent (70%) carbonates, calcium, and magnesium and no more than three percent (3%) water sensitive clay. The liquid limit shall not exceed 35 and the plastic index shall not exceed 10. The average LBR value of the material shall be no less than 100, nor be large amounts of extremely hard pieces of clay pockets.

- C. Soil-cement base shall be composed of a combination of soil and Portland cement uniformly mixed, moistened, compacted, finished, and cured. The soil shall be either existing in-place material or that brought from borrow locations. All soil must meet the requirements set forth in “FDOT Standards and Specifications for Road and Bridge Construction”, latest edition, the cement used shall be Portland Cement Type I or I-P and water shall be free from any substances deleterious to hardening of the soils-cement mixture.
 - 1. The soil-cement mixture shall be proportioned in accordance with a design mix prepared by a testing laboratory and approved by the OWNER/ENGINEER. The design mix shall be submitted for approval at least 30 calendar days prior to beginning of soil-cement construction. The cement content shall be expressed in percentage of dry weight of the soil. Rate of application shall be based on the maximum density of the soil, determined in accordance with AASHTO T 99 and a thickness one inch (1") greater than the base course thickness shown on the plans.
- D. Asphalt base courses shall have a bituminous material content of asphalt cement, viscosity Grade AC-20 or AC-30, meeting the requirements of “FDOT Standards and Specifications for Road and Bridge Construction”, latest edition. The bituminous mixture shall be composed of a combination of aggregate, bituminous material. The job mix formula, as established by the CONTRACTOR, must be approved by the OWNER/ ENGINEER. The asphalt base mix shall be within the design ranges specified for mix Type ABC-3 or S-II, (Use of any other mix is subject to the approval of the OWNER/ENGINEER.). The constituents of the mixture shall be combined to produce a mixture having Marshal properties within the limits of Appropriate Table of the “FDOT Standards and Specifications for Road and Bridge Construction”, latest edition.
- E. Coquina shell used in the base course shall have an organic material of not greater than 0.5 percent (0.5%) or contain significant quantities of sand or other impurities which would prevent bonding. At least 97 percent (97%) of the coquina used shall pass through a three and one-half inch (3-1/2") ring.
- F. Recycled concrete aggregate used in the base course shall conform to Appropriate Section, graded aggregate base, of the latest revision of the “FDOT Standard Specifications for Road and Bridge Construction”.

2.03 PRIME AND TACK COATS

- A. Bituminous prime coats shall be applied to previously prepared bases. Bituminous tack coats shall be placed on existing paved surfaces and between successive lifts of asphalt material.
- B. The prime coat shall be Cut-back asphalt Grade RC-70 or RC-250; Emulsified Asphalt Grades SS-I, CSS-I, SS-1H or CSS-1H diluted in equal proportion with

water or other types and grades of bituminous material specified or approved by the OWNER/ENGINEER.

- C. The tack coat shall be RA-500 heated to a temperature of 250° to 300°F for undiluted Emulsified Asphalt, Grades RS-1 or RS-2 heated to a temperature of 140° to 180°F.
- D. A cover material must be placed on the prime coat to ensure that the prime coat remains intact until the surface course is placed.

2.04 ASPHALT WEARING SURFACE

- A. The bituminous wearing surface applied shall be that specified in the plan sheets or contract documents. If no asphalt mix is specified, Type SP-9.5 Super Pave asphaltic concrete shall be used as the paving material, unless otherwise indicated.
- B. The asphaltic mixture shall be transported to the site at a temperature of 300° to 350°F. Mixtures that have cooled below 270°F will be rejected. The mix temperature will be taken on the first five loads each day and on an average of once every five loads thereafter.
- C. The CONTRACTOR is entirely responsible for producing a homogenous mixture, free from moisture and with no segregated materials, and meeting all requirements of the specifications for the mixture. Prior to the production of any asphalt paving mixture, the CONTRACTOR shall submit, in writing, a proposed job mix formula, at least two (2) weeks prior to the beginning of any paving activities. All requests for design mix adjustments, redesigns and new design mixes will be submitted, in writing, to the OWNER/ENGINEER.

PART 3 – EXECUTION

3.01 SUBBASE

- A. Prior to installation of base material, the area shall be graded to within plus or minus 0.2 feet ($\pm 0.2'$), and soft, spongy, or mucky material removed. Sufficient stabilizing material shall be cut in to achieve a Florida Bearing Value (FBV) in excess of 75 psi or limerock bearing ratio (LBR) greater than 40 pounds at a minimum density of 98 percent (98%) of a maximum density as defined and measured in AASHTO T 180 (Modified Proctor), to a six inch (6") minimum depth.
- B. Density test for subbase materials shall be taken at 300 foot (300') intervals and around structures as required. If compaction procedures allow testing requirements may be reduced at the OWNER/ENGINEER's discretion.

3.02 BASE COURSE.

- A. The base course shall be constructed on the prepared subgrade, in accordance with the specifications and plan sheets. All base material shall be placed in accordance

with the lines, grades, notes, and typical cross sections shown on the plans. Any deviation from the plan sheets is subject to the approval of the OWNER/ENGINEER. Any deviations not approved by the OWNER/ENGINEER shall be repaired to the satisfaction of the OWNER/ENGINEER at no expense to the OWNER.

B. Limerock Base

1. Limerock base shall be spread by mechanical spreaders, equipped to produce an even distribution with a uniform thickness. When the specified compacted thickness of the base is greater than six inches (6"), the base shall be constructed in two (2) courses. The thickness of the first course shall be one-half (1/2) the total thickness of the finished base. After spreading is completed, the entire surface shall be scarified and shaped so as to produce the required grade and cross section after compaction. If two (2) courses are required, each lift shall be prepared as previously described. Prior to spreading of the upper course, density tests will have been taken for the lower and determined to be satisfactory.
2. All materials shall be compacted to a density of not less than 98 percent (98%) of maximum density as determined by AASHTO T 180. Density tests shall be taken in at least three (3) locations on each day's final compaction of each course. Density determinations shall be made at more frequent intervals, at no extra cost, if deemed necessary by the OWNER/ENGINEER.
3. The finished surface of the base course shall be checked with a template cut to the required crown and a 15-foot (15') straight edge laid parallel to the center line of the road. All irregularities greater than one-quarter inch (1/4") shall be corrected to the satisfaction of the OWNER/ENGINEER.
4. The base material shall extend at least 12 inches (12") outside the edge of the finished paved surface, unless otherwise indicated. Thickness of the base shall be measured at 200 foot (200') intervals at various points in the cross section. Where the compacted thickness is deficient by one-half inch (1/2") or more, the CONTRACTOR shall correct the deficiency by scarifying and adding rock for a distance of 100 feet (100') in each direction from the edge of the deficient area. The required thickness, compaction and cross section will then be achieved.
5. Prime coat shall be applied only when the base meets the specified density and the moisture content in the top half of the base does not exceed 90 percent (90%) of the optimum moisture of the base material.

C. Soil Cement Base

1. Soil-cement mixing shall be either mixed-in-place or a central plant mix.

2. If mixed-in-place, the entire width of the base shall be processed in a single operation, where possible. The specified quantity of cement shall be applied at the required rate by means of an approved method. Mixing will begin within 60 minutes after the cement has been applied. Processing may be to full depth in one (1) course, provided that the satisfactory distribution of cement, water, soil and the specified density can be obtained. If not, construction shall be in courses of such thickness to obtain satisfactory results. Adequate bonding between courses must be achieved. After mixing soil and cement, additional water shall be added, if necessary. After all mixing water has been applied, mixing shall continue until a uniform mixture has been obtained. Excessive concentrations of water shall be avoided.
3. Central plant mixtures shall have been mixed for at least 30 seconds. The mixture shall be placed on the moistened subgrade in a uniform layer by an approved spreader. The layer of soil-cement shall be of uniform thickness and surface contour. The completed base will conform to the required grade and cross section.
4. Compaction of the soil-cement mixture shall begin immediately after mixing is complete. The optimum moisture content and maximum density shall be determined in the field by the methods described in AASHTO T 143. The base shall be compacted to not less than 95 percent (95%) of the maximum density. The soil-cement mix design shall be 350 psi at 28 days, unless otherwise indicated, and moisture content and density tests shall be taken every 300 lineal feet to a minimum depth of six inches (6").
5. After compaction, the surface shall be shaped to the required lines, grades, and cross section. The moisture content of the surface material shall not be more than two percent (2%) less than the specified optimum moisture content during finishing operations. The finished surface shall be smooth, dense, and free of compaction planes, cracks, ridges, and loose material.
6. Construction joints shall be formed by cutting back in the completed work to form a true vertical face. The vertical face shall be a straight transverse line perpendicular to the centerline of the roadway.
7. The finished surface of the base shall be tested with a template and a 15-foot (15') straight edge. All irregularities greater than one-quarter inch (1/4") shall be corrected to the satisfaction of the OWNER/ENGINEER.
8. The finished surface shall be kept continuously moist until the surface is treated with either cut-back asphalt, Grade RC-70 applied at 0.15 to 0.20 gallons per square yard; or a mixture of emulsified asphalt and water applied at a rate of 0.20 of 0.25 gallons per square yard. If the OWNER/ENGINEER deems it necessary, the surface shall be sanded using 10 pounds of clean sand per yard.

D. Asphalt Base Course

1. Asphalt base courses shall be applied in accordance with “FDOT Standards and Specifications for Road and Bridge Construction”, latest edition, appropriate section. The job mix formula approved for the project shall be used. Any deviation from the approved mix must be submitted to the OWNER/ENGINEER and approved before being implemented.
2. The base course material shall be placed with an approved paving machine. A motor grader may be required if a leveling course is needed. The base mix may be placed when the air temperature is at least 40°F and rising, provided that the sub-grade is not frozen or affected by frost.
3. A paver, equipped with automatic screed control, shall be used for all machine-laid courses. The automatic joint matcher shall be used on the top course of the base after the first pass with a paving machine. All mixtures shall be laid by the string line method, with the exception of areas adjacent to curb and gutter or other true edges. The temperature of the mix shall be between 300° and 350°F. Any mixture caught by rain in transit may be laid at the CONTRACTOR’s own risk; if removal and replacement is required, it shall be at the expense of the CONTRACTOR. In no case, shall the mixture be spread when rain is falling or when there is water on the surface to be covered. The layer thickness for asphalt concrete structure courses shall match those listed in the table below.

E. Recycled Concrete Base Course

1. Recycled concrete base course shall be transported, spread compacted and finished per Appropriate Section, of the latest revision of the Florida Department of Transportation Standard Specifications for Road and Bridge Construction.
2. The depth of all layers shall be checked every 50 feet (50'). A tack coat, as specified, will be required on existing pavements to be overlaid with an asphalt mix and between successive layers of all asphalt mixes.

F. Compaction.

1. After the asphalt mixture has been spread to the proper lines, grades, and cross sections, compaction operations may begin. The CONTRACTOR shall establish rolling procedures and submit his sequence of compaction operations to the OWNER/ENGINEER for approval. The equipment used may include, but is not committed to steel-wheeled rollers, pneumatic tired rollers, and vibratory rollers. Areas which are inaccessible to a roller shall be compacted by the use of hand tamps or other satisfactory means. An entire sequence of compaction operations shall be performed for each layer of applied material; density determinations shall also be made.

2. The in-place density of each course shall be determined through core samples and the nuclear backscatter method. A core sample of a representative paving section shall be taken for each day's production of paved surface; backscatters shall be taken every 30 feet (30') at various locations in the cross section. Additional testing around manholes or other structures may be required.
3. Testing and density requirements shall not apply to the following construction activities: Asphalt patching courses, leveling and intermediate course less than one inch (1") thick, overbuild courses less than one-inch thick and open graded friction courses.

G. Shell Base Material

1. Shell base material shall be constructed on the prepared subgrade in accordance with these specifications and in conformity with the lines, grades and cross sections shown on the plans. The shell base shall be spread uniformly and evenly; during spreading operations, the shell shall be thoroughly saturated with water.
2. After spreading the shell shall be compacted, with water being added as required, until the required density is obtained. Compaction and density shall be as required for limerock base, except that the testing methods shall be modified in the laboratory and in the field. At least three (3) density determinations shall be made on each day's final compaction operations.
3. Upon completion of initial compaction, the entire surface shall be scarified and shaped to exact crown and cross section. The base shall then be rewatered and compacted to the required density. The finished surface shall be tested with a template and 15-foot (15') straight edge. All irregularities greater than one-quarter inch (1/4") shall be corrected to the satisfaction of the OWNER/ENGINEER. The prime coat shall be applied after the base meets all density and finish requirements.

3.03 ASPHALT WEARING SURFACE

- A. The asphalt wearing surface shall be constructed on the prepared base in accordance with the plans and specifications and in conformity with the indicated lines, grades, and cross sections. If no asphalt mixture is indicated, the specified mixture shall be Type SP-9.5 Super Pave Asphaltic Concrete. A job mix formula shall be submitted to the OWNER/ENGINEER for approval at least two (2) weeks prior to the application of paved surfaces.

- B. The mixture shall be spread only when the base is clean, dry, properly cured, and approved by the OWNER/ENGINEER. The temperature shall be at least 40°F and rising. No paving operations will be permitted if it is raining or rain is imminent. The mix shall be between 270° and 350°F.
- C. The asphalt mixture shall be spread with an approved paving machine to the required width and depth. All mixes, except those adjacent to curb and gutter, shall be laid according to the string line method. The depth of each layer shall be checked every 50 feet (50').
- D. The mixture shall be compacted to its final depth, no less than one and one-quarter inch (1-1/4") and thicker if so indicated. Compaction and layering procedures specified for asphalt base courses shall apply to surface courses. All testing and density requirements will also apply.
- E. When laying operations are interrupted, a transverse joint shall be constructed by cutting back on the previous run to expose the full depth of material. Longitudinal joints are to be sloped or rolled over and sealed. When the adjacent strip is constructed, the edge shall be trimmed back to expose the unsealed face. All longitudinal construction joints shall be offset six inches (6") to 12 inches (12") laterally between layers.
- F. When fresh mixture is laid against transverse or longitudinal joints, it shall be placed in contact to produce an even, well compacted joint after rolling.
- G. The finished surface shall be tested with a template and 15 foot (15') rolling straight edge. Any irregularities shall be repaired to the satisfaction of the OWNER/ENGINEER. The surface shall be of uniform texture and compaction. No sand spots, ripples, or loosened portions shall be evident. No traffic shall be allowed onto the finished surface until it is deemed acceptable by the OWNER/ENGINEER.

3.04 CURING COAT

- A. During the period when finishing and surface corrosion of the soil-cement base are being accomplished, the surface of the base shall be kept continuously moist by sprinkling as necessary. As soon as deemed practicable, the curing seal shall be applied to the soil-cement base. The curing seal shall consist of Emulsified Asphalt Grade SS-I or SS-1H, diluted in equal proportion with water, and be applied at the rate of 0.15 to 0.30 gallons per square yard.
- B. The actual rate of application shall be as directed and shall provide complete coverage without excessive runoff. At the time the bituminous material is applied, the soil-cement surface shall be dense and free of all loose and extraneous material and shall contain sufficient moisture to prevent excessive penetration to the bituminous materials.

- C. Should it be necessary to allow construction equipment or other traffic to use the completed base before the bituminous material has cured sufficiently to prevent pickup or displacement; the bituminous material shall be sanded, using approximately ten pounds of clean sand per yard.

END OF SECTION

Attachment: HH121_LS7 Rehabilitation_Bid Set Specs (1716 : Lift Station #7 Rehabilitation 17WW07)

SECTION 32 92 00

GRASSING, MULCHING, AND SODDING

PART 1 – GENERAL

1.01 WORK INCLUDED

- A. The work specified in this section consists of grassing, or of grassing and mulching on slopes, shoulders, and other areas. The work of grassing shall include seeding and fertilizing; also, watering as required. Any of the items of work covered by this section may be eliminated from the contract, at the discretion of the ENGINEER. Sodding is included herewith and shall conform to the lines and grades as shown on the plans.

PART 2 – MATERIALS AND EQUIPMENT

2.01 MATERIALS AND EQUIPMENT

- A. The materials used for the work in this section shall conform to the requirements hereinafter specified.

2.02 SOD

- A. Sod shall be well matted with roots. St. Augustine shall be used in residential areas. Bahia shall be used in the right-of-way areas, not covered by St. Augustine grass.
- B. The sod shall be taken up in commercial-size rectangles, preferably 12-inch by 12-inch (12" x 12"), except where 6-inch (6") strip sodding is called for.
- C. The sod shall be sufficiently thick to secure a dense stand of live grass. The sod shall be live, fresh, and uninjured, at the time of planting. It shall be planted as soon as possible after being dug and shall be shaded and kept moist from the time it is dug until it is planted. The sod shall be approved by the ENGINEER before placing.
- D. Source Requirements for Sod and Mulch. No mulch material or sod shall be used which is not certified as being free of the imported fire ant, and before any mulch or sod is brought to the project, the CONTRACTOR will be required to furnish the ENGINEER a written certification and clearance, from pest control officials of either the State or the Federal Department of Agriculture, verifying that the materials are being obtained from an area outside of the zone of quarantine of the imported fire ant, or that they are free of the imported fire ant.

2.03 WATER

- A. The water used in the grassing operations may be obtained from the reclaimed water system.
- B. The water shall be free of excess and harmful chemicals, acids, alkalis, or any substance which might be harmful to plant growth or obnoxious to traffic.
- C. Salt water shall not be used.

2.04 EQUIPMENT

- A. Fertilizer Spreader
 - 1. The device for spreading dry fertilizer or for spraying liquid fertilizer shall meet the approval of the ENGINEER.
- B. Seed Spreader.
 - 1. The seed spreader shall be an approved mechanical head spreader or other approved type of spreader and may be integral with the cultipacker roller equipment specified below.
- C. Equipment for Cutting Mulch into Soil.
 - 1. The mulching equipment shall be a rotovator, or other equipment determined by the ENGINEER to be equally suitable for cutting the specified materials uniformly into the soil and to the required controlled depth.
 - 2. Harrows will not be allowed.
- D. Rollers
 - 1. A cultipacker, traffic roller, or other roller approved by the ENGINEER, will be required for rolling the grassed and mulched areas.
- E. Water-Metering Devices
 - 1. The vehicle used for applying the water to the grassed areas shall be equipped with an approved metering device installed at such point on the vehicle as to measure the water at the time of its being applied to the grassed areas.

PART 3 – EXECUTION

3.01 TIME OF BEGINNING OPERATIONS

- A. Whenever a suitable length of roadway is completed and ready for planting the CONTRACTOR shall, if directed by the ENGINEER, proceed at once with the planting of the available shoulder or embankment areas.

3.02 WEATHER AND SOIL LIMITATIONS

- A. Fertilizing, seeding or mulching operations will not be permitted when wind velocities exceed 15 miles per hour (mph).
- B. Seed shall be sowed only when the soil is moist and in proper condition to induce growth.

3.03 SOIL MANIPULATION

- A. All soil manipulation shall be done at right angles to the direction of slope.

3.04 WATERING

- A. The soil shall be maintained in a moist condition for a period of at least two (2) weeks after the planting.

3.05 APPLYING AND MIXING FERTILIZER

- A. Rate of Application
 - 1. At the CONTRACTOR's option, either dry or liquid commercial grade fertilizer may be used.
 - 2. The rate of application for dry fertilizer shall be 800 to 1,000 pounds per acre, with application in the upper range for sandy soils in the lower range for loamy soils. The exact rate will be set by the ENGINEER.
 - 3. Liquid fertilizer shall be applied at an equivalent rate which will provide the same amount of plant food as required for dry fertilizer (or at approximately 74 to 92 gallons per acre).
- B. Application
 - 1. The fertilizer shall be spread or sprayed uniformly over the area to be grassed by use of the approved distributing device, except that on steep slopes or other areas where machine-spreading may not be practicable, spreading may be done by hand or by hose if the ENGINEER so directs.

2. Immediately after dry fertilizer is spread, it shall be harrowed in and mixed with the soil to a depth of approximately four inches (4").
3. When liquid fertilizer is sprayed, the soil, if dry, shall be moistened by sprinkling before the liquid fertilizer is applied not later than seven (7) days after the seed is in place.

3.06 MULCHING

A. When Dry Mulch is Used:

1. When mulching is called for, approximately two inches (2") loose thickness, of the straw or hay material shall then be applied uniformly over the grassing area, and the mulch material cut into the soil with the equipment specified, so as to produce a loose mulch thickness of three to four inches (3-4").
2. Care shall be exercised so that the materials are not cut too deeply into the soil.

B. When Green Mulch is Used:

1. When green mulch is used, the green mulch shall be incorporated into the soil not later than two (2) days after being cut, and not artificial watering shall be done before the mulch is applied.
2. It shall be spread in a layer of approximately two inches (2") loose thickness, and cut into the soil with the equipment specified.
3. The material shall not be cut too deeply into the soil.

3.07 SEEDING

- A. Soon after the mulch material has been cut into the soil, and while the soil is still loose and moist, the seed shall be scattered uniformly over the grassing area.

The rate of spread for the seed shall be as follows:

1. Where mulching is not called for, or where dry mulch is used, the rate shall be 60 pounds per acre. In the period from March 15 to October 15 the seed mixture shall be 30 pounds of Bahia and 30 pounds of Bermuda. In the remainder of the year, the mixture shall be 20 pounds each of Bahia, Bermuda, and rye seed.
2. When green mulch is used, the required rate of spread shall be reduced to 45 pounds per acre, because of the faster growing rate of the green mulch as compared with that of the seeds. The seed mixture shall be 22-1/2 pounds of

Bahia and 22-1/2 pound of Bermuda, except that in the period October 15 to March 15 the mixture shall be 15 pounds each of Bahia, Bermuda, and rye grass seed.

3. Seeding may be done in conjunction with the rolling if the equipment used is designed for that purpose.
4. Rolling. Immediately after completion of the seeding, the entire grassed or mulched area shall be rolled thoroughly with the equipment specified. At least two (2) trips over the entire area will be required.

3.08 SODDING

- A. Wherever sodding is indicated on the plans, it shall include all of the requirements of this section except "Mulching".

3.09 MAINTENANCE

- A. The CONTRACTOR shall be responsible for keeping the ground moist by watering until an acceptable stand of grass is grown. The CONTRACTOR will also be required to repair at his own expense any damage due to washouts, erosion or other causes which might occur prior to final acceptance of this work.

END OF SECTION

SECTION 33 01 30.81

MANHOLE REHABILITATION

PART 1 – GENERAL

- 1.01 The technical criteria included in this specification are intended to establish a minimum guideline for the supply of cementitious manhole rehabilitation services.
- 1.02 This product will be used in existing manholes, wetwells, junction boxes and other structures as shown on plans.

PART 2 – MATERIALS AND EQUIPMENT

2.01 INFILTRATION CONTROL

- A. All fast setting materials furnished shall be designed to be applied in dry powder form, with no prior mixing of water, directly to active leaks under hydrostatic pressure in manholes or related structures. Materials shall consist of rapid setting cements, siliceous aggregates, and various accelerating agents.
- B. The approved infiltration control product shall be Sewper Coat PG by LaFarge, or approved equivalent.

1. Compressive Strength (ASTM C 109):

30 mins:	1,850 psi
3 days:	4,000 psi
7 days:	5,000 psi
28 days:	5,890 psi

2. Bond Strength (ASTM C 321):

30 mins:	50 psi
1 day:	85 psi

3. Set Time: 30 seconds.

2.02 INVERT REPAIR AND PATCHING

- A. All material furnished shall be designed to fill large voids in manhole walls and to repair or reconstruct inverts where no hydrostatic pressure exists. Material shall

consist of rapid setting cements, NSG aggregates, and various accelerating agents. Material shall not contain any lightweight aggregates, fillers, or product extenders.

- B. The approved invert repair and patching product shall be Quadex Hyperform, or approved equivalent.

1. Compressive Strength (ASTM C 109):

1 hour:	4,170 psi
3 hours:	5,840 psi
24 hours:	7,660 psi

2. Flexural Strength (ASTM C 348):

1 hour:	450 psi
3 hours:	625 psi
24 hours:	820 psi

3. Freeze-Thaw (ASTM C 666): 300 cycles with no damage.

4. Setting Time (ASTM C 266):

Initial:	15-18 mins
Final:	22-25 mins

2.03 CEMENTITIOUS COATING (LINER) MATERIALS FOR MANHOLE WALLS AND BENCHES

- A. All cementitious coating (liner) materials shall be specifically designed for the rehabilitation of manholes and other related wastewater structures. Liner materials shall be calcium aluminate cement based, poly-fiber reinforced, shrinkage compensated, and enhanced with chemical admixtures and siliceous aggregates. Materials shall not contain any lightweight aggregates, fillers, or product extenders. Liner materials shall be mixed with water per manufacturer's written specifications and applied using equipment specifically designed for low-pressure spray application of cement mortars. All cement liner materials must be capable of a placement thickness of one-half to four inches (1/2-4") in a one pass monolithic application.
- B. The approved cementitious coating (liner) material shall be Quadex Aluminaliner, or approved equivalent.

C. All cementitious coating materials shall conform to the following 28-day minimum physical properties.

1. Compressive Strength (ASTM C 109): 9500 psi.
2. Flexural Strength (ASTM C 2903): 1400 psi.
3. Bond Strength (ASTM C 882): 1500 psi.
4. Permeability (AASHTO T-277): Not to exceed 400 coulombs.
5. Freeze-Thaw (ASTM C 666): No damage in minimum 300 cycles.
6. Material Wet Density: Minimum 140 PCF.

2.04 MANHOLE CLEANING AND PREPARATION

A. The floor and interior walls of the manhole shall be thoroughly cleaned and made free of all foreign materials including dirt, grit, roots, grease, sludge and all debris or material that may be attached to the wall or bottom of the manhole.

1. High pressure water blasting with a minimum of 3,500 psi shall be used to clean all foreign material within the manhole.
2. When grease and oil are present within the manhole, an approved detergent or muriatic acid shall be used integrally with the high-pressure cleaning water.
3. All materials resulting from the cleaning of the manhole shall be removed prior to application of the cement based coating.
4. All loose or defective brick, grout, ledges, steps, and protruding ledges shall be removed to provide an even surface prior to application of cement based coating.
5. Sand blasting to remove previous coatings.

2.05 SEALING ACTIVE LEAKS

A. The work consists of hand applying a dry quick-setting cementitious mix designed to instantly stop running water or seepage in all types of concrete and masonry structures. The applicator shall apply material in accordance with manufacturer's recommendations and following specifications:

1. The area to be repaired must be clean and free of all debris per the guidelines set forth in section 2.04 Manhole Cleaning and Preparation.

2. Once cleaned, prepare crack or hole by chipping out loose material to a minimum depth and width of three-quarter inch (3/4").
3. With gloved hand, place a generous amount of the dry quick-setting cementitious material to the active leak, with a smooth fast motion, maintaining external pressure for 30 seconds, repeat until leak is stopped.
4. Proper application should not require any special mixing of product or special curing requirements after application.

2.06 INVERT REPAIR

- A. The work consists of hand mixing and applying a rapid setting, high early strength, non-shrink patching material to fill all large voids and repair inverts prior to spray lining of the manhole. For invert repairs, flow must be temporarily restricted by inflatable or mechanical plugs prior to cleaning.
 1. The area to be repaired must be cleaned and free of all debris per the guidelines set forth in section 2.04 Manhole Cleaning and Preparation.
 2. Mix water shall be clean potable water and require no additives or admixtures for use with cementitious patching materials.
 3. Cementitious material shall be mixed in a mortar tub or five (5) gallon pail with water per manufacturer's specifications. Material should be mixed in small quantities, to avoid setting prior to placement in voids or inverts.
 4. Once mixed to proper consistency, the materials shall be applied to the invert or void areas by hand or trowel. In invert applications, care should be taken to not apply excessive material in the channel which could restrict flow. Once applied, materials should be smoothed either by hand or trowel in order to facilitate flow.
 5. Flows in inverts can be reestablished within 30 minutes of material placement.

2.07 APPLICATION OF CEMENTITIOUS MANHOLE LINER

- A. The work consists of spray applying a cementitious based liner to the inside of the existing manhole. The necessary equipment and application methods to apply the cementitious based liner materials shall be only as approved by the material manufacturer. The applicator must demonstrate that he has been trained in the use and application of the material.
 1. Material shall be mixed with water in accordance with manufacturer's specifications and pumped via mono pump for spray application. Material shall be atomized by the introduction of air at the nozzle, creating a low-velocity spray pattern for material application.

2. Material shall be spray applied only when manhole is in a damp state, with no visible water dripping or running over the manhole walls.
3. Spraying shall be performed by starting at the manhole invert and progressing up the wall to the corbel and chimney areas. Material shall be applied to a uniform minimum thickness of one-half inch (1/2"). Material shall be applied to the bench area in such a manner as to provide for proper drainage without ponding.
4. Troweling of materials shall begin immediately following the spray application. Initial troweling shall be in an upward motion, to compress the material into voids and solidify manhole wall. Precautions should be taken not to overtrowel.
5. Curing will take place once the manhole cover has been replaced. It is important that the manhole cover is replaced no more than 10-20 minutes after troweling is complete to avoid moisture loss in the material due to sunlight and winds.
6. Material shall not be applied during freezing weather conditions. Material shall not be placed when the ambient temperature is 37°F and falling or when the temperature is anticipated to fall below 32°F during 24 hours.

PART 3 – EXECUTION

3.01 QUALITY CONTROL

- A. The quality and performance of the material shall be maintained by one or all of the following measures to be determined and specified by the ENGINEER or OWNER.
- B. Performance Testing.
 1. Vacuum Testing.
 2. Exfiltration Testing.
 3. Visual Inspection.
- C. Material Testing
 1. One (1) two-inch by two-inch (2" x 2") sample cube shall be taken for every 50 bags of material used. Samples shall be sprayed from nozzle, identified, and sent to an independent test laboratory for compression strength testing as described in ASTM C 109.

END OF SECTION

33 01 30.81 - 5

SECTION 30 01 30.82

HDPE SHEET LINER WASTEWATER PUMP STATIONS

PART 1 – GENERAL

1.01 SCOPE OF WORK

- A. Furnish and install all labor, materials, equipment, and incidentals required to supply and install High Density Polyethylene (HDPE) sheet lining in the lift station/pump station wet wells and manholes as required and as shown on the Drawings.
- B. HDPE liner shall be designed and installed to protect concrete surfaces from corrosion in the collections system pump station wet well.

1.02 SUBMITTALS

- A. The CONTRACTOR shall submit for review, as provided in the General Conditions and Section 01 33 23, complete detailed shop drawings for all materials furnished under this section.
- B. The manufacturer of the lining shall furnish an affidavit attesting to the successful use of its material as a lining for concrete structures for a minimum period of five (5) years in wastewater conditions recognized as corrosive or otherwise detrimental to concrete.

PART 2 – PRODUCTS

2.01 MATERIALS

- A. Composition.
 - 1. The material used in the liner and in all joint, corner, and welding strips shall be a combination of HDPE Resin, pigments, plasticizers, and stabilizers specially compounded to remain flexible. The ingredients added to the HDPE resin shall be limited to no more than three percent (3%), by weight, of the resin used in the formulation.
- B. Physical Properties.
 - 1. All HDPE liner sheet shall be extruded with a large number of anchoring studs; a minimum of 39/ft², manufactured during the extrusion process in one piece with the sheet, so there is no welding and no mechanical finishing work to attach the studs to the sheet. The liner shall have a resistance to pull out of T/ft²=3 and shall withstand a back pressure of 29 psi.

2. All HDPE liner plate sheets, including lock extensions, all joints, corner, and welding strips shall be free of cracks, cleavages, or other defects adversely affecting the protective characteristics of the material. The ENGINEER may authorize the repair of such defects by approved methods.
3. The lining shall have good impact resistance, shall be flexible, and shall have an elongation sufficient to bridge up to a one-third inch (1/3") settling crack which may occur in the pipe or in the joint after installation, without damage to the lining.
4. The lining shall be repairable at any time during the life of the structure.

C. Details and Dimensions.

1. HDPE liner sheet shall be a minimum of 0.079 inches (0.079") thick. Anchoring studs shall be of the same material as that of the liner and shall be integrally extruded with the sheet and shall have a minimum height of 0.39 inches (0.39") and a length of 0.55 inches (0.55").
2. Flat liner sheet (non-anchored) used for overlapping joints shall have a minimum thickness of 0.118 inches (0.118").
3. Liner sheet shall have a nominal width of 78 inches (78") and lengths of up to 780 inches (780"). Lengths specified shall include a tolerance at a ratio of plus one-third inch (+1/3") of each 100 inches (100").
4. Liner sheet shall be shop fabricated into shapes and sizes needed to completely cover the interior surfaces of the structure which are exposed to sewer gases.

D. Material.

1. Liner shall be AGRU Sure Grip as manufactured by Alois Gruber, or approved equal.

PART 3 – EXECUTION

3.01 SHOP FABRICATION

A. General.

1. Sheet liner shall be fabricated into suitable dimensions only by manufacturer certified fabricators.
2. The sheet manufacturer shall provide written certification of the fabricator and shall provide the necessary field supervision to ensure that the quality specified for fabrication is maintained.

3.02 INSTALLATION

A. General.

1. Installation of the lining, including preheating of sheets in cold weather (below +41°F) and the welding of all joints, shall be done in accordance with the recommendations of the manufacturer.
2. Coverage of the lining shall include all surfaces subject to attack from the raw wastewater and gasses.
3. The lining shall be held snugly in place against inner forms by means of banding straps or other means recommended by the manufacturer.
4. Concrete poured against lining shall be vibrated, spaded, or compacted in a careful manner so as to protect the lining and produce a dense, homogenous concrete, securely anchoring the locking extensions into the concrete.
5. In removing forms, care should be taken to protect the lining from damage. Sharp instruments shall not be used to pry forms from lined surfaces. When forms are removed, any nails that remain in the lining shall be pulled, without tearing the lining, and the resulting holes clearly marked. Form tie holes shall be marked before ties are broken off and all areas of serious abrasion or damage shall be marked.
6. All nail and tie holes and all cut, torn, and seriously abraded areas in the lining shall be patched. Patches made entirely with welding strip shall be fused to the liner over the entire patch area. Larger patches may consist of smooth liner sheet extrusion welded over the damaged area.
7. Hot joint compounds, such as coal tar, shall not be poured or applied to the lining.
8. The CONTRACTOR shall take all necessary measures to prevent damage to installed lining from equipment and materials used in or taken through the work.

B. Application to Cast-in-Place Concrete.

1. Liner sheet shall be closely fitted and properly secured to the inner forms. Sheets shall be cut to fit curved and warped surfaces using a minimum number of separate pieces. If liner joints are to be Type C-3 joints the adjacent sheets shall be butted with not more than one-eighth inch (1/8") opening between sheets and joined together with a specifically designed "Tear-Off" joining strip made by the manufacturer of the liner which prevents concrete from entering the seam during the pouring process and hold the sections of sheet together at the seam.

2. Unless otherwise shown on the drawings, the lining shall be bonded to items not of concrete (including manhole frames, gate guides, access hatches, clay pipe, or brick manholes, and clay or cast iron pipes). The same procedure shall be followed at joints where the type of protective lining is changed or the new work is built to join existing unlined concrete. At each point of transition, the liner shall be sealed to the non-lined material using a polyester backed HDPE transition sheet which will bond to the unlined section using an elastomeric adhesive recommended by the manufacturer, the transition sheet will be extrusion welded to the concrete liner.

C. Joints in Lining for Cast-in-Place Concrete Structures.

1. Lining at joints shall be free of all mortar and other foreign material and shall be clean and dry before joints are made. The manufacturer of the liner shall provide special "Tear-Off" profile strips which can be used to join the two edges of the liner and keep the seam clean during the forming process. When "Tear-Off" strips are used, the adjoining edges of the liner may be connected by wiring the anchor studs on each side of the seam with forming wire at 10 inch intervals.
2. Field joints in the lining shall be of the following described types, used as prescribed.
 - a. Type C-1: The joint shall be made with a separate four inch (4") joint strip. The four inch (4") joint strip shall be centered over the joint, tack welded to the liner, then welded along each edge to adjacent sheets. The width of the space between adjacent sheets shall not exceed two inches (2"). The four inch (4") strip shall lap over each sheet a minimum of one inch (1"). It may be used at any transverse or longitudinal joint.
 - b. Type C-2: The joint shall be made by lapping sheets not less than one inch (1"). The upstream sheet shall overlap the downstream. The lap shall be tack welded into place prior to welding.
 - c. Type C-3: The joint shall be made by using an HDPE "Tear-Off" strip to hold the butt joint together and to prevent wet concrete from getting under the sheet. After the forms have been stripped, the "Tear-Off" strip is removed and the seam extrusion welded.
3. All welding is to be in strict conformance with the specifications of the lining manufacturer. All welding is to be done by approved applicators.
4. Joints not incorporating a welding technique shall be made using a Ramnek gasket or other prior approved joint material.

D. Testing and Repairing Damaged Surfaces

1. After the liner is installed, all surfaces covered with lining, including welds, shall be tested with an approved electrical hold detector.
2. All welds shall be physically tested by a nondestructive probing method. All patches over holes, or repairs to the liner wherever damage has occurred, shall be accomplished in accordance with paragraph 3.02(A)(6).

END OF SECTION

SECTION 33 01 30.83

WETWELL LINING SYSTEMS

PART 1 – GENERAL

1.01 SITE ACCESS

- A. Accessibility to the master lift station shall be the responsibility of the CONTRACTOR, and all expenses associated with work site accessibility should be taken into consideration as part of the CONTRACTOR's bid preparation. Damage to existing pavement surfaces and base courses, and/or other surface improvements, as a result of the CONTRACTOR's activities, shall be restored to like-new condition by the CONTRACTOR at his sole expense. The CONTRACTOR shall implement all required measures to provide the OWNER's personnel and equipment with complete access to all work site areas during the entire course of performing this project.

1.02 SCOPE OF WORK

- A. The major elements of the proposed project work are summarized as follows: furnish all labor, materials, and equipment necessary to rehabilitate the interior surface areas of an existing sewer lift station structure using a structural composite liner system. The composite liner system shall consist of both a high strength structural cementitious build-up layer and a corrosion resistant 100 percent (100%) solids epoxy coating system. The work includes mobilization, bypass pumping (as Additional Pricing), removal of any existing deteriorated coating, preparation of lift station structure to be lined, furnishing and applying the specified cementitious and epoxy coating materials to the interior surface areas of the lift station, applicable QA/QC testing, clean-up, and demobilization.

1.03 INSPECTION OF THE WORK

- A. The ENGINEER will provide construction observation services to monitor project quality and determine conformance of the work with the specifications. Each step of the work described herein is subject to inspection and approval by the ENGINEER prior to proceeding with subsequent phases of the work.

1.04 MATERIALS AND EQUIPMENT

- A. All materials, equipment, and types of construction shall be in accordance with these Technical Specifications and shall conform to the requirements of all applicable laws, ordinances, and codes.

- B. All materials and equipment to be incorporated into the work shall be new, unused, and properly designed for the use intended. Materials and/or equipment which, in the opinion of the ENGINEER are inferior or of a lower grade than specified, or required, will not be accepted and shall be removed immediately from the project site.

1.05 EQUIVALENT PRODUCTS AND MATERIALS

- A. If “Or Equal” products are allowed herein, then all material or equipment submitted for consideration as “Or Equal” to that specified must include sufficient written information and data to demonstrate that the material or equipment conforms to the Contract Document requirements. The ENGINEER shall be the sole judge as to whether or not such material or equipment is equal to that specified or required herein.
- B. Upon rejection of any material or equipment submitted as the equivalent of that specifically named in the Contract, the CONTRACTOR shall furnish the specified material or equipment at no additional cost to the OWNER.
- C. Neither the approval by the ENGINEER of any alternate material or equipment as being equivalent to that specified, nor the furnishing of the material or equipment specified, shall in any way relieve the CONTRACTOR of responsibility for failure of the material or equipment, due to faulty design, material, or workmanship, to perform the functions required by the Contract Documents.

1.06 MATERIAL AND EQUIPMENT DELIVERY AND STORAGE

- A. The CONTRACTOR shall deliver materials in sufficient quantities to ensure the most timely and uninterrupted progress of the work. All materials and equipment shall be stored in strict accordance with the manufacturer’s recommendations. Products shall also be stored and handled according to their Material Safety Data Sheets (MSDS).

1.07 SPILL OR DISCHARGE OF WASTEWATER

- A. The discharge of wastewater into the environment is prohibited. All spills or discharges of wastewater shall be immediately reported to the ENGINEER, the OWNER, and the F.D.E.P. The CONTRACTOR also shall immediately control, contain, and stop the spill or discharge and shall repair any damage at no additional cost to the OWNER.
- B. The CONTRACTOR is solely responsible for all fines and labor, materials, and equipment costs incurred by the OWNER for wastewater spills or discharges to the environment resulting from the CONTRACTOR’s actions or the CONTRACTOR’s negligence.

1.08 TECHNICAL REFERENCES

- A. ASTM – The published standards of the American Society for Testing and Materials, West Conshohocken, PA.
- B. NACE – The published standards of National Association of Corrosion Engineers (NACE International), Houston, TX.
- C. SSPC – The published standards of the Society of Protective Coatings, Pittsburgh, PA.
- D. Los Angeles County Sanitation District – Evaluation of Protective Coatings for Concrete.
- E. ASTM C 109 – Compressive Strength of Hydraulic Cement Mortars.
- F. ASTM C 293 – Flexural Strength of Concrete.
- G. ASTM C 321 – Bond Strength of Chemical Resistant Mortars.
- H. ASTM C 666 – Resistance of Concrete to Rapid Freezing/Thawing.
- I. ASTM C 596 – Drying Shrinkage of Mortar Containing Cement.
- J. AASHTO –T277 – Rapid Chloride Permeability of Cement.
- K. ASTM C 1244 – Concrete Sewer Manholes by Negative Air Pressure (Vacuum) Test.
- L. ASTM D 638 – Tensile Properties of Plastics.
- M. ASTM D 790 – Flexural Properties of Unreinforced and Reinforced Plastics.
- N. ASTM D 695 – Compressive Properties of Rigid Plastics.
- O. ASTM D 4541 – Pull-off Strength of Coatings Using a Portable Adhesion Tester.
- P. ASTM D 2584 – Volatile Matter Content.
- Q. ASTM D 2240 – Durometer Hardness, Type D.
- R. ASTM D 543 – Resistance of Plastics to Chemical Reagents.
- S. ASTM C 109 – Compressive Strength Hydraulic Cement Mortars.

- T. ACI 506.2-77 – Specifications for Materials, Proportioning, and Application of Shotcrete.
- U. ASTM C 579 – Compressive Strength of Chemically Setting Silicate and Silica Chemical Resistant Mortars.
- V. NACE 6/SSPC SP13 – Joint Surface Preparation Standard - Surface Preparation of Concrete.

1.09 SUBMITTALS

A. Product Data.

- 1. Technical data sheet on each product proposed to be furnished demonstrating compliance with these specifications including independent ASTM test results indicating the product conforms to the published technical data.
- 2. MSDS for each product proposed to be furnished.

B. Application Guidelines.

- 1. Project specific guidelines and recommendations.
- 2. Proof of any required federal, state or local permits or licenses necessary for the project.
- 3. Design details for any ancillary systems and equipment to be used in site and surface preparation, application, and testing.
- 4. Written warranty.

C. Certifications.

- 1. Submit all Applicator Qualifications specified in Part 1.10 A.

D. “Or Equal” Submittal. In order to be considered as an equal product, said product will have to meet the minimum physical properties of the approved products as referenced in Paragraph 2.4 as measured by the applicable ASTM standards referenced in Paragraph 1.8. Testing results must be performed and presented by a third-party testing laboratory.

E. “Or Equal” products shall be submitted to the ENGINEER a minimum of two (2) weeks prior to bid date. In order for a product to be considered “equal” the submitted product must receive written approval via addendum to the current bid documents prior to the bid date. Only applicators that have been trained and

certified by the approved liner system manufacturers are allowed to install the structural liner system specified herein.

1.10 QUALITY ASSURANCE

A. Applicator Qualifications.

1. Manufacturer certification that Applicator has been trained and approved in the handling, mixing, and application of the products to be used.
2. Certification that the equipment to be used for applying the products has been manufactured or approved by the cement or epoxy coating manufacturer and Applicator personnel have been trained and certified for proper use of the equipment.
3. Applicator shall initiate and enforce quality control procedures consistent with applicable ASTM, NACE, and SSPC standards and both the cementitious and epoxy material manufacturer's recommendations.
4. The installer/applicator shall submit a list of at least five (5) project references including project name, location, work performed, contract amount, completion date, contact person and phone number, and where similar work as specified herein has been performed.

1.11 WARRANTY

- ### A.
- The Applicator shall warrant all work against defects in materials and workmanship for a period of one (1) year, unless otherwise noted, from the date of final acceptance of the project. Applicator shall, within a reasonable time after receipt of written notice thereof, repair defects in materials or workmanship which may develop during said one (1) year period, and any damage to other work caused by such defects or the repairing of same, at his own expense and without additional cost to the OWNER.

PART 2 – LIFT STATION SURFACE CONDITION ASSESSMENT

2.01 QUALIFICATION OF APPLICABLE SURFACE REPAIR

- ### A.
- The existing substrate of the master lift station to be rehabilitated under this project has been subjected to harsh biogenic hydrogen sulfide corrosion during its operational lifetime. It is anticipated that the depth of this corrosive attack and resulting degradation will likely vary by surface region throughout the interior walls, floor, and ceiling of the structure. In consideration of this variance in surface deterioration, the CONTRACTOR, in conjunction with the OWNER will conduct a surface area analysis of the existing substrate areas prior to

commencement of any lining application. Surface areas will be classified based on the following condition assessments.

1. Condition I Surface Areas.
 - a. The surface area, once cleaned and abraded, has experienced only minor biogenic corrosion to the host substrate, and deteriorated areas do not appear to compromise the load bearing integrity of the surface area. The surface loss in the Condition I areas should not exceed one inch (1.0").
2. Condition II Surface Areas.
 - a. The surface area, once cleaned and abraded, may exhibit corrosion as evidenced in Condition I, but also has some areas with moderate to severe deterioration. Degradation may include signs of initial structural fatigue; however, the existing surface area should be sufficient to sustain and support both soil and live loading. The surface loss in the Condition II areas should not exceed one and a half inches (1.5").

2.02 APPROPRIATE CONDITION BASED REPAIR METHODS

- A. Subsequent to the aforementioned condition assessment, the CONTRACTOR will execute the application of the appropriate condition based repair method. The appropriate repair method shall be based on the following minimum design.
 1. All surface areas identified as Condition I shall receive application of the specified calcium aluminate cementitious structural build-back material at a minimum thickness of one inch (1.0").
 2. All surface areas identified as Condition II shall receive application of the specified calcium aluminate cementitious structural build-back material at a minimum thickness of one and a half inches (1.5").
 3. All interior surface areas, regardless of area condition assessment, will receive an application of the approved epoxy coating material at a minimum uniform thickness of 150 mils.

PART 3 – PRODUCTS

3.01 EXISTING PRODUCTS

- A. Cementitious patching and repair materials shall not be used unless proof of suitability and compatibility with the herein approved cementitious and epoxy materials is provided in writing by the cementitious and epoxy material

manufacturers. Project specific submittals should be provided including application, cure time, and surface preparation procedures that permit optimum bond strength with the epoxy coating.

- B. Remove existing coatings prior to application of the new cementitious lining and/or epoxy coating. Applicator is to maintain strict adherence to all manufacturer's recommendations with regard to proper surface preparation and compatibility with existing coatings.

3.02 CEMENTITIOUS & EPOXY COATING MANUFACTURERS

- A. Quadex, Inc., 1 Country Club Circle, Maumelle, AR (888)-831-1650 or (501) 803-9400 or FAX (501) 803- 9444, or ENGINEER approved equal.
- B. Raven Lining Systems, Inc., Tulsa, Oklahoma (800)-324-2810 or (918)-584-2810 or FAX (918)-582-4311, or ENGINEER approved equal.

3.03 REPAIR MATERIALS

- A. Patching and infiltration control repair materials shall be used to fill voids, structurally reinforce, and/or rebuild surfaces, etc. as determined necessary by the OWNER and CONTRACTOR. Repair materials must be compatible for use with the specified cement and/or epoxy system and shall be applied in accordance with the manufacturer's recommendations.
- B. The following products may be accepted and approved as compatible repair and infiltration materials for use within the specifications:
 - 1. Infiltration Control.
 - a. All fast setting infiltration control materials furnished shall be designed to be applied in dry powder form, with no prior mixing of water, directly to active leaks under hydrostatic pressure in manholes or related structures. Materials shall consist of rapid setting cements, siliceous aggregates, and various accelerating agents. Material shall not contain chlorides, gypsum, or metallic particles.
 - 2. Invert Repair and Patching.
 - a. All material furnished shall be designed to fill voids and to repair or reconstruct where no hydrostatic pressure exists. Material shall consist of rapid setting cements, high density non-absorptive aggregates, and various accelerating agents. Material shall not contain chlorides, gypsum, or metallic particles.

3. Structural Cementitious Liner Material.

- a. Material shall consist of a one component, fiber reinforced, fused calcium aluminate mortar, enhanced with a high density, chemically stable monocrystalline quartz aggregate.

4. Epoxy Coating Material.

- a. Material shall consist of a 100 percent (100%) solid, solvent-free two (2)-component epoxy resin system that is thixotropic in nature and filled with select fillers to minimize permeability and provide sag resistance.

Product Type	Amine Cured Epoxy
Color	Light Blue
Solids Content (% volume)	100
Mix Ratio	Three to One (3:1)
Compressive Strength (psi)	18,000
Tensile Strength (psi)	7,600
Tensile Elongation (%)	One and a Half (1.5)
Flexural Strength (psi)	13,000
Hardness, Type D	88
Bond Strength – Concrete	>Tensile Strength of Concrete
Chemical Resistance	
Severe Municipal Sewer	All Types of Service

3.04 CEMENTITIOUS LINING APPLICATION EQUIPMENT

- A. Only manufacturer approved low-velocity cementitious wet spray system shall be used in the application of the specified cementitious liner material. System shall consist of a batch style mixer, progressive cavity (rotor/stator) style mortar pump, and low-velocity spray nozzle. No gunite applications will be allowed.

3.05 EPOXY COATING APPLICATION EQUIPMENT

- A. Only manufacturer approved heated plural component spray equipment shall be used in the application of the specified epoxy coating. No hand or brush application of the epoxy materials will be allowed.

PART 4 – EXECUTION

4.01 APPLICATOR QUALIFICATIONS

- A. Repair material applicators shall be trained to properly apply the cementitious mortar according to manufacturer's recommendations.
- B. All cementitious and epoxy materials must be applied by a Certified Applicator of the product manufacturer and according to manufacturer specifications.

4.02 SURFACE PREPARATION

- A. Applicator shall inspect all specified surfaces prior to surface preparation. Applicator shall notify OWNER of any noticeable disparity in the surfaces that may interfere with the proper preparation or application of the specified repair materials.
- B. Applicator personnel shall directly perform all aspects of surface preparation and shall not subcontract any element of surface preparation.
- C. All contaminants including: oils, grease, incompatible existing coatings, waxes, form release, curing compounds, efflorescence, sealers, salts, or other contaminants shall be removed. All concrete or mortar that is not sound or has been damaged by chemical exposure shall be removed to a sound concrete surface or replaced.
- D. Surface preparation method(s) should be based upon the conditions of the substrate, service environment and the requirements of the appropriate condition based repair method to be applied. Surfaces to receive repair materials shall be cleaned and abraded to produce a sound surface with adequate profile and porosity to provide a strong bond between the repair materials and the substrate.
- E. Infiltration shall be stopped by using a material that is compatible with the appropriate and selected condition based repair method. All costs associated with minor infiltration control shall be considered inclusive with the cost of the application of the appropriate cement and/or epoxy application. Moderate to severe infiltration control may require the use of chemical injection grouting. If warranted, chemical injection grouting will involve a separate Payment item based of the contract unit price bid in the Itemized Proposal for each grouting application.

- F. All surfaces shall be examined by the Inspector both during and after preparation and before the repair material is applied.

4.03 APPLICATION OF CEMENTITIOUS LINER MATERIAL

- A. For each bag of product, use the amount of water required per manufacturer's recommendations following mixing procedures noted on product container and using the approved equipment for mixing and material application. The cementitious liner material will require only the addition of potable water during mixing. No other materials will be added during the mixing process without prior written consent from the material manufacturer.
- B. Once materials have been mixed to an appropriate consistency, caution should be taken as to not over mix the mortar material.
- C. The surface prior to application of the cementitious liner shall be clean and free of all foreign material and shall be damp without noticeable free water droplets or running water, but totally saturated just prior to application of the liner material. No application shall be made to a dry surface.
- D. The material shall be spray applied in a consistent manner to create a minimum uniform thickness per appropriate surface area condition assessment.
- E. Troweling of the liner material shall begin immediately following the spray voids in the manhole wall, and creating a relatively smooth finish on the surface of the liner material. Precautions should be taken not to over-trowel the material.
- F. Immediately upon completion of the troweling phase, a wet-brush finish shall be applied to all surface areas of the cementitious liner material.
- G. The cementitious liner material shall be cured in accordance with ACI recommendations. A water based curing compound may be used when necessary.
- H. The liner material, once placed, shall have a minimum of eight (8) hours cure time before being subjected to active flow of surcharge.
- I. In high traffic areas, the manhole should be barricaded and traffic withheld for a minimum of 12 hours after application is complete.
- J. Caution should be taken to minimize exposure of applied product to sunlight and air movement. If application of additional materials is to be longer than 15 minutes, the structure shall be covered. At no time, should the finished product be exposed to sunlight or air movement for longer than 15 minutes before covering or closing access. In extremely hot and arid climates, the manhole shall be shaded while reconstruction is in process. In environments where humidity level is below

70 percent (70%), it shall be necessary to keep finished product damp for the first 72 hours.

- K. No application shall be made to frozen surfaces or if freezing is expected to occur within the substrate within 24 hours after the application. Precautions shall be taken to keep the mix temperature at time of the application below 90°F. Mix water temperature shall not exceed 80°F. Mix water may be chilled with ice if necessary.
- L. Payment will be made on the basis of the contract unit price bid in the Itemized Proposal for each square foot of cementitious build-back that is installed.

4.04 APPLICATION OF EPOXY COATING

- A. Application procedures shall conform to the recommendations of the epoxy coating manufacturer, including material handling, mixing, and environmental controls during application, safety, and spray equipment.
- B. The spray equipment shall be specifically designed to accurately ratio and apply the specified epoxy coating materials and shall be regularly maintained and in proper working order.
- C. Testing for soundness of substrate: upon completion of initial surface preparation, Applicator shall make a visual examination of the surfaces that were prepared to identify areas requiring additional preparation. A screwdriver shall be used to scratch the surface. Should the screwdriver easily remove or dig into any portion of the surface, further preparation shall be required. Retest until a screwdriver cannot scratch the surface.
- D. Testing for contaminants: a water drop test shall be used to test the surface for the presence of hydrophobic contaminants. Applicator shall place a drop of water on the surface in at least four representative locations in the manhole and its wetting behavior shall be observed. If the water droplet flattens out and “wets out” the surface, it is likely the surface is not contaminated. If the water droplet beads up and does not “wet out” the surface, it is likely the surface is contaminated. To remove hydrophobic contaminants the Applicator shall either add an epoxy coating manufacturer approved degreaser to the water blasting process and rewash the interior of the manhole, or utilize another process such as steam cleaning, sodium bicarbonate injection, or abrasive blasting for removal of the contaminants. If contaminants are found and removed, retest the contaminated areas using the water drop test until the contaminants are gone.
- E. Ambient conditions: Applicator shall record air temperature inside the manhole and prevailing weather conditions at the time of coating application.

- F. Specified and properly prepared surfaces shall be coated by roller or spray application of a moisture tolerant, solvent-free, 100 percent (100%) solid, epoxy primer as further described herein. Application shall cover all specified surfaces to a minimum dry film thickness of 150 mils.
- G. During application, Applicator shall regularly perform and record epoxy coating thickness readings with a wet film thickness gage, such as those available through Paul N. Gardner Company, Inc. meeting ASTM D 4414 – Standard Practice for Measurement of Wet Film Thickness of Organic Coatings by Notched Gages, to ensure uniform thickness during application.
- H. Top coating or additional coats of the epoxy coating should occur as soon as the prior coat becomes tack free, but no later than the recoat window for the specified products (24 hours). Additional surface preparation procedures will be required if this recoat window is exceeded.
- I. Installation of the epoxy coating shall not commence until the concrete substrate has properly cured in accordance with these specifications.
- J. Payment will be made on the basis of the contract unit price bid in the Itemized Proposal for each square foot of manhole epoxy application.

PART 5 – ANCILLARY LIFT STATION REPAIR ITEMS

5.01 BYPASS PUMPING

- A. If warranted to facilitate any aspect of the manhole or lift station restoration process, the CONTRACTOR shall provide a bypass pumping system that is capable of handling a minimum flow of 1,000 GPM at 50 psi. The CONTRACTOR shall also provide a secondary or standby pump system that is capable of handling similar flows in the event that the primary pump system experiences flows greater than 1,000 GPM, or if the first pump fails. Both pumping units shall be provided with the following items: sound reduction compartments, floatation sensors, automatic dialers, and internal and external check valve assemblies.
- B. Any requirement for bypass pumping shall be submitted by the CONTRACTOR to the ENGINEER for review and approval prior to commencement of actual sewer bypass. The ENGINEER shall have sole discretion in determining the necessity for any bypass pumping. No bypass pumping shall be executed without prior approval of the ENGINEER.
- C. Payment will be made on the basis of the contract unit price bid in the Itemized Proposal for any specific structure that requires bypass pumping. Payments for manhole bypass pumping will be limited to one installment per manhole. Any subsequent or additionally required bypass pumping will be at the sole responsibility and expense of the CONTRACTOR.

PART 6 – INSPECTION AND PERFORMANCE TESTING

6.01 PROTECTIVE LINER INSPECTION

- A. After the specified repair and rehabilitation work has been completed, the lift station shall be visually reviewed and tested by the CONTRACTOR in the presence of the OWNER. Visual review shall be for water tightness against leakage of water into the structure. All visible leaks and defects observed during the review shall be repaired to the OWNER's satisfaction. There shall be no visible infiltration.

6.02 PROTECTIVE LINER PERFORMANCE TESTING

- A. In addition to the visual inspection, will be subjected to the following in-field performance testing requirements as a prerequisite for CONTRACTOR payment.
- B. All equipment, materials, and work associated with the prescribed performance testing requirements shall be at the sole expense of the CONTRACTOR.

6.03 EPOXY COATING SPARK TESTING

- A. The epoxy coating shall be tested using a holiday or spark test method to identify any pinholes or holidays that were not detected during the visual inspection.
- B. The CONTRACTOR shall perform holiday detection on all surfaces coated with the epoxy coating in the presence of Inspector.
- C. After the epoxy coating has set hard to the touch, surfaces shall first be dried; an induced holiday shall then be made on to the coated concrete surface and shall serve to determine the minimum/maximum voltage to be used to test the coating for holidays at that particular area.
- D. The spark tester shall be initially set at 100 volts per one (1) mil (25 microns) of film thickness applied but may be adjusted as necessary to detect the induced holiday (ref. NACE RPO188-99).
- E. All detected holidays shall be marked and repaired by abrading the coating surface with grit disk paper or other hand tooling method. After abrading and cleaning, additional epoxy coating material can be hand applied to the repair area. All touch-up/repair procedures shall follow the epoxy coating manufacturer's recommendations.

END OF SECTION

SECTION 33 05 60

MANHOLES

PART 1 – GENERAL

1.01 WORK INCLUDED

- A. The work of this section consists of construction of brick or precast concrete manholes at the locations shown on the drawings.

1.02 QUALITY ASSURANCE

- A. All materials shall be tested for conformance with the specified standards. Reports of tests performed by the Manufacturer or by an independent laboratory shall be furnished with each shipment.
- B. Standards. Florida Department of Transportation, Standard Specifications for Road and Bridge Construction, hereafter called the Standard Specifications, latest edition.

PART 2 – MATERIALS AND EQUIPMENT

2.01 PRECAST CONCRETE.

- A. Precast manholes shall be composed of precast reinforced concrete bases, risers, grade rings, and tops which have been designed and fabricated in accordance with the requirements of ASTM C 478, with the exception that wall thickness shall be one-inch (1") greater than those specified in ASTM C 478. Materials used in fabrication shall conform to the requirements of the Standard Cement used in construction of precast manhole components shall be Type II Portland cement conforming to the requirements of ASTM C 150.

2.02 JOINT MATERIAL.

- A. Joint material for use between precast manhole sections shall be cold adhesive preformed plastic gaskets conforming to the requirements of Section 942, Pipe Gaskets, of the Standard Specifications.
- B. Joints for pipe entry into manholes shall be of the type which uses a rubber gasket as the sealing medium. The rubber gasket shall be cast into the manhole section in such a manner as to form a water tight joint when the pipe is inserted. Gaskets shall conform to the requirements of ASTM C 445.

2.03 BRICK

- A. Brick for construction of manholes shall conform to the requirements of ASTM C 32, Grade MS or to the requirements of Federal Specification SS-B-656.

2.04 CONCRETE

- A. Concrete for use in construction of brick manholes shall develop a compressive strength of not less than 2,500 psi at 28 days. Cement used in concrete for manhole construction shall be Type II Portland cement conforming to the requirements of ASTM C 150.

2.05 MORTAR

- A. Mortar for manhole construction shall consist of one-part Type II Portland cement and two parts of fine sand with water added for proper consistency. Lime shall not be used in mortar for manholes.
- B. Portland cement for use in mortar and grout shall conform to the requirements of ASTM C 150, Type II.
- C. Sand for use in mortar and grout shall conform to the requirements of ASTM C 144.

2.06 MANHOLE FRAMES AND COVERS

- A. Manhole frames and covers shall be gray iron casings conforming to the dimensions shown or equivalent foundry patterns. All mating surfaces shall be machined to prevent rocking or rattling of frames and covers. Casings shall be free of cracks, blow holes, or swells and shall have a smooth and workmanlike finish. Casing shall conform to the requirements of ASTM A 48. Manhole covers shall be of the concealed pickhole design and shall have the name of the OWNER and use of the line on which it is installed cast in the cover.

2.07 COATING MATERIALS

- B. Coating materials for use on the interior of manholes shall be thermosetting plastic of the modified epoxy type consisting of 100 percent (100%) non-volatile material. Material for use on the exterior of manholes shall be Coal-tar epoxy, Koppers Bitumastic No. 300-M or Porter Series 7000-Torset, Rust-Oleum 9578, or equivalent.

PART 3 – EXECUTION

3.01 BRICK MANHOLES

- A. Manholes shall be constructed of brick masonry, with cast iron frames and covers as previously specified. Mortar shall be properly proportioned, thoroughly mixed, and used immediately. Any mortar entering the initial set, requiring additional water or heating, shall be discarded.
- B. Bricks will be laid radially and pressed into the mortar spread on the previous course. Each brick will be pressed against the adjoining brick so that inside vertical corners touch. The mortar shall totally fill all space between bricks. The inside wall of the manhole shall be wiped clean of excess mortar.
- C. Excess mortar on the outside of the manhole shall be kept troweled smooth or cut off. Corbels are to be concentric, and built in 12 courses, unless otherwise specified. The exterior of the manhole shall be plastered to a five-eighth inch (5/8") thickness, shrinkage cracks shall be sealed by brushing before the final set. Risers between corbels and cast iron frames shall be limited to 12 inches (12").
- D. The exterior plastered surface of the manholes shall be coated with an approved asphaltic waterproofing material. When outside drops are constructed on manholes, the drop shall be entirely supported by the slab. The drop stack may be formed by brick and poured with concrete, or built up with brick and mortar. Memphis Tees shall be used in the drop structures.
- E. All drop manholes and all manholes receiving the discharge from force mains shall have the inside surfaces coated as specified for precast manholes.

3.02 PRECAST MANHOLES

- A. Precast, reinforced concrete manholes shall have tongue and groove interlocking joints. Inverts shall be formed as specified herein. Shop drawings shall be submitted and approved by the ENGINEER prior to CONTRACTOR placing order with supplier.
- B. Any modifications necessary to adapt the units to conform to the locations and grades shown or required shall be made without additional compensation. It shall be the responsibility of the CONTRACTOR to assure that all manhole inlets are provided at the proper locations and elevations to accommodate the actual field requirements without additional compensation.
- C. Slabs for precast manholes will extend a minimum of 6 inches (6") beyond the outside face of the manhole wall.

- D. All slabs for precast drop manholes shall be of sufficient size to entirely support the drop structure.

3.03 MANHOLE UNITS

- A. Precast manholes shall consist of a base unit with openings for the sewer pipe, riser units of various lengths to build the manhole up to the required depth and concentric cones. The minimum height of the shortest riser shall be 12 inches (12").
- B. All fiberglass products shall be subject to OCFC visual inspection standards prior to installation. This system shall be used where shown in the drawings.
- C. Fiberglass manhole liners shall be constructed on the base slab as specified and shall be encased by brick masonry as previously specified under "Brick Manholes".
- D. Any pipe entering through the manhole walls with an invert equal to or high than the benches will be sealed all around to the interior walls by use of fiberglass patching kit. There shall be no mortar exposed above bench level.

3.04 INVERTS

- A. Invert channels shall be constructed smooth and semicircular, conforming to the inside of adjacent sewer section. The mortared invert channel shall have a steel trowel finish. Changes in direction of flow shall be made in a smooth curve of as large a radius as possible. Changes in size and grade shall be made gradually and smoothly. Whenever possible, inverts shall be formed with a full section to pipe, laid through the manhole and breaking out the top half.
- B. Benches shall be built up solidly with concrete or brick and mortar shall be sloping to the invert.
- C. All inside drops shall have a flume constructed to channel flow into the invert. Standard drop manholes shall be built whenever the inside drop exceeds 24 inches (24"). All pipe entering the manhole must be trimmed flush with the walls. All exposed sharp edges of pipe shall be wiped smooth with mortar.
- D. The manhole floor shall be sloped towards the channels on a slope of two inches (2") per foot.

3.05 INSPECTION OF LINES AND MANHOLES

- A. Inspection of completed lines and manholes shall be scheduled within a reasonable time after construction or when required by the ENGINEER.
- B. Before scheduling an inspection, the CONTRACTOR shall prepare the lines by cleaning and flushing. Manholes shall be clean, finished, and free of leaks.

- C. Infiltration of gravity sewers between successive manholes shall not exceed that specified. Where lines are laid above the water table, the ENGINEER may require the CONTRACTOR to perform exfiltration tests between manholes. The exfiltration tests will be conducted with a constant three feet (3') of head at the upstream manhole. The exfiltration rate shall not exceed the allowable infiltration rate.
- D. Manholes shall be on a true and uniform grade. The inverts shall have a smooth steel troweled finish. All benches shall be uniformly sloping. The frames shall be tight and properly set in mortar on solid masonry. The invert, benches, and adjacent pipe shall be free of splattered mortar. All required interior lining or paint shall be kept intact. Manhole frames shall be adjusted to grade with the covers and frames cleaned and free of mortar and asphaltic mixtures. All precast manhole seams shall be filled with an approved asphaltic compound.
- E. Pipe between manholes shall be line and grade. Inspection shall be by mirror and sunlight, and, when required, will be followed by air testing and/or television inspection at the CONTRACTOR's expense. CONTRACTOR shall provide personnel to assist with inspections.
- F. All known or indicated breaks shall be repaired by the CONTRACTOR regardless of the test allowances.
- G. Faulty sections of sewer lines or manholes rejected by the ENGINEER shall be removed and relaid by the CONTRACTOR. Sunken manholes will not be accepted.
- H. All exposed interior surfaces and the tongue and groove ends of each unit shall be sand blasted and brushed clean and immediately thereafter completely coated with a protective coating of not less than 15 mils of Koppers 300 M, Tnemec TnemeTar No. 46-413, or equal. The coating shall be applied in strict accordance with manufacturer's recommendations.
- I. All exterior surfaces shall be brushed clean and immediately thereafter completely coated with a protected coating of not less than 15 mils of Koppers 300 M, Tnemec Tneme-Tar No. 46-413, or equal. The coating shall be applied in strict accordance with the manufacturer's recommendations.
- J. The interior and exterior paint shall be intact and continuous. Any chips or holidays shall be patched using one thick coat of Koppers 300 M, Tnemec Tneme-Tar No. 46-413, or equal, used according to manufacturer's instructions and with the knowledge of the ENGINEER.
- K. Top and bottom ends or riser or sections shall be perfectly formed so that continuous and uniform contact is possible around the entire joint. Malformed joints shall be rejected.

3.06 INSTALLATION

- A. All slabs or bottom sections shall be installed at a grade that will allow clearance under the bells of the pipe. All slabs or bottom sections shall be solidly installed on three-quarter inch (3/4") bedding stone which has been compacted against firm undisturbed ditch bottom. Depth of bedding stone will be as directed by the ENGINEER.
- B. The tongue and groove ends of each unit shall be primed with Ram-nek primer and allowed to dry. Immediately before placing the next unit, the joints shall receive a coating of Ram-nek. Enough plastic material shall be placed in the joint to squeeze a bead of excess material out of the joint insuring a completely sealed joint. Outside of manhole section joints to be packed with mortar and wiped.
- C. In lieu of the above jointing procedure, the CONTRACTOR may use an epoxy type bonding mortar to join the units and trowel Intertol Plastic (Trowel Grade), or equal, into both the interior and exterior joints insuring a watertight joint. Outside of manhole section joints to be packed with mortar and wiped.
- D. The top of the cone shall be set between two and one-half inches (2-1/2") and 14-1/2 inches (14-1/2") below the bottom of the manhole cover frame. It is the intent of the specifications to provide a minimum of two and one-half inches (2-1/2") to accommodate future grade changes without disturbing the manhole. Where the distance between the bottom of the manhole cover frame and the top of the cone is greater than 14-1/2 inches (14-1/2"), 12-inch (12") riser units shall be used to bring the top of the cone to within the limits specified.
- E. The annular space between the sewer pipe and the opening in the manhole shall be grouted with Portland Cement mortar and wiped or collared to insure a watertight joint.

3.07 FIBERGLASS LINED MANHOLES

- A. Fiberglass liners shall be specifically manufactured for sewer use by a reputable firm such as Owens Corning Fiberglass Corporation, Armco Construction Products Division, or equal. These products shall meet all requirements of latest ASTM Designation C-582 (plastic laminates) and ASTM Designation C-581 (chemical resistance). The properly installed liners shall not fail under H-20 dynamic wheel load applied vertically.

END OF SECTION

SECTION 33 05 93

ELECTRIC MOTORS

PART 1 – GENERAL

1.01 DESCRIPTION

- A. Scope of Work: This Section covers the quality criteria, design standards, materials, and installation procedures for electric motors.

The requirements of this Section shall apply to all electric motors except as specifically noted in the specific equipment specifications.

- B. Related Work Described Elsewhere:

1. Shop Drawings: Section 01 33 23.
2. Materials and Equipment: Section 01 60 00.
3. Start-up: Section 01 75 16.
4. Operation & Maintenance Data: Section 01 78 23.
5. Warranties: Section 01 78 36.
6. Painting: Section 09 91 00.
7. Specific electric motor data not covered in this section is specified with the equipment to be driven.

1.02 QUALITY ASSURANCE

- A. Electric motors shall conform to the latest standards of IEEE, ANSI, and NEMA.
- B. Motors shall be warranted against defects in materials and workmanship and failure resulting from normal usage for a period of one (1) year after final acceptance of the project. (See Section 01 78 36: Warranties)
- C. Shop Tests and Test Reports: All motors of frame size 180 or larger shall be given a standard short commercial test conforming to IEEE, ANSI and NEMA Standard requirements to determine that they are free from electrical or mechanical defects and to provide assurance that they meet design conditions. These tests shall include:
1. Running light current.

2. Locked rotor current.
 3. Secondary voltage at collector rings (wound rotor motors).
 4. High potential.
 5. Winding resistance.
 6. Vibration and balance test in accordance with NEMA standard MG 1-12.05 and MG 1-12.06 and Hydraulic Institute Standards.
- D. All standard efficiency motors shall, at a minimum, have a nominal (or average) full load motor efficiency determined in accordance with NEMA Standard MG 1-12.53a and IEEE-112, Test Method B, as indicated in Tables 16175-A and 16175-B.
 - E. All high (or premium) efficiency motors shall, at a minimum, have a guaranteed minimum full load motor efficiency determined in accordance with NEMA Standard MG 1-12.53a and IEEE-112, Test Method B, as indicated in Tables 16175-A and 16175-B.
 - F. All motors shall have efficiency ratings calculated, labelled, and stated in accordance with NEMA Standard MG 1-12.53b.
 - G. Motors shall be manufactured by Reliance Electric, U.S. Motors, General Electric, or equal.

1.03 SUBMITTALS

- A. Submittals shall be in accordance with Section 01 33 23.
- B. Certified copies of the standard short commercial test shall be submitted for each motor having a frame size of 180 or larger.
- C. Certified copies of test reports verifying compliance with specified nominal (average) full load efficiency shall be submitted for electrically duplicate units of each standard efficiency motor type to be supplied.
- D. Certified copies of test reports verifying compliance with specified minimum guaranteed full load efficiency shall be submitted for electrically duplicate units of each high (or premium) efficiency motor over 100 horsepower (hp) or less.
- E. Certified copies of test reports verifying compliance with specified minimum guaranteed full load efficiency shall be submitted for each individual high (or premium) efficiency motor over 100 hp to be supplied.
- F. Completed Motor Data Sheet (Table 16175-C attached).

1.04 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. The CONTRACTOR shall be responsible for adequately and properly storing and maintaining the motors from the time received at the job site to actual start-up operations and client acceptance of motors (See Section 01 60 00).
- B. Lifting lugs shall be furnished on motors over 25 pounds and shall be designed in accordance with NEMA MG 2-2.02.
- C. Motors with heaters which are in storage on the job site in excess of 45 days before connection to permanent power shall have temporary power connected to the heaters.

1.05 DESIGN CONDITIONS

- A. Motor Design: The use of NEMA Designs B or C for motors over one-half (1/2) hp shall be as follows:
 - 1. Design B motors shall be used on equipment at full (or reduced) voltage start requiring normal starting torque and current.
 - 2. Design C motors shall be used on equipment at full (or reduced) voltage start requiring a high starting torque and normal starting current.
 - 3. All motors 100 hp or greater shall be capable of autotransformer reduced voltage starting.
 - 4. Locked rotor, starting and breakdown torques shall be as called for in the NEMA standards for the Design involved.
- B. Enclosure Type: Unless indicated in the equipment specification, motor enclosures shall be as follows:
 - 1. In interior, clean, dry, and ventilated locations, use open drip-proof frames (ODP) or Weather Protected Type I (WPI).
 - 2. Interior use with hose washdown of floors and possible wetting shall use TEFC.
 - 3. Interior or exterior use with a dusty environment shall use totally enclosed fan cooled (TEFC) motors.
 - 4. Exterior installations shall use TEFC motors.
 - 5. Exterior use in hostile environment shall use a TEFC motor up to 300 hp and Weather Protected Type II motors for 300 hp and up in size.

6. Installations in a potentially explosive environment shall use applicable Class I explosion proof motors.

PART 2 – PRODUCTS

2.01 EQUIPMENT

- A. Motor Design: The driven equipment manufacturer shall be responsible for sizing the motors in coordination with the driven equipment such that the name plate rated horsepower is not exceeded and motors are not required to operate in the safety factor at any point within the driven equipment's operating range. Motor design for motors over one-half (1/2) hp shall be NEMA Design B, except when NEMA Design C is required by the equipment manufacturer. Unless noted otherwise, all motors (except explosion proof motors) shall be provided with a minimum 1.15 service factor. Motors shall be standard efficiency or high premium efficiency as indicated in the equipment specification and shall have a minimum full load efficiency in accordance with Section 1.02 and Table 16175-A and Table 16175-B.
- B. Motor enclosure shall be ODP, totally enclosed fan cooled, Class I explosion-proof, or Weather Protected Type I or II as listed for each motor or specified in 1.05 B. above.
- C. Insulation: Unless otherwise noted in the equipment specification, the insulation system shall be as follows:
 1. Motor winding and rotor insulation shall be in accordance with NEMA MG 1-12.42, Class F, with a Class B temperature rise at rated service factor using resistance, except that single phase fractional horsepower motors may have Class B insulation.
 2. Stator winding, end coils and rotor windings (wound rotor motors) for open (ODP) and weather protected (WPI and WPPI) motors having a frame size of 320 or larger shall receive two (2) coats of 100 percent (100%) solid solventless epoxy.
 3. Stator winding, end coils and rotor windings (wound rotor motors) for totally enclosed motors shall receive one (1) coat of 100 percent (100%) solid solventless epoxy.
 4. Epoxy shall be applied using vacuum and pressure impregnation (VPI) in accordance with NEMA Standard MG 1-1.27A for all motors having a frame size of 320 or larger.
 5. Stator, rotor, exciter, and line leads on all motors having a frame size of 180 or larger shall be coated with fungicidal varnish or paint.

2.02 MATERIALS AND CONSTRUCTION

- A. General: Unless otherwise noted, materials and construction of motors shall be as described in the following paragraphs.
- B. Materials and construction of all motors shall be as follows:
 - 1. Enclosures for open and weather protected motors having a frame size of 320 or larger shall be constructed of cast iron including outlet box and brackets. Enclosures for TEFC motors having a frame size of 180 or larger shall similarly be constructed of cast iron. Smaller motors may be constructed of fabricated steel or aluminum. The frame, and brackets, terminal box and fan cover shall be of similar material.
 - 2. Bearings shall be antifriction type, grease lubricated with a 40,000-hour average life in accordance with B-10, AFBMA Life Values, except that bearings in a belt drive configuration may have an average B-10 life of 25,000 hours.
 - 3. Motors with vertical hollow shaft shall have non-reversing ratchets for 30 percent (30%) momentary upthrust of the rated power thrust.
 - 4. Motors shall have a decibel sound level to meet NEMA Standard MG 1 12.49 sound power levels and applicable provisions of OSHA. Sound measurements shall be in accordance with IEEE 85 procedures.
 - 5. Motors shall have a nameplate including information as required by NEMA MG 1-10.37 and 10.38 plus the following:
 - a. Generic Bearing Identification Numbers.
 - b. Full Load Efficiency [plus full load power factor and maximum KVAR value for high (or premium) efficiency motors].
 - 6. Hardware and screens shall be corrosion resistant.
- C. In addition to the requirements listed above, all TEFC motors shall also be equipped as follows:
 - 1. Fans shall be constructed to resist corrosion and be of non-sparking material.
 - 2. Neoprene shaft slinger shall be provided and lead wires shall be non-braided and non-wicking to prevent entrance of moisture and contaminants.
 - 3. Grease fittings shall be non-corroding.

4. All leads shall be brought out to a separate terminal box and shall be marked and identified. The terminal box shall be split construction, double gasketed, containing provisions for grounding the motor, and shall comply with NEMA standards for minimum volume.
 5. Motors shall have brass or stainless steel breather drains at both ends to allow proper drainage of condensation.
 6. Nameplates, as specified in Paragraph B above, shall be made of stainless steel and fastened with stainless steel pins.
 7. Motors having a frame size of 320 or larger shall be provided with a 120 volt, single phase strip type heaters to maintain a motor temperature of at least 40°C or 10°C above ambient, whichever is greater.
- D. Voltage: Unless noted otherwise, all motors one-half (1/2) hp and less shall be 115/230 volt, 60 hertz, single phase; and motors larger than one-half (1/2) hp shall be 23-/460 volt, 60 hertz, three (3)-phase.

PART 3 – EXECUTION

3.01 MOTORS

- A. All motors shall be provided and factory mounted by the driven equipment manufacturer in accordance with the motor manufacturer's drawings and instructions. Field installation of the unit, including final alignment shall be the responsibility of the CONTRACTOR.

3.02 PAINTING

- A. Motors shall be prime coated prior to shipment. Primer shall be of same type and manufacture as used by the General CONTRACTOR as specified in Section 09 91 00 Painting. After installation and before being placed in final operation, the CONTRACTOR shall have motors painted in accordance with the requirements of Section 09 91 00.

3.03 FIELD QUALITY CONTROL

- A. Field Tests: The motors shall be run in for four (4) before being reconnected to the equipment.

3.04 SPARE PARTS

- A. The CONTRACTOR shall furnish one (1) set of bearings, tagged, and marked for identification and recording on motors over 100 hp in size.

TABLE 16175-A MINIMUM FULL LOAD EFFICIENCIES FOR VERTICAL MOTORS					
HP	Nominal RPM	OPEN MOTORS		TOTALLY ENCLOSED MOTORS	
		Normal (Standard) Efficiency	High (Premium) Efficiency	Normal (Standard) Efficiency	High (Premium) Efficiency
1	1,800				83.5
	900				83.0
1.5	3,600			73.5	
	1,800			79.0	83.0
	1,200			75.0	84.5
	900			76.0	83.0
2	3,600			77.0	
	1,800			81.0	83.0
	1,200	77.0	85.5	77.5	84.5
	900	72.0	80.0	72.0	82.5
3	3,600	80.0	84.0	75.0	
	1,800	80.0	85.5	78.5	86.5
	1,200	78.5	85.5	78.5	85.5
	900	74.0	82.0	74.0	82.5
5	3,600	81.0	86.5	79.5	
	1,800	81.5	86.0	81.0	86.5
	1,200	83.0	85.5	80.0	86.0
	900	78.5	88.0	78.5	85.5
7.5	3,600	84.0	86.5	81.5	87.5
	1,800	83.5	90.5	83.5	88.0
	1,200	83.0	89.0	85.5	88.5
	900	80.0	88.0	80.0	86.0
10	3,600	83.5	90.5	82.0	89.5
	1,800	86.5	90.5	85.5	89.0
	1,200	82.5	89.5	85.0	88.5
	900	84.0	89.0	84.0	87.0
15	3,600	85.0	89.5	81.0	89.5
	1,800	85.5	92.0	85.5	89.0
	1,200	86.5	92.0	84.5	90.0
	900	85.5	92.0	84.5	89.5

TABLE 16175-A MINIMUM FULL LOAD EFFICIENCIES FOR VERTICAL MOTORS					
HP	Nominal RPM	OPEN MOTORS		TOTALLY ENCLOSED MOTORS	
		Normal (Standard) Efficiency	High (Premium) Efficiency	Normal (Standard) Efficiency	High (Premium) Efficiency
20	3,600	85.5	92.0	84.5	90.0
	1,800	88.0	92.5	87.0	90.5
	1,200	88.0	90.0	85.5	88.5
	900	85.0	89.5	87.0	89.5
25	3,600	88.5	92.5	87.0	91.0
	1,800	88.5	92.5	88.5	90.5
	1,200	85.5	90.5	88.0	90.0
	900	86.0	90.5	88.0	89.5
30	3,600	88.5	90.5	88.5	90.0
	1,800	89.0	93.0	88.5	91.0
	1,200	86.5	91.5	88.0	90.5
	900	88.0	90.0	89.0	91.0
40	3,600	88.5	90.5	88.5	90.0
	1,800	88.0	93.0	89.5	92.0
	1,200	87.5	91.0	89.5	91.5
	900	88.0	90.0	89.0	91.0
50	3,600	88.0	91.0	89.5	90.0
	1,800	89.0	93.5	90.5	92.0
	1,200	88.0	91.0	90.5	90.0
	900	88.5	90.5	89.5	91.5
60	3,600	89.5	92.0	89.5	91.5
	1,800	90.0	93.5	91.0	93.5
	1,200	88.5	92.0	91.5	92.0
	900	89.0	91.5	91.0	92.5
75	3,600	89.5	92.5	91.0	92.0
	1,800	91.5	94.0	91.5	93.5
	1,200	89.5	93.5	91.5	92.0
	900	89.0	93.5	90.0	92.0
100	3,600	91.0	92.5	90.0	91.5
	1,800	91.0	94.5	91.5	93.0
	1,200	91.5	93.5	92.0	93.5
	900	89.0	93.5	91.5	92.0

TABLE 16175-A (Continued)					
MINIMUM FULL LOAD EFFICIENCIES FOR VERTICAL MOTORS					
HP	Nominal RPM	OPEN MOTORS		TOTALLY ENCLOSED MOTORS	
		Normal (Standard) Efficiency	High (Premium) Efficiency	Normal (Standard) Efficiency	High (Premium) Efficiency
125	3,600	91.0	92.5	91.0	91.5
	1,800	92.0	94.0	92.0	93.5
	1,200	91.5	93.5	93.0	93.5
	900	89.5	93.5	92.0	93.0
150	3,600	91.5	93.0	91.5	91.5
	1,800	92.0	95.0	92.5	94.5
	1,200	92.0	94.0	93.0	94.5
	900	91.5	93.5	92.0	93.0
200	3,600	92.0	92.5	91.5	92.0
	1,800	92.5	94.5	94.5	94.5
	1,200	91.5	94.0	93.5	94.0
	900	91.5			
250	3,600	92.0	92.5	92.0	93.0
	1,800	93.0	94.5	93.5	95.0
	1,200	91.0	95.0	94.0	94.0
	900	92.0			
300	1,800	91.5	95.0		94.5
	1,200	92.0			
	900	92.0			
350	1,800	92.0			
	1,200	91.5			
	900	92.5			
400	1,800	92.0			
	1,200	91.5			
	900	92.0			
450	1,800	92.5			
	1,200	91.5			
	900	92.0			
500	1,800	93.0			
	1,200	92.0			
	900	91.5			

TABLE 16175-B					
MINIMUM FULL LOAD EFFICIENCIES FOR HORIZONTAL MOTORS					
<i>HP</i>	<i>Nominal RPM</i>	<i>Normal (Standard) Efficiency</i>	<i>High (Premium) Efficiency</i>	<i>Normal (Standard) Efficiency</i>	<i>High (Premium) Efficiency</i>
0.75	1,200	92.0	77.0	72.0	77.0
	900	68.0	75.5	67.5	
1	3,600			71.0	
	1,800	72.0	81.5	72.0	81.5
	1,200	73.0	78.5	76.5	78.5
	900	68.0	77.0	67.5	
1.5	3,600	78.0	81.5	75.5	81.5
	1,800	74.0	81.5	77.0	81.5
	1,200	75.5	82.5	78.5	84.0
	900	72.0	79.0	69.5	
2	3,600	70.0	84.0	80.0	84.0
	1,800	77.0	81.5	80.0	81.5
	1,200	76.0	85.5	78.5	85.5
	900	72.0	82.5	72.0	83.5
3	3,600	80.0	84.0	75.5	84.0
	1,800	80.0	86.5 78.5	85.5	
	1,200	78.5	85.5 78.5	88.0	
	900	74.0	84.0 74.0	84.5	
5	3,600	82.5	84.0 81.5	86.5	
	1,800	84.0	88.5 84.0	89.5	
	1,200	81.0	87.0 81.5	88.0	
	900	78.5	86.0 78.5	88.0	
7.5	3,600	85.5	86.5 80.0	88.0	
	1,800	84.0	88.5 84.0	89.5	
	1,200	81.5	88.5 81.5	88.5	
	900	78.5	87.0 78.5	88.0	
10	3,600	86.5	87.5 84.0	89.5	
	1,800	84.5	89.5 85.5	89.5	
	1,200	82.5	89.5 82.5	89.5	
	900	81.5	89.0 81.5	89.5	
15	3,600	86.5	88.5	84.0	89.5
	1,800	86.5	90.5	85.5	91.0
	1,200	83.0	90.0	84.0	90.0
	900	84.0	89.0	84.0	89.5
20	3,600	85.5	89.5	84.0	90.5
	1,800	85.5	90.5	86.5	91.5
	1,200	85.0	90.5	86.5	90.5
	900	85.0	90.0	86.5	90.5

TABLE 16175-B (Continued)					
MINIMUM FULL LOAD EFFICIENCIES FOR HORIZONTAL MOTORS					
<i>HP</i>	<i>Nominal RPM</i>	<i>Normal (Standard) Efficiency</i>	<i>High (Premium) Efficiency</i>	<i>Normal (Standard) Efficiency</i>	<i>High (Premium) Efficiency</i>
25	3,600	87.0	90.0	84.0	90.5
	1,800	87.5	91.0	87.5	92.0
	1,200	86.5	91.0	86.5	91.0
	900	86.5	90.0	86.5	90.5
30	3,600	86.5	90.0	84.0	91.0
	1,800	88.5	91.5	88.5	92.0
	1,200	87.0	91.5	87.5	91.0
	900	86.5	91.5	86.5	92.5
40	3,600	88.5	90.0	96.5	91.5
	1,800	89.5	92.0	88.5	93.0
	1,200	88.0	92.0	88.5	92.0
	900	88.5	91.0	78.0	92.0
50	3,600	88.5	92.0	88.5	92.0
	1,800	90.0	93.5	90.0	93.0
	1,200	88.5	92.0	89.5	92.0
	900	88.5	91.5	88.5	92.5
60	3,600	89.5	92.0	88.5	92.5
	1,800	90.0	93.5	90.0	94.0
	1,200	90.0	93.0	90.0	93.0
	900	89.5	92.0	90.0	92.5
75	3,600	90.0	93.0	88.5	92.0
	1,800	90.0	94.0	90.0	94.5
	1,200	90.0	93.5	90.0	93.0
	900	90.0	93.5	90.0	93.0
100	3,600	90.0	93.5	89.5	93.0
	1,800	90.0	94.0	90.0	94.5
	1,200	90.0	93.5	90.0	93.5
	900	90.0	94.0	90.0	93.0
125	3,600	90.0	93.5	90.0	93.5
	1,800	91.0	94.0	90.0	94.5
	1,200	91.0	93.5	91.0	94.0
	900	90.0	94.0	91.5	93.5
150	3,600	91.0	93.5	91.5	93.5
	1,800	91.5	95.0	93.0	95.0
	1,200	91.5	94.5	93.0	94.5
	900	91.0	94.0	92.0 93.5	

TABLE 16175-B (Continued)					
MINIMUM FULL LOAD EFFICIENCIES FOR HORIZONTAL MOTORS					
<i>HP</i>	<i>Nominal RPM</i>	<i>Normal (Standard) Efficiency</i>	<i>High (Premium) Efficiency</i>	<i>Normal (Standard) Efficiency</i>	<i>High (Premium) Efficiency</i>
200	3,600	91.5	94.0	93.0	94.5
	1,800	91.5	95.0	93.0	95.0
	1,200	92.0	94.5	93.0	94.5
	900	92.0	93.0	94.0	
250	3,600	92.0	94.0	93.0	94.5
	1,800	93.0	95.0 93.5	94.5	
	1,200	91.5	94.5 94.0	94.5	
	900	93.0			
300	3,600	93.0	95.0	94.0	95.0
	1,800	93.0	95.5	94.0	95.0
	1,200	93.0	94.5		
350	3,600	93.5	95.0	95.0	95.0
	1,800	94.5	95.5	94.5	95.0
	1,200	94.0			
	900				
400	3,600	94.0	95.5	95.0	
	1,800	94.0	95.5		
	1,200				
	900				
450	3,600	94.5			
	1,800	93.5			
	1,200				
	900				

Table 16175-C
MOTOR DATA SHEET

Quantity: Efficiency (Standard or High):

Horsepower: Efficiency* Value:

*Nominal (average) efficiency for standard efficiency motors or guaranteed minimum efficiency for high (premium) motors.

Frame Number:

Enclosure Material:

Enclosure:

Volts/Phase/Hertz:

Service Factor:

Insulation Class;

Temp Rise Class (@rated service factor using resistance):

NEMA Design Letter:

Respond to the Following with Yes, No or Not Applicable (N/A)

1. Motor is designed, labelled, and tested in accordance with the latest standards of NEMA, IEEE and ANSI?
2. Motor efficiency has been determined in accordance with NEMA standard MG 1-12.53a and IEEE-112, Test Method B?
3. Lifting Lugs are provided?
4. Motor is capable of autotransformer reduced voltage starting
5. Motor is designed for the following conditions:
 - Altitude below 3,300 feet
 - Ambient temperature of 40°C

- Voltage variation (each phase) plus or minus 10 percent ($\pm 10\%$) of nameplate values
 - Frequency variation (each phase) plus or minus 5 percent ($\pm 5\%$) of nameplate values
 - The arithmetic sum of the absolute value of the voltage and frequency variations equal to or less than 10 percent ($\leq 10\%$)
6. Motors do not exceed the nameplate horsepower at any point within the driven equipment's operating range
 7. Stator winding, end coils and rotor windings (wound rotor motors) will receive the specified number of coats of 100 percent (100%) solid solventless epoxy
 8. Epoxy shall be applied using vacuum and pressure Impregnation (VPI)
 9. Stator, rotor, exciter, and line loads shall be coated with fungicidal varnish or paint
 10. Motor complies with all criteria specified in paragraph 2.02, B except as follows:

Exceptions:

11. Motor complies with all criteria specified in paragraph 2.02, C except as follows:

Exceptions:

12. Motor shall be shop (primed or finished) (circle one) in accordance with specification Section 09 91 00
13. Motor meets or exceeds the applicable efficiency value listed in Table 16175-A or 16175-B

END OF SECTION

SECTION 33 30 00

SANITARY SEWER SYSTEMS

PART 1 – GENERAL

1.01 WORK INCLUDED

- A. The work included under this section consists of furnishing all labor, equipment, and materials necessary for the construction of sanitary sewer, sewer connections, and appurtenances as shown on the drawings or specified herein.
- B. Related Work Specified Elsewhere:
 - 1. Section 31 23 00: Excavation, Backfill and Embankment.
 - 2. Section 03 30 00: Cast-In-Place and Poured Concrete.
 - 3. Section 03 40 00: Precast Concrete Structures.

1.02 SUBMITTALS

- A. Shop drawing manufacturer's literature and other descriptive material of all equipment and materials shall be submitted in accordance with Section 01 33 23: Shop Drawings.
 - 1. Precast manholes.
 - 2. Manholes frames, covers, and other castings.
 - 3. Catalog Data: Submit for pipe and fittings.
 - 4. Manhole – Pipe Connections.

1.03 DAMAGE CONTROL – PVC PIPE

- A. Transportation. Care shall be taken during transportation of the pipe that it is not cut, kinked or otherwise damaged.
- B. Handling Pipe Lengths.
 - 1. Ropes, fabric, or rubber protected slings and straps shall be used when handling pipe.

2. Chains, cables, or hooks inserted into the pipe ends shall not be used. Two (2) slings spread apart shall be used for lifting each length of pipe. Pipe or fittings shall not be dropped onto rocky or unprepared ground.
- C. Storage. Pipes shall be stored on level ground, preferably turf or sand, free of sharp objects which could damage the pipe.
1. Stacking of the polyvinyl chloride pipe shall be limited to a height that will not cause excessive deformation of the bottom layers of pipes under anticipated temperature conditions.
 2. Where necessary due to ground conditions the pipe shall be stored on wooden sleepers, spaces suitable and of such width as not to allow deformation of the pipe at the point of contact with the sleeper or between supports.

PART 2 – PRODUCTS

2.01 MATERIALS

- A. Polyvinyl chloride pipes. Plastic gravity sewer pipe and fittings shall be unplasticized polyvinyl chloride (PVC) and conform to the requirements of ASTM Designation D 3034 or ASTM F 679, Type PSM, Class 12454-B or 12454-C, SDR-35 with elastomeric gasket joints. PVC pipe and fittings shall be as manufactured by Johns-Mansville, Certainteed, H&W Industries, or equal.
- B. Plastic (PVC) sewer fittings shall conform to the requirements of ASTM D 3034 standard with minimum wall thickness of SDR 35. Fittings eight-inch (8") and smaller shall be molded in one (1) piece with gasket joints that are of a molded "locked in" design to prevent loss during transport or "fish mouthing" during pipe insertion. The minimum socket depths shall comply with ASTM D 3034. Fittings 10 inch (10") and larger shall be molded or fabricated in accordance with manufacturers standard pipe bells and gaskets. Gaskets shall have minimum cross sectional area of 0.20 square inch and conform to ASTM F 0477 standard. PVC material shall have a cell classification of 12364-B or C as defined in ASTM D 1784. All fittings shall be supplied by one manufacturer and shall comply with the following additional ASTM standards: ASTM F 1336, ASTM D 3212, and ASTM F 913. All PVC fittings must be certified by CSA to the CSA B182.1 and CSA B182.2 standards as third party certification.
- C. Where indicated on the drawings large diameter PVC may be used conforming to the requirements of AWWA C-905.

- D. Ductile iron pipe.
1. Ductile iron sewer pipe shall conform to the requirements of ANSI Standard A21.51, Class 50. Pipe shall be epoxy lined as specified herein. Bituminous coating shall be applied to the outside of pipe as specified in ANSI Standard A21.51. Joints shall be mechanical or push-on and conform to ANSI A21.11. Gaskets shall be of neoprene and shall have plain tips unless otherwise specified.
 2. Pipe lining shall be epoxy as specified in Section 09 91 00: Painting.
- E. Concrete and reinforcing steel. Concrete and reinforcing steel shall conform to the requirements of Division 3 of these specifications. Concrete classes for the various purposes shall be as follows:
1. Manhole bottoms: Class "A".
 2. Pipe and riser encasement: Class "B".
 3. Protective slabs: Class "B".
- F. Castings. Gray iron castings for manhole frames, covers and other items shall conform to the ASTM Designation A 48, Class 30, and shall be U.S. Foundry and Manufacturing Corp., or equal. Castings shall be true and pattern in form and dimensions and free of pouring faults and other defects in positions which would impair their strength, or otherwise make them unfit for the service intended. The seating between frames and covers shall be machined to fit true. No plugging or filling will be allowed. Lifting or "pick" holes shall be provided, but shall not penetrate the cover. Casting patterns shall conform to those shown on the drawings. All manhole frames and covers shall be traffic bearing unless otherwise specified. Frames shall be suitable for the future addition of cast iron rings for upward adjustment of top elevation. Frame and cover shall have machined edges along with rubber gaskets for water-resistant closure.
- G. Manholes. Refer to Section 33 05 60: Manholes.
- H. Terminal manholes. Manhole frames and covers shall provide a clear opening equal to the connecting pipe and shall be round, solid lid, Neeah No. R-1974-A, or equal. Covers shall be marked "SANITARY".
- I. Brick. Brick for manhole construction shall be dense, hard burned, shale or clay brick conforming to ASTM Designation C 32, Grade MS.

- J. Cement mortar. Cement mortar for manhole construction shall be as specified in ASTM Designation C 270, Type M, except the cement shall be Portland Type II. No mortars that have stood for more than one (1) hour shall be used.
- K. Miscellaneous materials. Additional items of construction such as cleanouts, special manholes and other items necessary for the complete installation of the system shall conform to specific details on the drawings and shall be constructed of first-class materials conforming to the applicable portions of these specifications.
- L. Pipe connections. All opening for pipes in manholes shall be sealed watertight by Kor-N-Seal, Link Seal or equal.

PART 3 – EXECUTION

3.01 PREPARATION

- A. Upon satisfactory excavation of the pipe trench, as specified in Section 31 23 00: Excavating, Backfilling and Compacting, a continuous trough for the pipe barrel and recesses for the pipe bells shall be excavated by hand digging so that, when the pipe is laid in the trench, true to line and grade, the pipe and barrel will receive continuous uniform support and the bell will receive no pressure from the trench bottom.
- B. The interior of all pipe shall be thoroughly cleaned of all foreign material before being lowered in the trench and shall be kept clean during laying operations by means of plugs, other approved methods.

3.02 INSTALLATION

- A. Sewer pipe.
 - 1. General.
 - a. Pipe laying shall proceed upgrade with spigot ends pointing in the direction of flow. Before pipe is joined, gaskets shall be cleaned of all dirt and stones and other foreign material. The spigot ends of the pipe and/or pipe gaskets shall be lubricated lightly with a lubricant as specified by the pipe manufacturer and approved by the ENGINEER. Sufficient pressure shall be applied to the pipe so as to properly seat the socket into the bell of the pipe. All pipes shall be laid straight, true to the lines and grades shown on the drawings in each manhole section.
 - b. Any pipe which is disturbed or found to be defective after laying shall be taken up and relaid or replaced.

- c. Approved utility crossing signs shall be placed on the pipe alignment at each side of a waterway crossing.

2. PVC Pipe.

- a. Handling pipeline. The handling of the joined pipe line shall be in such a manner that the pipe is not damaged by dragging it over sharp and cutting objects. Section of the pipes with deep cuts and gouges shall be removed.
- b. Lowering pipe into trench. Care shall be exercised when lowering pipe into the trench to prevent damage to or twisting of the pipe.
- c. Special precautions. PVC pipe connected to heavy fittings, manholes and rigid structures shall be supported in such a manner that no subsequent relative movement between the pipe and the joint with the rigid structures is possible.

B. Service Connections.

- 1. Service connections, of the type called for on the drawings, shall be provided in accordance with the details as shown or indicated on the drawings.
- 2. Where called for on the drawings, sewer pipe of the size and type noted shall be extended above grade and plugged with an approved removable plastic plug. All connections and changes of direction shall be made using standard fittings designed for the purpose.
- 3. Where no curb exists, or is planned, locations shall be adequately marked by a method approved by the OWNER.

C. Concrete encasement. Class B concrete encasement shall be constructed in accordance with the details shown on the drawings. Encasement shall be constructed where:

- 1. The sewer or service crosses over, or at a depth which provides less than 18 inches (18") clear distance between pipes when crossing under potable water mains. Encasement shall extend a minimum of 10 feet (10') of each side of the point of crossing. In lieu of encasement, the sewer line may be constructed of ductile iron pipe and shall be laid such that both joints will be at least 10 feet (10') from the crossing.
- 2. The OWNER shall order the line encased:
 - a. If, through failure to provide suitable trench sheeting, or other causes, the maximum width for trench excavations, as specified

elsewhere in these specifications, is exceeded, the CONTRACTOR shall construct concrete encasement around the pipe for the length of the excessive excavation. No payment will be made for the concrete encasement required due to excessive trench widths.

- b. The points of beginning and ending of sewer, or service pipe encasement shall be not more than six inches (6") from a pipe joint to protect the pipe from cracking due to uneven settlement of its foundation or the effects of superimposed live loads.
- D. Concrete protective slabs. Concrete protective slabs as shown on the drawings shall be constructed over gravity sewers that have less than three feet (3') of cover from finish grade.
- E. Manholes.
 - 1. General. Where shown on the drawings, the CONTRACTOR shall place stub-outs for future extensions. Both the manhole and exterior ends of all such stub-outs shall be closed with watertight plugs removable without damage to the pipe. One (1) section of pipe as shown on the plans shall be laid at each manhole stub-out.
 - a. Outside drop connections shall be made in accordance with the details therefore shown on the drawings.
 - b. The invert channels shall be smooth and accurately shaped to a semicircular bottom conforming to the inside of the adjacent sewer section. Steep slopes outside the invert channels shall be avoided. Changes in size and grade shall be made gradually and evenly. Changes in the direction of the sewer or entering branch shall be a smooth curve with radius as long as practicable. Invert channels shall also be formed for pipe stub-outs.
 - c. Prior to backfilling, each manhole/wetwell section joint shall be wrapped with "EZ-Wrap" butyl adhesive tape as manufactured by Press-Seal Gasket Corp, Concrete Supply Products Co., Fort Wayne, IN. Installation shall be in accordance with the manufacturers' written instructions and shall include the use of "EZ-Stik" #4 primer prior to application of adhesive tape. This requirement is in addition to the use of "Ram-Neck" sealant at each joint.
 - d. The interior and exterior surfaces of all manholes shall be coated prior to installation in accordance with Section 33 05 60. Upon installation, inside coating will be touched up.
 - e. Frames and covers shall be set accurately to grade to conform to the finished grade of the adjacent areas or final road wearing surface grade. All covers shall be watertight.

- f. Manholes shall be completed as the work progresses so that testing as prescribed in paragraph 3.03 may be completed.

2. Manholes, precast concrete:

- a. Precast manholes shall conform to the requirements of Section 33 05 60: Manholes.
- b. Precast manholes tops, shall terminate at such elevations as will permit laying up brick courses under the manhole frames to make allowance for future street grade adjustments. (See plan details.)
- c. Drop connections, where required on precast manholes, shall be manufactured with the manhole elements at the casting yard. The manufacturer shall submit for approval the method of drop manhole construction.
- d. The first pipe joint outside the manhole shall be located a maximum distance of three feet (3') from the outside surface of the manhole base slab.
- e. Where additional pipe connections or modifications of existing factory made openings are required on new or existing precast concrete manholes, penetrations shall be by coring and installation of Kor-N-Seal or Link Seal. If this method is not deemed feasible by the OWNER's representative, all cutting relative to the manhole shall be performed only by a power driven abrasive wheel or saw. It is specifically noted that such alternate connections to existing manholes shall be installed in accordance with the details for new units shown on the drawings, and shall be caulked water tight with non-shrinking grout.

- F. Connections to existing structures and sewers. Proposed sewer lines shall be connected to existing manholes and pipe stubs.

3.03 FIELD QUALITY CONTROL

- A. Workmanship. It is imperative that all sewers and appurtenances be built practically watertight and that the CONTRACTOR adheres rigidly to the specifications for materials and workmanship. Upon completion, the sewers, or sections thereof, will be tested and gauged and if leakage is above the allowable limits specified, the sewer will be rejected.
- B. Inspection. On completion of each block or section of sewer, or such other times as the OWNER may direct the block or section of sewer shall be cleaned, tested, and inspected.
 - 1. Each section of the sewer shall show, on examination from either end, a full circle of light between manholes.

2. Each manhole or other appurtenances to the system shall be of the specified size and form, be watertight (no leakage allowed by visual inspection), neatly and substantially constructed, with the top set permanently to exact position and grade. All repairs shown necessary by the inspection shall be made; broken or cracked pipe replaced; all deposits removed and the sewer left true to line and grade, entirely clean, and ready for use.
3. After the final backfill has been in place at least 30 days, polyvinyl chloride (PVC) pipe shall be tested for defection and deformation by pulling a mandrel through the entire length of the pipe. The mandrel shall have a diameter equal to 95 percent (95%) of the inside diameter of the pipe. Any pipe found to be deformed and/or deflected in excess of five percent (5%) of the nominal diameter of the pipe shall be removed and replaced with new pipe at no additional cost to the OWNER. Results of the tests shall be submitted to the OWNER and ENGINEER, in a report format approved by the Design ENGINEER. The cost of this service shall be included in the unit price bid for the particular item to which it is related.
4. Prior to final acceptance, the CONTRACTOR shall provide an acceptable video tape and log of all gravity sewer lines placed. Any bad joints or leakage visible on the tapes shall be corrected by the CONTRACTOR prior to final acceptance and payment by the OWNER.

C. Infiltration/Exfiltration Testing.

1. After completion of gravity sewer installation, all sections of pipe shall be infiltration or exfiltration tested. When groundwater is four feet (4') or more above the top of the pipe, an infiltration test will be performed. Any leakage shall be measured by a V-notch weir or similar flow measuring device. Allowable leakage is 50 gallons per day/inch diameter of pipe/mile of pipe length being tested. If groundwater is not at least four feet (4') above the top of the pipe, an exfiltration test is required. This is to be performed by plugging the manhole at the lower end of the section and filling it with water. Water depth or head of water on the section of pipe to be tested shall be four feet (4') or, if four feet (4') of head cannot be provided, to the top of the highest constraint diameter manhole section. Allowable exfiltration leakage is 50 gallons per day/inch diameter of pipe/mile of pipe length being tested. If leakage exceeds the maximum allowed, the leak must be located and repaired.

END OF SECTION

SECTION 33 31 00

SEWER BYPASS PUMPING

PART – GENERAL

1.01 DESCRIPTION OF WORK

- A. The work covered by this section consists of providing all labor, equipment, material, and supplies and performing all operations required to bypass pump sewage around a manhole or sewer section in which work is to be performed. The CONTRACTOR shall be prepared to bypass pump sewage as part of his operations. The CONTRACTOR shall provide all pumps, piping and other equipment necessary to accomplish bypass pumping; perform all construction; obtain all permits; pay all costs; and perform complete restoration of all existing facilities to conditions equal or better than existed prior to construction and to the satisfaction of the ENGINEER. All costs to accomplish bypass pumping, at the required volume, and all associated work including restoration, shall be considered incidental to the work and no additional compensation will be allowed.

1.02 GENERAL

- A. When the depth of flow in the sewer line being televised or repaired is above the maximum allowable for the proposed work, then the CONTRACTOR shall reduce the flow to the level shown below by manual operation of pump stations, plugging or blocking of the flow or by pumping and bypassing of the flow as acceptable to the ENGINEER. For manual operation of pump stations, the CONTRACTOR shall coordinate such operations with the appropriate City personnel. Plugging or blocking of the flow shall only be allowed when the CONTRACTOR can demonstrate that the upstream gravity collection system can accommodate the surcharging without any adverse impact.
- B. The depth of flow in the sewer line being televised or repaired shall not exceed that shown for the respective pipe sizes and for the operations indicated.
- C. Initial Television Inspection. For the initial television inspection, the sewer line shall be blocked completely. No flow, except infiltration, will be allowed through the sewer line.
- D. Television Inspection Before and After Lining Installation. For the television inspection before and after lining installation the sewer line shall be blocked completely. No flow, except infiltration before lining, will be allowed through the sewer line.

E. Other Television Inspection, including Warranty.

Pipe Size	Maximum Depth of Flow
6" – 10" Pipe	20 Percent (20%) of Pipe Diameter
12" – 24" Pipe	25 Percent (25%) of Pipe Diameter
Above 24" Pipe	30 Percent (30%) of Pipe Diameter

F. Television Inspection After Joint Testing/Sealing. For the television inspection after joint testing/sealing the sewer line shall be blocked completely. No flow will be allowed through the sewer line.

G. Joint Testing/Sealing

Pipe Size	Maximum Depth of Flow
6" – 10" Pipe	20 Percent (20%) of Pipe Diameter
12" – 24" Pipe	30 Percent (30%) of Pipe Diameter
Above 24" Pipe	35 Percent (35%) of Pipe Diameter

H. Pipe Lining Installation. For the pipe lining installation, the sewer line shall be blocked completely. No flow, except infiltration, will be allowed through the sewer line.

I. Manhole Repairs. For manhole repairs, the flow through the manhole shall be controlled or blocked completely, as required, to properly complete the repairs as specified.

1.03 SUBMITTALS

The CONTRACTOR shall submit a written plan describing his means and methods for flow control and bypass pumping to the ENGINEER for review.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.01 PLUGGING AND BLOCKING

A. A sewer line plug shall be inserted into the line upstream of the section being televised or repaired. The plug shall be so designed that all or any portion of the upstream flow can be released. During the television inspections and repair operations the flow through the line being worked shall be reduced to within the

maximum limits stated above. After the work has been completed, the flow shall be restored to normal.

3.02 PUMPING AND BYPASSING

- A. When pumping and bypass pumping is required, as determined by the ENGINEER, the CONTRACTOR shall supply all necessary pumps, conduits, and other equipment to divert the flow around manhole section in which work is to be performed. The bypass system shall be of sufficient capacity to handle existing flow plus additional flow that may occur during rainstorm events. The CONTRACTOR will be responsible for furnishing the necessary labor and supervision to set up and operate the pumping and bypassing system. Pumps and equipment shall be continuously monitored by the CONTRACTOR during the periods that pumping and bypassing are required. If pumping is required on a 24-hour basis, engine shall be equipped in a manner to keep noise to a minimum.

3.03 FLOW CONTROL PRECAUTIONS

- A. When flow in a sewer line is plugged, blocked or bypassed by the CONTRACTOR, he shall take sufficient precautions to protect the public health and to protect the sewer lines from damage that might result from sewer surcharging. Further, the CONTRACTOR shall take precautions to insure that sewer flow control operations do not cause flooding or damage to public or private property being served by the sewers involved and he shall be responsible for any damage resulting from his flow control operations.
- B. When flow in a sewer line is plugged or blocked by the CONTRACTOR, he shall monitor the conditions upstream of the plug and shall be prepared to immediately start bypass pumping, if needed. Any liquid or solid matter which is bypass pumped from the sewer collection system shall be discharged to another sewer manhole or appropriate vehicle or container only. No such liquid or solid matter shall be allowed to be discharged, stored, or deposited on the ground, swale, road, stormwater drainage system or open environment. The CONTRACTOR shall protect all pumps, conduit and other equipment used for bypass pumping from traffic.
- C. Should the liquid or solid matter from the sewer collection system be spilled, discharged, leaked, or otherwise deposited to the open environment as a result of the CONTRACTOR's flow control operations, he shall be responsible for all cleanup and disinfection of the affected area and all costs associated with same. The CONTRACTOR shall also be responsible for notifying the sewer system operating personnel and appropriate regulatory agencies and performing all required cleanup operations at no additional cost to the OWNER.

END OF SECTION

SECTION 33 32 20

COLLECTION SYSTEM SUBMERSIBLE PUMPS

PART 1 – GENERAL

1.01 WORK INCLUDED

- A. The work included under this Section consists of furnishing submersible pumps, motors, and related equipment for the pump station as shown on the Drawings and specified herein. The station shall be fully tested, complete and in operating condition.

1.02 QUALITY ASSURANCE

- A. Unit Integrity: The pumps, motors, lifting cables, and guide bars shall be supplied by the pump supplier to ensure unit integrity.
- B. Pump Tests: The pump supplier shall perform the following tests on each pump before shipment from the supplier:
 - 1. Megger the pump for insulation breaks or moisture.
 - 2. Prior to submergence, the pump shall be run dry and be checked for correct rotation.
 - 3. Pump shall be run in a submerged condition.
 - 4. Pump shall be removed from test tank and meggered immediately for moisture.
 - 5. A written certified test report giving the above information shall be supplied with each pump at the time of shipment.
 - 6. All end of pump cables will then be fitted with a rubber shrink fit boot to protect cable prior to electrical installation.
- C. Guaranteed Parts Stock Program: The pump supplier shall have a guaranteed parts stock program in the State of Florida. These parts shall include at least one (1) set of spare parts as listed below for each pump supplied on this contract. If the pump supplier does not have a published guaranteed part stock program, the CONTRACTOR shall furnish the specified spare parts for each pump.

Upper Mechanical Seal	Inspection Plug Washers
Lower Mechanical Seal	Impeller Bolt
Wear Rings	Impeller Key
Motor Cable	Upper Bearing
Cable Entry Washer/Grommet	Lower Bearing
Complete Set of O - Rings	

1.03 SUBMITTALS

- A. Shop Drawings: The CONTRACTOR shall submit detailed and dimensioned working shop drawings showing the construction of the proposed facility and installation of all equipment complete in every respect. Each drawing shall be indexed and/or referenced to the Contract Drawings and Specifications. No work upon the manufacture or fabrication of any equipment shall be performed until the ENGINEER's approval has been obtained. The CONTRACTOR shall submit, with the certified pump shop drawings, layout drawings showing exact installation, piping and foundation details for the pumping units being submitted.

1.04 WARRANTY

- A. The pump manufacturer shall provide a prorated warranty against defects in workmanship and materials for a period of five (5) years under normal use, operation, and service. The warranty shall be in published form and apply to all similar units.

PART 2 – PRODUCTS

2.01 MATERIALS

- A. The pump manufacturer shall provide a prorated warranty against defects in workmanship and materials for a period of five (5) years under normal use, operation, and service. The warranty shall be in published form and apply to all similar units.

2.02 PUMPS

- A. The supplier shall furnish and install motor driven, totally submersible sewage pumps which meet the following requirements. Pumps shall be manufactured by ABS, or equal, as pre-approved by the design engineer of the lift station.

Lift Station #7	
Pumps Required	Two (2)
ABS Model	XFP 100E – CB1
Design Point GPM	380
Head Feet	40 feet (40')
Impeller Dia.	195 mm
Motor HP Required	7.5
Speed	1,774
Voltage	240
Phase	Three (3)
Frequency Hertz	60

- B. Pump Design: The heavy duty submersible wastewater pump(s) shall be capable of handling raw unscreened sewage, storm water, and other similar solids-laden fluids without clogging. The pump shall be driven by a **Premium Efficiency Motor**, providing the highest levels of operational reliability and energy efficiency.

GUIDE RAIL BASE ASSEMBLY (wet pit installation)

There shall be no need for personnel to enter the wet well to remove or reinstall the pump(s). In a wet pit installation, the discharge base & elbow assembly shall be permanently installed in the wet well and connected to the discharge piping. In order to prevent binding or separation of the pump from the guide rail system, the pump(s) shall connect to the guide rail base automatically and firmly, guided by two (2) two-inch (2") guide pipe extending from the base elbow to the top of the station. Systems using guide cable in lieu of rigid guide bars or pipes shall not be considered acceptable. The sliding guide bracket shall be a separate part of the pumping unit, capable of being attached to standard six inch (6") ANSI class 125 or metric DN150 pump flanges, so that the pump mounting is non-proprietary, and any pump with a standard discharge flange can be mounted on the base assembly. Base or bracket

assemblies with proprietary or non-standard flange dimensions shall not be considered acceptable.

A field replaceable Nitrile (Buna-N) rubber profile gasket or O-ring shall accomplish positive sealing of the pump flange/guide rail bracket to the discharge elbow. Base assemblies which rely solely on metal to metal contact between the pump flange and discharge base elbow as a means of sealing are inherently leak prone, and shall not be equal. No portion of the pump shall bear directly on the floor of the sump. The guide rail system shall be available in an optional non-sparking version, approved by Factory Mutual for use in NEC Class 1, Division 1, Group C&D hazardous locations.

C. Pump Construction:

1. Major pump components shall be of gray cast iron, EN-GJL-250 (ASTM A-48, Class 35B) with smooth surfaces devoid of porosity or other irregularities. All exposed fasteners shall be stainless steel 1.4401 (AISI type 316) construction. All metal surfaces coming into contact with the pumped media (other than the stainless steel components) shall be protected by a factory applied spray coating of zinc phosphate primer followed by a high solids two (2) part epoxy paint finish on the exterior of the pump. The pump shall be equipped with an open lifting hoop suitable for attachment of standard chain fittings, or for hooking from the wet well surface. The hoop shall be stainless steel 1.4401 (AISI 316), and shall be rated to lift a minimum of four times (4x) the pump weight.

Sealing design for the pump/motor assembly shall incorporate machined surfaces fitted with Nitrile (Buna-N) rubber O-rings. Sealing will be the result of controlled compression of rubber O-rings in two (2) planes of the sealing interface. Housing interfaces shall meet with metal to metal contact between machined surfaces, and sealing shall be accomplished without requiring a specific torque on the securing fasteners. Rectangular cross sectioned gaskets requiring specific torque limits to achieve compression shall not be considered equal. No secondary sealing compounds shall be required or used.

2. Impeller: The ABS ContraBlock Plus impeller shall be of gray cast iron, EN-GJL-250 (ASTM A-48, Class 35B). The impeller shall be of the semi-open, non-clogging, single vane design, meeting the Ten State Standards requirement for minimum solids passage size of three inches (3"). The impeller shall be capable of passing a minimum of 3.9 inch (3.9") diameter spherical solids as are commonly found in waste water. The impeller shall have a slip fit onto the motor shaft and drive key, and shall be securely fastened to the shaft by a stainless steel bolt which is mechanically prevented from loosening by a positively engaged ratcheting washer assembly. The head of the impeller bolt shall be effectively recessed within the impeller bore

to prevent disruption of the flow stream and loss of hydraulic efficiency. The impeller shall be dynamically balanced to the ISO 10816 standard to provide smooth vibration free operation. Impeller designs which do not meet the Ten State Standards requirement for three inch (3") solids passage size, those that rely on retractable impeller designs to pass three inch (3") solids, or those that rely on fins or pins protruding into the suction path to assist in the handling of fibrous material shall not be considered equal.

3. **Self-Cleaning Wear Plate:** The ABS ContraBlock Plus wear plate shall be constructed from gray cast iron, EN-GJL-250 (ASTM A-48, Class 35B). The wear plate shall be designed with an inlet incorporating strategically placed cutting grooves and an outward spiral V-shaped groove on the side facing the impeller, to shred and force stringy solids outward from the impeller and through the pump discharge. The wear plate shall be mounted to the volute with three (3) stainless steel securing screws and three (3) stainless steel adjusting screws to permit close tolerance adjustment between the wear plate and impeller for maximum pump efficiency. The wear plate shall be factory mounted to the volute in a fixed position with metal to metal contact on machined surfaces to insure optimal clearance and efficiency at startup. Future adjustments shall be easily accomplished by removing three (3) securing screws and rotating the plate 45 degrees (45°) to the adjustment position. Adjustment to allow for wear and restore peak pumping performance shall then be accomplished using standard tools, and without requiring disassembly of the pump. The use of fixed or non-adjustable wear plates or rings, or systems that require disassembly of the pump or shimming of the impeller to facilitate adjustment shall not be considered equal. The suction flange shall be integrated into the wear plate and its bolt holes shall be drilled and threaded to accept standard six inch (6") ANSI class 125 flanged fittings.
4. **Pump Volute:** The pump volute shall be single piece gray cast iron, EN-GJL-250 (ASTM A-48, Class 35B) non-concentric design with centerline discharge. Passages shall be smooth and large enough to pass any solids which may enter the impeller. Discharge size shall be as specified on the pump performance curve. The discharge flange design shall permit attachment to standard ANSI or metric flanges/appurtenances. The discharge flange shall be slotted to accept both six inch (6") ANSI class 125 and metric DN150 (PN 10) metric flanged fittings. Proprietary or non-standard flange dimensions shall not be considered acceptable. The minimum working pressure of the volute and pump assembly shall be 10 bar (145 psi).

D. PREMIUM EFFICIENCY MOTOR

The Premium Efficiency motor shall meet efficiency standards in accordance with IEC 60034-30, level IE3 and NEMA Premium*. Motor rating tests shall be

conducted in accordance with IEC 60034-2-1 requirements and shall be certified accurate and correct by a third party certifying agency. A certificate shall be available upon request.

* IE3 and NEMA Premium efficiency levels are equivalent, however the NEMA Premium standard is intended to cover dry installed motors only, not integrated submersible motors.

The Premium Efficiency motor shall be housed in a water tight gray cast iron, EN-GJL-250 (ASTM A-48, Class 35B) enclosure capable of continuous submerged operation underwater to a depth of 20 meters [65 feet (65')], and shall have an IP68 protection rating. The motor shall be of the squirrel-cage induction design, NEMA type B, Premium Efficiency. The copper stator windings shall be insulated with moisture resistant Class H insulation materials, rated for 18°C (356°F). The stator shall be press fitted into the stator housing. The use of bolts, pins or other fastening devices requiring penetration of the stator housing is unacceptable. The rotor bars and short circuit rings shall be made of cast aluminum.

The motor shall be designed for continuous duty. The maximum continuous temperature of the pumped liquid shall be 40°C (104°F), and intermittently up to 50°C (122°F). The motor shall be capable of handling up to 12 evenly spaced starts per hour without overheating. The service factor (as defined by the NEMA MG1 standard) shall be **1.3**. The motor shall have a voltage tolerance of plus or minus 10 percent ($\pm 10\%$) from nominal, and a phase to phase voltage imbalance tolerance of one percent (1%). The motor shall be FM and CSA approved for use in NEC Class I, Division I, Groups C & D hazardous locations. The surface temperature rating shall be T3C.

For submerged (wet pit) applications, the motor shall be self-cooling via the process fluid surrounding the motor. For unsubmerged (dry pit) applications, an integrated oil cooling system shall be utilized to enhance heat transfer, and allow the motor to operate at full rated power continuously without the need for de-rating or reduced duty cycle. No external coolant supply or external cooling jacket shall be required for dry pit applications. The motor shall have a NEMA Class A temperature rise for submerged service, and class B rise for dry pit service, providing cool operation under all operating conditions.

1. Thermal Protection: Each phase of the motor shall contain a normally closed bi-metallic temperature monitor switch imbedded in the motor windings. These thermal switches shall be connected in series and set to open at 140°C (284°F) plus or minus five degrees ($\pm 5^\circ\text{C}$). They shall be connected to the control panel, and used in conjunction with, and supplemental to, external motor overload.

2. Mechanical Seals: Each pump shall be equipped with a tandem mechanical shaft seal system consisting of two (2) totally independent seal assemblies. The seals shall operate in a lubricant reservoir that hydro-dynamically lubricates the lapped seal faces at a constant rate. The lower, primary seal unit, located between the pump and the lubricant chamber, shall contain one (1) stationary industrial duty **silicon-carbide** seal ring and one (1) rotating industrial duty **silicon-carbide** seal ring. The stationary ring of the primary seal shall be installed in a seal holding plate of gray cast iron EN-GJL-250 (ASTM A-48, Class 35B). The seal holding plate shall be equipped with swirl disruption ribs to prevent abrasive material from prematurely wearing the seal plate. The upper, secondary seal unit, located between the lubricant chamber and motor housing, shall contain one (1) stationary industrial duty **silicon-carbide** seal ring, and one (1) rotating industrial duty **silicon-carbide** seal ring. Each seal interface shall be held in contact by its own spring system. The seals shall not require routine maintenance, or adjustment, and shall not be dependent on the direction of rotation for proper sealing. Each pump shall be provided with a lubricant chamber for the shaft sealing system which shall provide superior heat transfer and maximum seal cooling. The lubricant chamber shall be designed to prevent overfilling, and to provide lubricant expansion capacity. The drain and inspection plug shall have a positive anti-leak seal, and shall be easily accessible from the outside of the pump. The seal system shall not rely upon the pumped media for lubrication and shall not be damaged when the pump is run dry. Lubricant in the chamber shall be environmentally safe non-toxic material.

The following seal types shall not be considered equal: Seals of proprietary design, or seals manufactured by other than major independent seal manufacturing companies. Seals requiring set screws, pins, or other mechanical locking devices to hold the seal in place, conventional double mechanical seals containing either a common single or double spring acting between the upper and lower seal faces, any system requiring a pressure differential to seat the seal and ensure sealing.

3. Mechanical Seal Protection System: The primary mechanical seal shall be protected from interference by particles in the waste water, including fibrous materials, by an active Seal Protection System integrated into the impeller. The back side of the impeller shall be equipped with a sinusoidal cutting ring, forming a close clearance cutting system with the lower submersible motor housing or seal plate. This sinusoidal cutting ring shall spin with the pump impeller providing a minimum of 75 shearing actions per pump revolution. Large particles or fibrous material which attempt to lodge behind the impeller, or wrap around the mechanical seal shall be effectively sheared by the active cutting system into particles small enough to prevent interference with the mechanical seal. The Seal Protection System shall operate whenever the pump operates, and shall not require adjustment or maintenance in order

to function. Submersible pump designs which do not incorporate an active cutting system to protect the primary mechanical seal shall not be considered acceptable for wastewater service.

4. Seal Failure Early Warning System: The integrity of the mechanical seal system shall be continuously monitored during pump operation and standby time. An electrical probe shall be provided in a sensing chamber positioned between the primary and secondary mechanical seals for detecting the presence of water contamination within the chamber. The sensing chamber shall be filled with environmentally safe non-toxic oil. A solid-state relay mounted in the pump control panel or in a separate enclosure shall send a low voltage, low amperage signal to the probe, continuously monitoring the conductivity of the liquid in the sensing chamber. If sufficient water enters the sensing chamber through the primary mechanical seal, the probe shall sense the increase in conductivity and signal the solid state relay in the control panel. The relay shall then energize a warning light on the control panel, or optionally, cause the pump shut down. This system shall provide an early warning of mechanical seal leakage, thereby preventing damage to the submersible pump, and allowing scheduled rather than emergency maintenance. Systems utilizing float switches or any other monitoring devices located in the stator housing rather than in a sensing chamber between the mechanical seals are not considered to be early warning systems, and shall not be considered equal.
5. Shaft: The pump shaft and motor shaft shall be an integral, one (1) piece unit adequately designed to meet the maximum torque required at any normal start-up condition or operating point in the system. The shaft shall have a full shutoff head design safety factor of 1.7, and the maximum shaft deflection shall not exceed 0.05 mm [0.002 inch (0.002")] at the lower seal during normal pump operation. Each shaft shall be stainless steel 1.4021 (AISI 420) material, and shall have a polished finish with accurately machined shoulders to accommodate bearings, seals, and impeller. Carbon steel, chrome plated, or multi piece welded shafts shall not be considered adequate or equal.
6. Bearings: Each pump shaft shall rotate on high quality permanently lubricated, greased bearings. The upper bearing shall be a deep grooved ball bearing and the lower bearings shall be a heavy duty double row angular contact ball bearing. Bearings shall be of sufficient size and properly spaced to transfer all radial and axial loads to the pump housing and minimize shaft deflection. L-10 bearing life shall be a minimum of 50,000 hours at flows ranging from one-half (1/2) of BEP flow to one and a half (1-1/2) times BEP flow (BEP is best efficiency point). The bearings shall be manufactured by a major internationally known manufacturer of high quality bearings, and shall be stamped with the manufacturer's name and size designation on the race.

Generic or unbranded bearings from other than major bearing manufacturers shall not be considered acceptable.

- E. Power Cable: The power cables shall be sized according to NEC and CSA standards and shall be of sufficient length to reach the junction box without requiring splices. The outer jacket of the cable shall be oil and water resistant, and shall be capable of continuous submerged operation underwater to a depth of 65 feet (65').
- F. Cable Entry System: The cable entry system shall consist of a submersible plug assembly which allows the cable be easily disconnected from the pump for service or replacement. Cable sealing shall be accomplished by a Nitrile compression grommet with both cylindrical and conical sealing surfaces, flanked by a stainless steel washer and an integrated strain relief. A brass (C3604) compression nut shall be threaded into to the cast iron EN-GJL-250 (ASTM A-48, Class 35B) cable plug housing, compressing the grommet ID to the cable while the grommet OD seals against the bore of the cable entry housing. Cable conductors shall be terminated in copper pin connectors which are separated and retained by a circular pin retainer fabricated from high dielectric strength Polyamid [30 percent (30%) GF]. Each pin shall pass through its own hole in the pin retainer, maintaining perfect alignment with the mating pins in the motor body. The corresponding motor body pin assembly shall be manufactured from high dielectric strength Polyamid [30 percent (30%) GF], with copper connector pins. The pin assembly shall be sealed with an O-ring to prevent water entry into the motor, and retained in the motor housing bore via a retaining ring. Attachment of the plug assembly to the motor shall engage the corresponding copper pins, creating a complete circuit between the motor and cable. The plug assembly shall be fastened with stainless steel fasteners, and shall be sealed by an O-ring.

The cable plug and sealed entry system as part of the motor shall be FM and CSA approved for use in NEC Class I, Division I, Groups C & D hazardous locations. The system shall be anti-wicking by design, and shall prevent any water that enters the cable through damage to the jacket from entering the motor. Cable entry designs which utilize potting compounds to provide a water tight seal, or those which do not allow the cable to be easily changed in the field shall not be considered equal.

2.03 ACCESSORIES

- A. The pump manufacturer shall supply related pump accessories for the lift station as shown on the plan drawings.
 - 1. Standard pump accessories may include, but not limited to, upper guides, rails, float brackets, floats, lift cables, lifting bails, anchor bolts, and hardware; all to be supplied in type 316 stainless steel materials.

2. The integral base elbows and pump rail brackets are to be construction of cast iron material.
3. The access covers are defined under Section 05 30 05.

2.03 CONTROL PANEL

A. GENERAL

1. The work included in this Section consists of furnishing all labor, equipment, tools, materials, and performing all operations required for furnishing control cabinet.
2. The Drawings are diagrammatic in character but should be adhered to as closely as possible consistent with fabrication of the control panel.
3. All work shall be executed in workmanlike manner by skilled personnel and the work shall present a neat and professional appearance when completed.
4. The term “provide” shall mean to furnish completely unless otherwise indicated.
5. The Vendor shall provide a detailed shop drawing.
6. In general, electrical materials and apparatus shall comply with all applicable tests, ratings, specifications, and requirements of the appropriate standards listed in section 1.02 herein. Underwriter’s Laboratories, Inc. (UL) listed electrical components or assemblies shall be used and shall bear the approved device label of UL, and conform to UL 508A standards. The standards herein are minimums; the Vendor may exceed such minimums with prior approval of the County.
7. All work shall comply with applicable requirements and recommendations of standards published by listed agencies and trade associations, except to the extent more detailed and stringent requirements are indicated or required by local governing regulations. The control cabinets furnished herein shall be fully FDEP compliant.
8. All work shall comply with the latest editions of the NEC, National Fire Protection Association NFPA 70, NFPA 79, the National Electrical Safety Code (NESC), and all applicable state, municipal, and local codes. Work shall be subject to inspection and approval requirements of the local authority having jurisdiction.

9. Vendor shall guarantee all work and rectify any defects due to faulty materials or workmanship for a period of 18 months after delivery of control cabinet.

B. CONTROLS AND INSTRUMENTATION

1. The Duplex pump station control panel shall be designed for 240 Volt, three (3)-Phase, and four (4) Wire service. The panel shall also be designed for two (2) 20 horsepower pumps with 27 full load amps. Across the line starters shall be used to start the pumps up to full speed and off as necessary to maintain level in the pump station, using pump controller and level sensor.
2. The duplex control panel shall be manufactured for Hydra Service USA, Sanford, Florida, or approved equal to these specifications. The panel shall be constructed in accordance with UL 508A requirements for enclosed industrial control panels and shall bear the serialized UL label, with all components being U/L listed or Recognized for use in Industrial Control Panels.

C. ENCLOSURE:

1. All controls for the station operation shall be enclosed in a single tamper-resistant, NEMA 3R 304 stainless steel enclosure. The outer door shall have three-point latch mechanism with roller bar and heavy duty lockable handle. The door shall be able to be held open position at 90 degrees (90° minimum) with mechanical latches. The panel shall be sufficiently large to accept all control components without crowding. Larger enclosures shall contain door and panel stiffeners as required.
2. The enclosure shall have a hinged full-height inner door fabricated from high quality aluminum 5052-H32 0.125-inch (0.125") thick, shall be powder coat Iron Gray Texture. All holes shall be in accordance with UL 508A to maintain proper fitting of devices, i.e. notches to prevent turning. All components exposed for access shall have symmetrical cut outs with clean and de-burred edges.
3. All circuit breakers, control switches, indicator lights and other control devices shall be identified permanently with etched engraving on the dead front cover of the control panel. The door shall have a continuous aluminum piano type hinge with two (2) twist type latches.
4. The enclosure shall have a twelve gauge steel, formed, removable subpanel. The subpanel shall be degreased, cleaned, treated with a phosphatizing process, then primed and painted with white industrial grade baking enamel.

The enclosure and mounting system shall be designed to withstand wind loads as required by applicable building codes.

D. CONTROLS:

1. The panel shall consist of the following components:
 - a. SC-2000 Pump Controller with Operator Interface (one), spare controller (one).
 - b. Liquid Level Sensor (one).
 - c. Motor Starters (one per pump).
 - d. Thermal Magnetic Circuit Breaker (one per pump).
 - e. Manual Transfer Assembly (one interlocked Main and Emergency Breaker).
 - f. Control Transformer with Primary and Secondary Circuit Breaker protection (one).
 - g. Generator Receptacle (one).
 - h. Duplex Convenience Outlet, GFI (one).
 - i. HOA Selector Switches (one per pump, float backup, and panel light).
 - j. Elapse Time Meters (one per pump).
 - k. Pilot Lights:
 - 1) Run (one per pump - green).
 - 2) Seal Fail (one per pump - amber).
 - 3) Over-Temperature (one).
 - 4) Fault (one per pump - amber).
 - 5) Backup Float Enable (one - red).
 - 6) Control Power Available (one - green).

- 7) Alarm Light (one).
- 8) Audible Alarm (one).
- 9) Lightning/Surge Arrestor (one).
- 10) Moisture Sensors (one per pump).
- 11) Heat Sensors (one per pump).
- 12) Power/Phase Monitor (one).
- 13) Power Supply (one).
- 14) Work Lamp (one).

E. GENERAL COMPONENTS:

1. Pump Control Module: The pump control module shall be a controller that is designed for the wastewater industry and provides set point adjustment for starting and stopping of up to four (4) pumps, set points for low and high level alarms, and selection of lead pump alternation. It shall include a user-friendly operator interface to enter set points and see liquid level. It shall contain outputs for pumps/alarms, 4-20 mA input for level signals, and digital inputs for float switches. It shall also be capable of in/outflow pump capacity calculation and interfacing with SCADA and /or Telemetry systems via an RS 232 serial port. The pump control module shall be an MPE SC2000 controller or pre-approved equal.
2. Liquid Level Sensor: The primary liquid level sensor shall be a submersible pressure transducer that is designed for the wastewater industry. It shall be a submersible hydrostatic type with a 316L Stainless casing. The transducer element shall be made of ceramic material. The level sensor shall provide a 4-20 mA output signal proportional to liquid level. It shall also provide transient protection. The level sensor shall be an "ABS", Model HSC2 pressure transducer or pre-approved equal.
3. Motor Starters: The panel shall contain a motor starter for each motor. The motor starter shall be across the line non-reversing magnetic starter with individual mechanical overload protection on each power leg with reset installed through the dead front inner door unit. The Motor Starters shall be "Square D", series, or pre-approved equal.
4. Thermal Magnetic Circuit Breakers: The circuit breakers shall be quick-

make, quick-brake and trip free. The thermal and magnetic elements shall operate independently and be designed with a common trip bar breaking all poles when a fault is received on any pole. “H” frame circuit breakers shall contain a self-test “Trip Selector” permitting a mechanical simulation of the over current tripping device. Each circuit breaker shall be mounted with the handles extending through the inner door. The circuit breakers shall be “Square D” LAL, JDL, or HDL series, or pre-approved equal.

5. Manual Transfer Assembly: If an automatic generator is not specified, a manual transfer interlock assembly shall be supplied. The assembly shall provide one (1) normal power circuit breaker, one (1) emergency power circuit breaker and interlock to prevent both circuit breakers from being energized at the same time.
6. Generator Receptacle: A 100 amp Russell Stoll #JRS1044FR receptacle and JAAB10 angle adapter panel mounted receptacle and flap cover shall be provided. The generator receptacle shall not be required if generator set is installed.
7. Duplex Convenience Outlet: Provide a convenience outlet, duplex receptacle with integral ground fault interrupter, to be mounted on the inner door. The receptacle shall be rated 15A, 120VAC and shall be manufactured by “Hubbell”, or pre-approved equal.
8. HOA Selector Switches: A three (3)-position selector switch shall be provided for each pump. A two (2)-position selector switch shall be provided for the Backup Float Enable feature and the panel work lamp. These switches shall be 30 mm, NEMA 4X, maintained type switches. The HOA switches shall be manufactured by “Square D”, series 9001, KS12B, and KS43B, or pre-approved equal.
9. Elapse Time Meters: Five (5) digit, non-resettable elapse time meters interfaced with the appropriate motor starters shall be mounted on the inner door. One (1) time meter for each pump. The elapse time meter shall be ENM, model T-50, or pre-approved equal.
10. Pilot Lights: Pilot lights shall be provided to indicate run and alarm status of the pumps/motors and the use of the float backup system. The lights shall have a removable lens and replaceable lamp. The lights shall be 30 mm, NEMA 4, 120VAC, full voltage type. The pilot lights shall be “Square D”, series 9001, KP38G31, KP38A31, KP38R31, or pre-approved equal.
11. Alarm Light: A red strobe alarm light pipe mounted on the panels left side, unless otherwise shown on the drawings, shall be provided to indicate a high water condition. The unit shall consist of Ingram CTO15F-R strobe light,

OLB one-half inch (1/2") conduit body, six inch (6") aluminum pipe, one-half inch (1/2") Myers hub, or pre-approved equal.

12. Audible Alarm: A Horn shall be provided to sound upon a high level condition. The horn shall be piezo type and shall be rated 45 db at 10 feet (10'). A silence pushbutton shall be mounted on the left side of the enclosure used to energize a relay to disconnect the horn when pressed. The silence pushbutton shall be individually labeled on the outside of the enclosure with a custom laser printed label that has been laminated for protection. The label color shall be white with black letters and black border. This label shall meet the requirements of the "Component Labels" section listed below. The pushbutton switch shall be 30 mm, NEMA 4X, flush type, black in color, and manufactured by "Square D", series 9001, KR1B, or pre-approved equal. The horn shall be a Federal Signal model 350-120-30 with trim ring (TR), or pre-approved equal.
13. Lightning/Surge Arrestor: A secondary arrestor, complying with UL 1449, 3rd Edition - latest, shall be installed on the line side of the main breaker in accordance with manufacturer's instructions. Arrestor shall be "Square D", model SDSA3650, or pre-approved equal.
14. Moisture Sensors: The panel shall be equipped with moisture sensing relays for each pump energizing red status indicator lights mounted on the inner door. The relays shall be "ECS" model 1110016, or pre-approved equal.
15. Heat Sensors: The panel shall be equipped to accept a thermal signal from each pump/motor. This signal shall shutdown the pump and energizes a red status indicator for the appropriate pump/motor.
16. Power/Phase Monitor: A power monitor relay shall be installed and connected to the control logic. When the relay is deactivated, it shall disconnect control power to the motor starters. The relay shall be deactivated in the event that any of the following conditions occur:
 - a. Phase loss (single phasing).
 - b. Phase reversal (sequence).
 - c. Low voltage (brown out).

The phase monitor relay shall be an "ORCO", model 001-230-1212 for 240VAC, 001-480-1212 for 480VAC, no equal.
17. Work Lamp: A work lamp shall be provided in the control panel. The work lamp shall be a fluorescent light fixture, 18 inches (18") wide, and have a

single lamp. It shall be mounted inside of the top of the enclosure and centered from left to right. Mounting shall be welded studs mounted to the roof of the enclosure. Drilling holes into the roof of the enclosure will not be accepted. The work lamp shall be provided with a manual operator type, two (2)-position switch (see HOA switches) located on the dead front and be labeled per the label specifications listed below. The work lamp shall be manufactured by “Utilitech”, part number 069486, or pre-approved equal.

18. Battery Backup: Include battery backup system with 12 pin socket, battery, and signal system. Battery to maintain pump controller and accessories for minimum four (4) hours.

F. MISCELLANEOUS REQUIREMENTS:

1. Wiring: All wiring shall be color-coded using MTW #16 AWG minimum. Control wiring shall be numbered/lettered at each end. Wire numbers/letters shall be Panduit shrink sleeve or pre-approved equal. All wiring shall be routed through a wiring duct system to provide wire protection and an organized appearance.

2.

Terminals: A 10 pole terminal block mounted on a 30-degree (30°) angle shall be provided as a minimum for interface with field installed equipment for the ease of field connection. If additional terminals are required, then additional 10 pole terminals must be used to meet the additional requirements unless there are less than seven (7) additional terminals required. If less than seven (7) additional terminals are needed, then terminal blocks of lesser poles of the same brand may be used to make up the difference needed. Individual pole terminal blocks supplied to meet the total connections required will not be allowed.

Terminal blocks shall be mounted with a minimum of two inches (2") from both enclosure sides and a minimum of one inch (1") from the bottom of the enclosure for easy access to terminal screws.

3. Component Labels: All back panel components shall be labeled using UL approved yellow polyester laser/ink jet labels. The labels shall be manufactured by “Panduit”, part number series C100 - C200. The nameplates shall be etched or engraved for the inner door components and logos. The labeling system shall be computer controlled to provide logos, post-script type or custom designs.
4. Control Panel Label: The control panel shall be provided with a job name or pump station name/number nameplate. This nameplate shall be located on the front door of the enclosure. The nameplate shall be a laminated two (2)-part system using black letters on a white background providing protection against fading, peeling, or warping. The labeling system shall be computer

controlled to provide logos, post-script type or custom designs. The use of engraved plastic type nameplates is not acceptable.

5. **Warning Label:** A “Danger!! High Voltage Inside” label shall be provided on the inner door of the enclosure. The label shall be a laminated two (2)-part system using black letters on a goldenrod background providing protection against fading, peeling, or warping. This label shall meet the requirements of the “Component Labels” section listed above.
6. **Drawings/Schematics:** The control system shall have complete drawing/schematics using AutoCad®. The drawing shall have a complete Bill of Material, front panel view with component locations, sub-panel view with component locations and electrical schematic. References to the Bill of Material shall be located for each component. These drawings/schematics shall also be provided as laminated sheets that shall be affixed to the inside of the enclosure door.
7. **Print Pocket:** A plastic print pocket shall be provided and mounted on the inside of the front door for all stainless steel enclosures. This print pocket shall be mounted by welding three (3) threaded studs onto the inside of the front door of the enclosure. One (1) stud will be used for each side of the print pocket as well as one (1) used for the bottom edge of the print pocket. No self- tapping screws, adhesive tapes, or Velcro will be accepted for the mounting of the print pocket.
8. **Mounting Hardware:** All mounting hardware such as screws or bolts used in the manufacturing of the control panel shall be stainless steel. All holes in the back plate and dead front shall be drilled and tapped. No self-tapping screws, adhesive tapes, glues, epoxy, or Velcro will be accepted for the mounting of any hardware.

G. OPERATION:

1. **Duplex Operation:** Under normal conditions, the submersible transducer will provide a 4-20 mA output signal that is proportional to level to the pump controller. The pump controller will then provide signals to the starters to start the pumps up to full speed as needed to maintain the water level in the wet well. The pump controller will provide start and stop set points and alarm set points for all pumps. The pump controller will also provide alternation of the two (2) pumps to ensure equal runtime of all pumps. If the incoming flow exceeds the pump capacity of the lag pump, and the high-level float is activated a high-level alarm shall be activated on control panel visual and audible and by remote through the pump controller to alert maintenance personnel to the condition. A silence button shall be provided to turn off the horn, but the alarm beacon shall remain on until the high level condition is

corrected. If the high-level float is activated for more than the time set on the backup float timer (10 sec.), control will transfer to float backup operation regardless of the position of the "Select Controller / Floats" switch. Control will remain on backup floats until manually reset.

2. Redundant Float Backup Operation: Four (4) Floats (off, lead, lag, and high) shall be utilized to send a signal to the motor starters to operate the pump only if the level rises above the floats designated for the controller operation. Contingent upon wet well level, the lowest float shall signal the lead pump to shut down. Upon sump level rise, the next higher float shall signal the alternator to select and start a pump. If after the lead pump starts and the level continues to rise to the Lag Pump start contact, the float shall send a signal to the alternator to start the lag pump and both pumps shall run simultaneously. The level shall be lowered until the Stop Float is reached and the controller shall shutdown both the appropriate control contacts and the Alternator manufactured by Macromatic, ECS part number 1110011, or equal, will start and run the pumps simultaneously.

2.04 PUMP ACCESS HATCH

A. General

1. Door opening sizes, number, and direction of swing of door leaves, and locations shall be as shown on the Drawings. The Drawings shall indicate the clear opening requirements.
2. All doors shall be aluminum (mill finish) unless otherwise noted.
3. Openings larger than 42 inches (42") in either direction shall have double leaf doors.
4. Doors shall be designed for flush mounting and for easy opening from both inside and outside.
5. All doors shall be provided with an automatic hold-open arm with release handle.
6. Double leaf doors shall be provided with Type 316 stainless steel safety chains to go across the open sides of the door, when in the open position. Brackets shall be provided on the underside of the doors to hold the safety bars when not in use.
7. All hardware, including but not limited to, all parts of the latch and lifting mechanism assemblies, hold open arms and guides, brackets, hinges, springs, pins, and fasteners shall be Type 316 stainless steel.

8. Cylinder locks with keyway protected by a cover plug shall be provided with all hatches.
9. Door leafs shall be one-quarter inch (1/4") aluminum diamond plate, minimum, stiffened and designed for 300 psi.
10. Mill finish with bituminous coating finish applied to the exterior.
11. Hatches covers to be manufactured by USF Fabrication or Halliday.

PART 3 – EXECUTION

3.01 INSTALLATION

- A. The equipment shall be installed and mounted by the CONTRACTOR in accordance with the manufacturer's drawings and instructions. All equipment shall be installed as shown in the drawings and in accordance with the manufacturer's recommendations. Piping shall be run as shown on the plans and be connected to all units in a manner to prevent leakage of water or sewage. Any departures from the locations or arrangements of units or connections there to, as shown on the plans, shall be detailed by the CONTRACTOR and approval there of obtained from the ENGINEER.
- B. All units shall be factory assembled by the pump manufacturer.

3.02 MANUFACTURER'S FIELD SERVICES

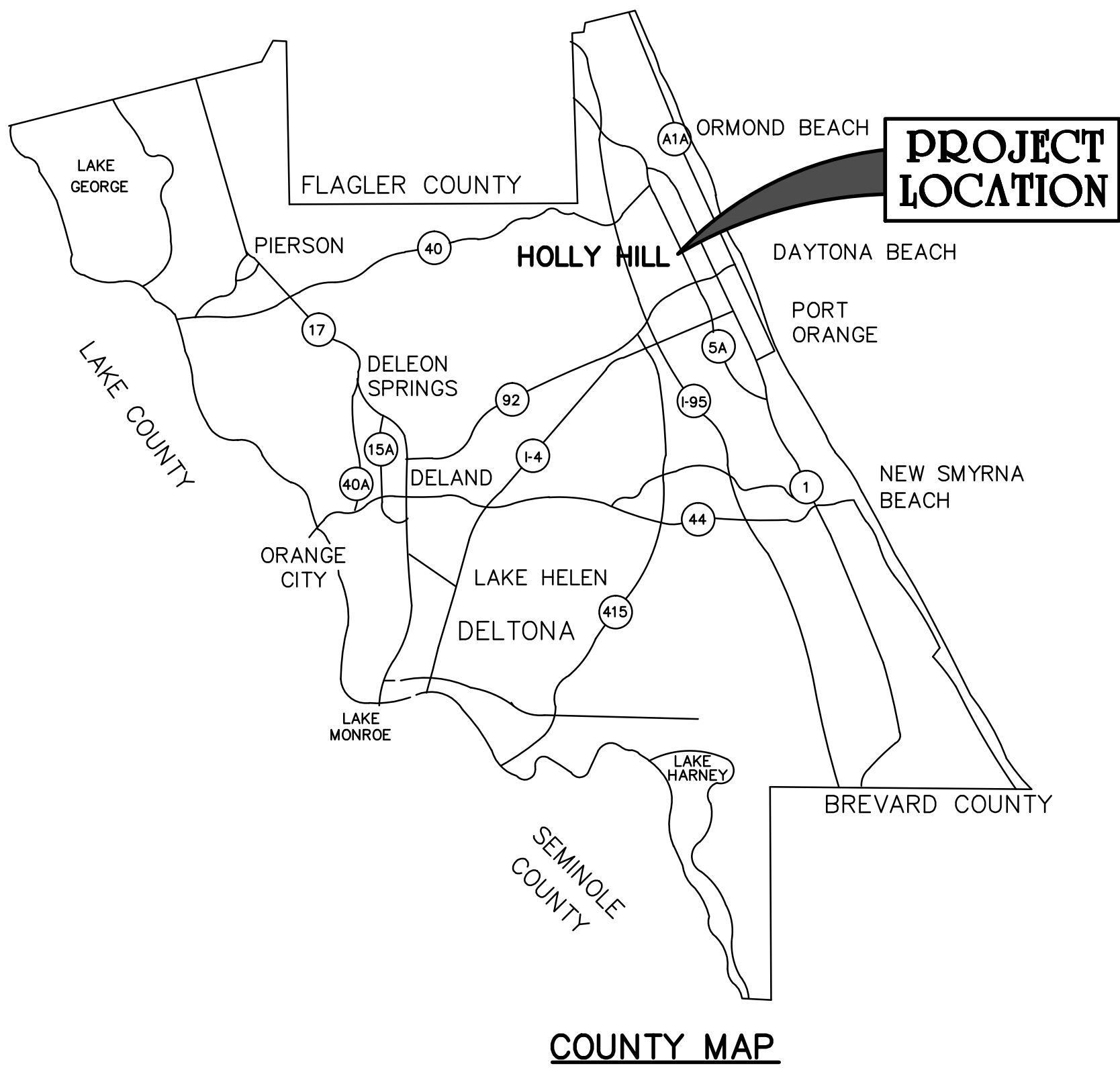
- A. Manufacturer's Service Representative shall provide competent personnel for a period of one (1) day in one (1) trip to:
 1. Check installation of equipment.
 2. Provide start-up of equipment.
 3. Run specified tests (if any).
 4. Train personnel in operation and maintenance of equipment.

3.03 TESTING

- A. After installation of the sewage pumps, the pumps shall be given a running test in the presence of the ENGINEER during which time they shall demonstrate their ability to:
 1. Perform without vibration or overheating at the specified conditions.

2. Load test, check amperage, phase to voltage test and insulation test.
 3. Flow test based on timed drawdown of the wetwell and force main pressure.
- B. All defects revealed by or noted during the tests shall be corrected or equipment replaced promptly at no additional expense to the OWNER.
- C. CONTRACTOR shall furnish all labor, piping, equipment, and materials necessary for conducting the tests.
- D. In case the CONTRACTOR is unable to demonstrate to the satisfaction of the ENGINEER that the units will satisfactorily perform the service required, the units may be rejected. CONTRACTOR shall remove and replace the equipment, at his own expense.
- E. Prior to acceptance of the lift station, the as-built shop drawings, curves, details, and the operation and maintenance manuals shall be submitted. Provide, as a minimum, a set of four (4) manufacturer's manuals. In an effort to conserve environmental resources, and to minimize carbon footprint on the environment, an electronic file in PDF formatted manual can be supplied by email upon request.

END OF SECTION



CITY of HOLLY HILL, FLORIDA



LIFT STATION #7 REHABILITATION

CITY OFFICIALS

MAYOR John Penny
CITY MANAGER Joseph Forte

COMMISSIONERS

DISTRICT 1 Arthur Byrnes
DISTRICT 2 Penny Currie
DISTRICT 3 John C. Danio
DISTRICT 4 Chris Via

INDEX

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2	EXISTING SITE SURVEY AND BYPASS PLAN
3	EXISTING LIFT STATION – DEMOLITION DETAILS
4	PROPOSED SITE PLAN AND GENERAL NOTES
5	LIFT STATION – DETAILS
6	STANDARD DETAILS
7	STANDARD DETAILS
8	ELECTRICAL DETAILS

PROJECT TEAM:

OWNER:
CITY OF HOLLY HILL
contact: Walt Smyser
1065 RIDGEWOOD AVENUE
HOLLY HILL, FLORIDA 32117
phone: (386) 248-9463
fax: (386) 248-9449

CIVIL ENGINEER:
QUENTIN L. HAMPTON ASSOCIATES, INC.
contact: BRADLEY T. BLAIS, P.E.
4401 EASTPORT PARKWAY
PORT ORANGE, FLORIDA 32127
phone: (386) 761-6810
fax: (386) 761-3977

SURVEYOR:
MYER LAND SURVEYING, INC.
316 RIDGEWOOD AVENUE
HOLLY HILL, FLORIDA 32117
phone: (386) 255-6304
fax: (386) 255-6306

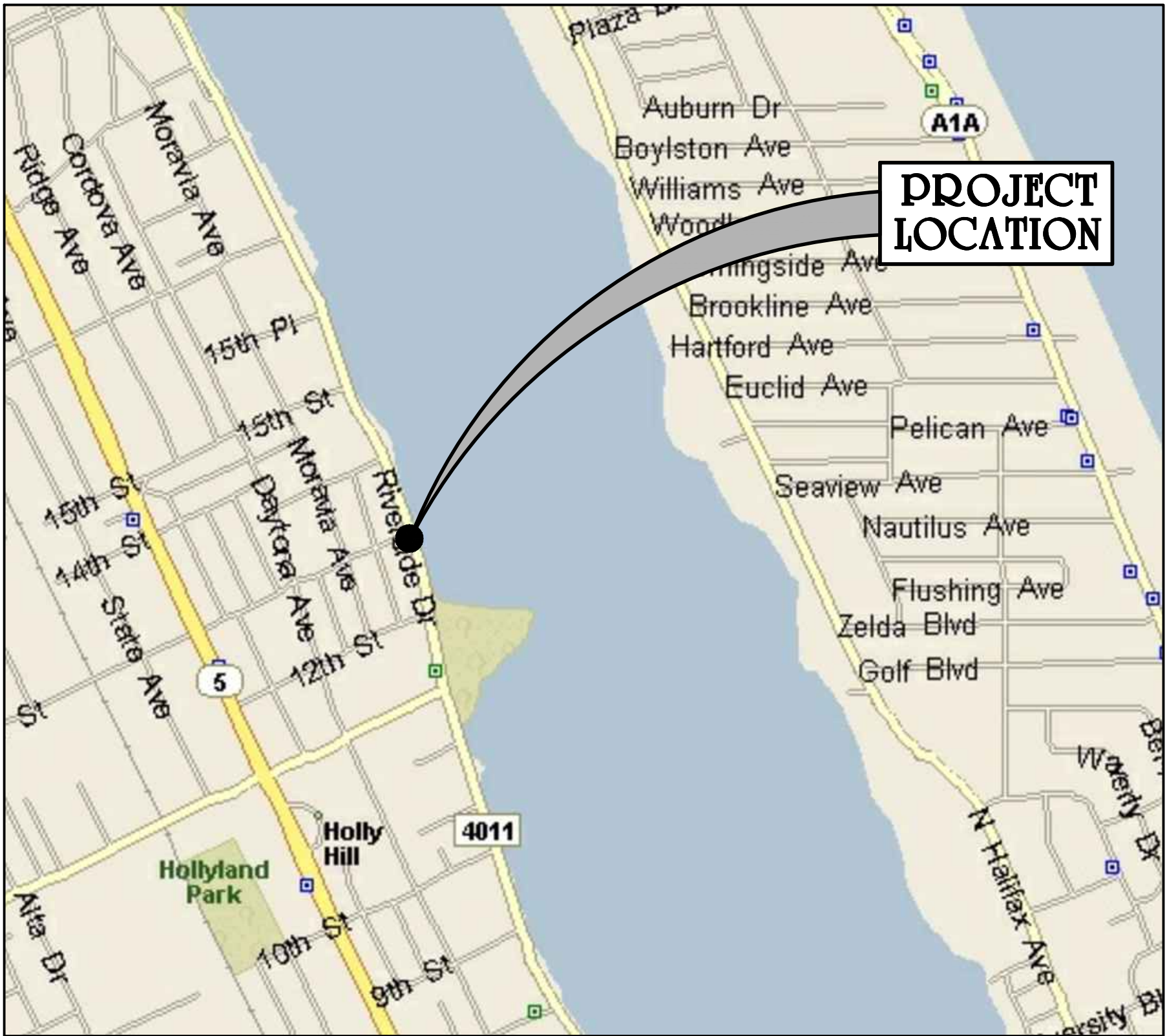
ELECTRICAL ENGINEER:
RICHARD E. KRANZ, P.E.
2615 SPRUCE CREEK BLVD
PORT ORANGE, FLORIDA 32128
phone: (386) 405-3205
fax: (386) 788-6751

ENGINEER OF RECORD: BRADLEY T. BLAIS

P.E. NO.: 47130

CITY OF HOLLY HILL PROJECT MANAGER: WALT SMYSER

ATTENTION IS DIRECTED TO THE FACT THAT
THESE PLANS MAY HAVE BEEN ALTERED IN
SIZE BY REPRODUCTION. THIS MUST BE
CONSIDERED WHEN OBTAINING SCALED DATA.



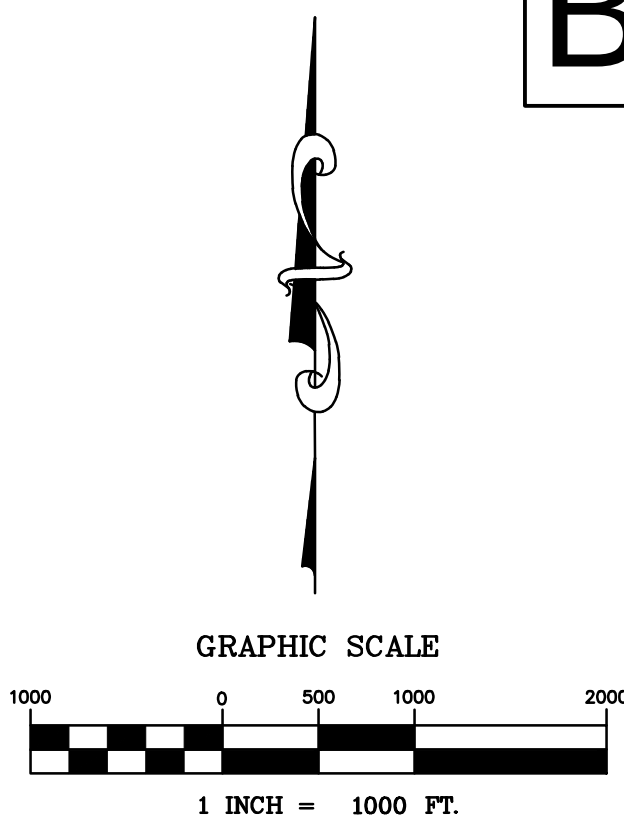
VICINITY MAP

(SECTION 37, TOWNSHIP 15 SOUTH, RANGE 33 EAST)

BID NO. 17WW07

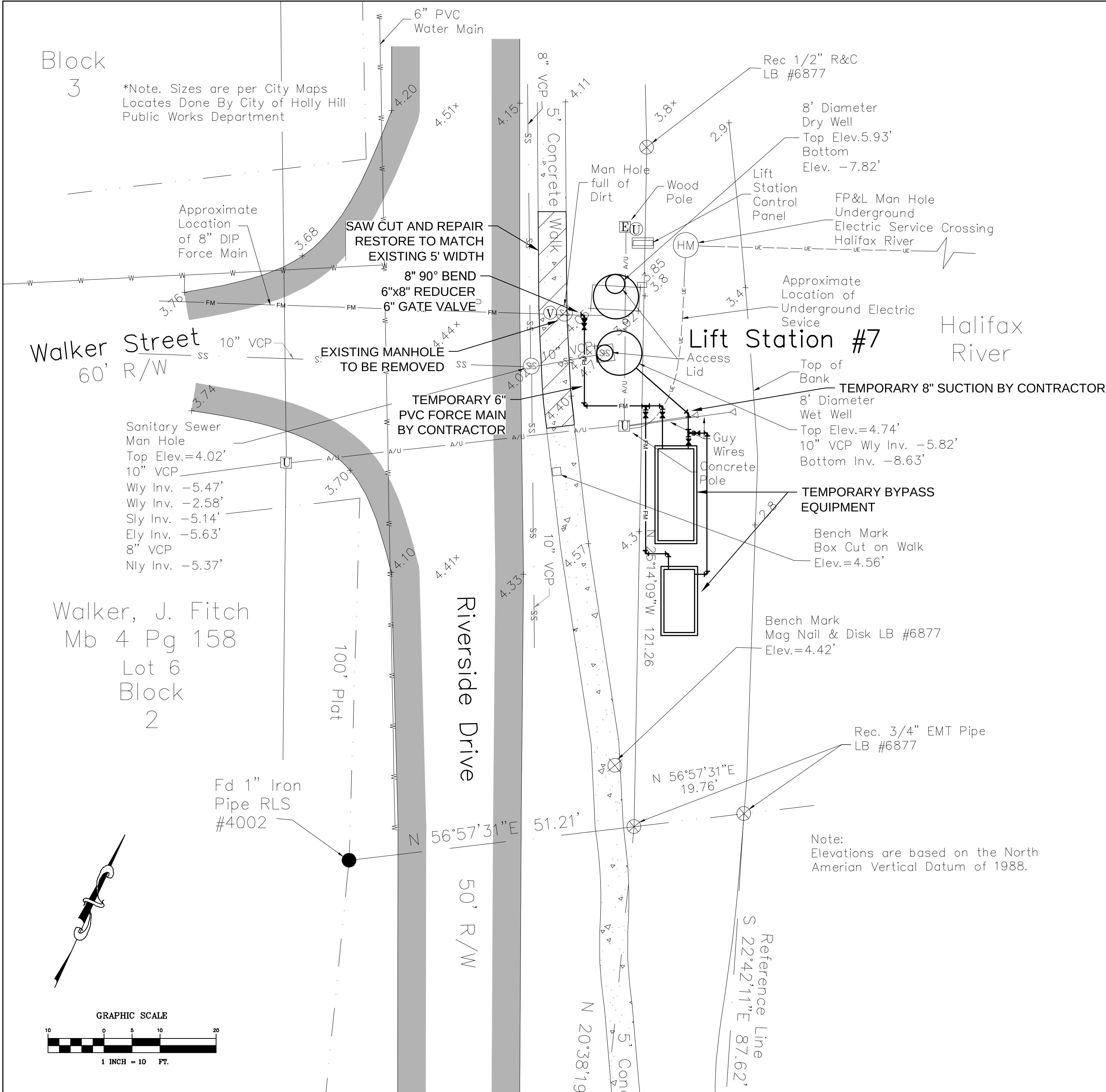
MAY 2017

BID SET



FLORIDA CERTIFICATE OF AUTHORIZATION NUMBER: 626
FAX 386 761- 3977
P.O. DRAWER 290247 PORT ORANGE, FLORIDA 32129-0247 386 761-6810

PREPARED BY:
QUENTIN L. HAMPTON ASSOCIATES, INC.
CONSULTING ENGINEERS
P.O. DRAWER 290247 PORT ORANGE, FL. 32129-0247
386 761-6810



LOCATION OF PUBLIC WATER SYSTEM MAINS IN ACCORDANCE WITH F.A.C. RULE 62-555.314			
Other Pipe	Horizontal Separation	Crossings (1)	Joint Spacing @ Crossings (Full Joint Centered)
Storm Sewer, Stormwater Force Main, Reclaimed Water (2)			
Vacuum Sanitary Sewer			
Gravity or Pressure Sanitary Sewer, Sanitary Sewer Force Main, Reclaimed Water (4)			
On-Site Sewage Treatment & Disposal System	10 ft. minimum	---	---

(1) Water main should cross above other pipe. When water main must be below other pipe, the minimum separation is 12 inches.
(2) Reclaimed water regulated under Part III of Chapter 62-610, F.A.C.
(3) 3 ft. for gravity sanitary sewer where the bottom of the water main is laid at least 6 inches above the top of the gravity sanitary sewer.
(4) Reclaimed water not regulated under Part III of Chapter 62-610, F.A.C.

Disclaimer - This document is provided for your convenience only. Please refer to F.A.C. Rule 62-555.314 for additional construction requirements.

SURVEY REPORT
Sheet 2 of 2

SITE DESCRIPTION:
Lift Station No. 7
Riverside Drive at Walker Street

GENERAL NOTES:
1. Field Survey completed 01/18/2017
2. Bearing basis plat: N25°14'09"W along the easterly right of way of Riverside Drive.
3. No title search has been performed by or provided to MYER LAND SURVEYING, INC.
4. Dimensions shown are feet and decimals thereof.
5. Elevations are based on the North American Vertical Datum of 1988.

GENERAL LEGEND:

A	Arc length	OR	Official Records
A/C	Air conditioning pad	P	Pool pump
A/U	Aerial utilities	PC	Point of curve
BM	Benchmark	PCC	Point of compound curve
C	Cable TV service	PCP	Permanent control point
CALC	Calculation	PKND	Parker Krayton Nail & Disk
CB	Catch basin	POB	Point of beginning
CL	Centerline	POC	Point of commencement
CLF	Chain link fence	PP	Finished pipe
CM	Concrete monument	PRC	Point of reverse curve
CMP	Corrugated metal pipe	PT	Point of tangent
CONC	Concrete	PVC	Polyvinyl chloride
CR	Cable riser	R	Radius
Δ	Delta	R&C	Rod and cap
DESC	Description	RCP	Reinforced Concrete Pipe
Ⓔ	Electric meter	REC	Recovered
E(LY)	East(ery)	RLS	Registered land surveyor
EMT	Electrical metal tubing	R/W	Right of Way
FD	Found	Ⓔ	Utility services
FFE	Finished Floor Elevation	S(LY)	South(ery)
FLD	Field	T	Telephone service
FPL	Florida Power and Light	TYP	Typical
FPLS	Florida Professional Land Surveyor	UG	Underground
Ⓒ	Gas meter	U	Utility pole
IP	Iron pipe	Ⓔ	Valve
L	Light pole	W	Water meter
LB	Licensed business	W(LY)	Westerly
N(LY)	North(ery)	WF	Wooden fence
N&D	Nail and disk		
NGVD	National Geodetic Vertical Datum		

(This Survey Report is not valid unless signed, embossed with signatory's seal and accompanied by Map of Boundary Survey 16b No. 17109)
MICHAEL M. MYER, PSM 153006 (Copyright reserved)
Report and map of survey are exclusively prepared for the benefit of:
City of Holly Hill
Quentin L. Hampton & Associates
Job No. 17109 CRD #89151
FB 320, pp 9

Digitally signed by Michael Myer
Date: 2017.02.10
130650.05007

MYER LAND SURVEYING, INC.
LICENSED BUSINESS #4977
MICHAEL M. MYER, A.L.S. 4006
PROFESSIONAL LAND SURVEYOR
316 RIDGEWOOD AVENUE HOLLY HILL, FLORIDA 32117
386 255-6304 Phone



FLORIDA CERTIFICATE OF AUTHORIZATION NO. 626
PHONE: (386) 761-6810 FAX: (386) 761-3977 P.O.
DRAWER 290247, PORT ORANGE, FL 32129-0247

CITY OF
HOLLY HILL
VOLUSIA COUNTY, FL

LIFT STATION #7
REHABILITATION

EXISTING SITE SURVEY
AND BYPASS PLAN

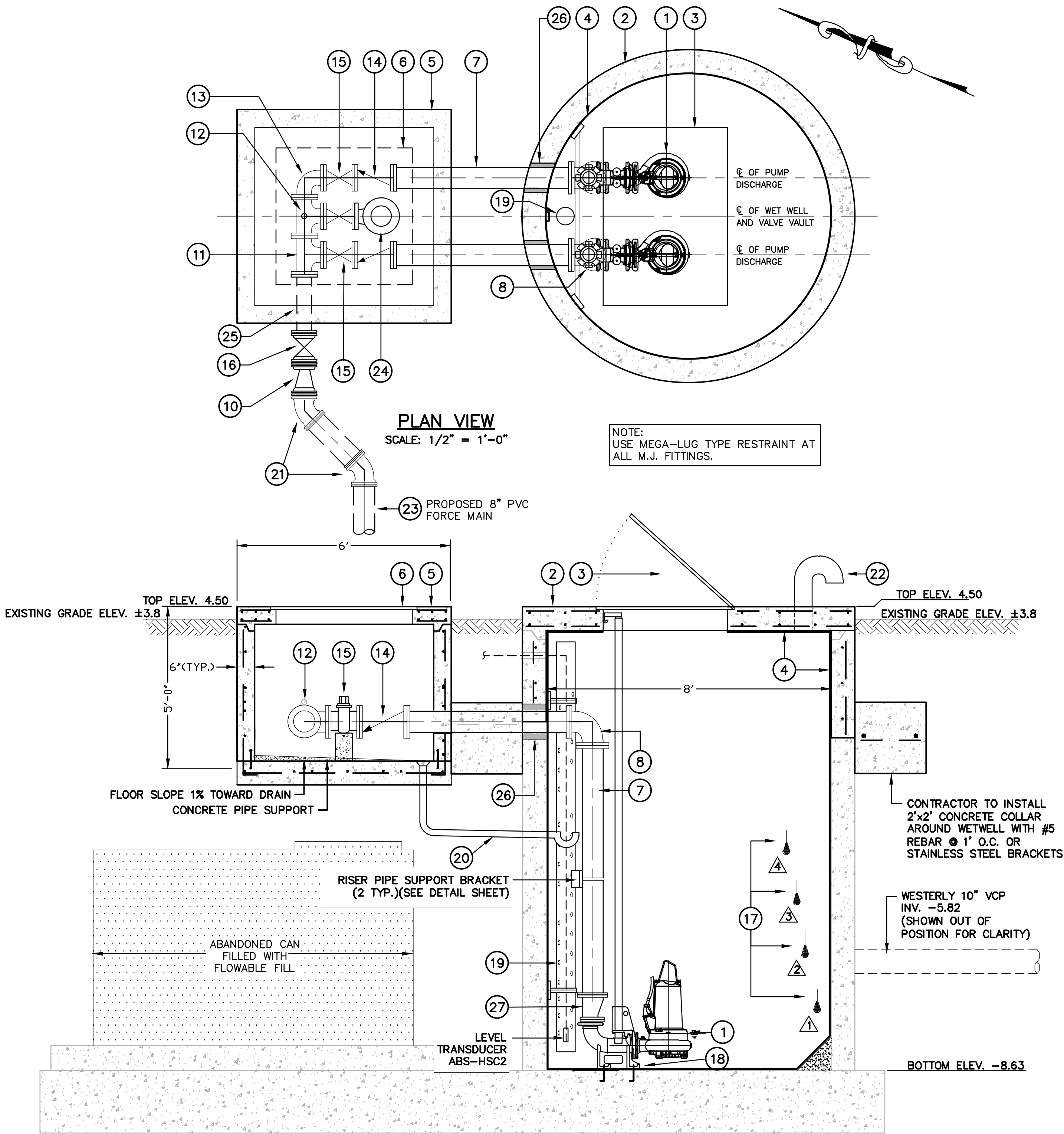
BRADLEY T. BLAIS, P.E.
FLORIDA REGISTRATION
#47130

SHEET NO.

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OF 8

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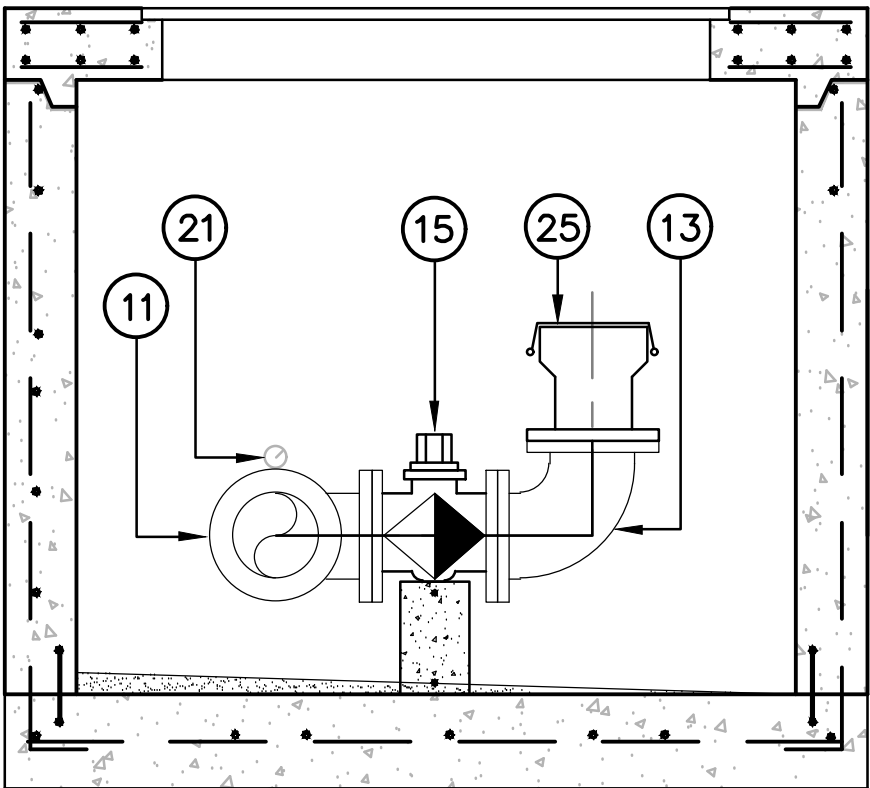
SECTION VIEW
SCALE: 1/2" = 1'-0"

BACKUP FLOAT SETTINGS				
FLOAT	ELEV.	ACTION	NOTES	
▲	-7.0	ALL PUMPS OFF	ADJUST PER OWNER / MANUFACTURER	
▲	-6.0	PUMP #1 ON	ADJUST PER OWNER / MANUFACTURER	
▲	-5.0	PUMP #2 ON	ADJUST PER OWNER / MANUFACTURER	
▲	-4.0	HIGH LEVEL	ADJUST PER OWNER	

LIFT STATION NOTES:

1. VALVE VAULT TO HAVE (2) COATS – 15 MILS TOTAL OF COAL TAR EPOXY INTERIOR COATING. INSTALL 2" SCH80 PVC VAULT DRAIN AS SHOWN. INSTALL 2" DRAIN TRAP INSIDE WETWELL.
2. PROVIDE HASP TYPE LOCKING MECHANISM ON ALL ACCESS HATCHES.
3. PUMPS TO BE FURNISHED WITH HIGH PRESSURE DISCHARGE COUPLING, STAINLESS STEEL SLIDERAIL SYSTEM, SEAL FAILURE AND THERMAL OVERLOAD INDICATORS.
4. ALL DISTURBED AREAS TO BE REGRADED AND SODDED TO MATCH EXISTING.
5. ALL HARDWARE INSIDE WETWELL TO BE 316 STAINLESS STEEL.
6. COAT ALL DIP PIPING, VALVES, FITTINGS IN WET WELL AND VALVE VAULT WITH 15 MILS OF COAL TAR EPOXY.

**PROPOSED LIFT STATION
OPERATION DATA**
EST. DAILY FLOW = 60,000-100,000 GPD (EXISTING)
NO NEW FLOWS ARE PROPOSED
EST. AVG. RUN TIME = 5-6 HOURS PER DAY



EMERGENCY PUMP CONNECTION DETAIL
NTS

EQUIPMENT KEY LIST

- 1 PROPOSED SUBMERSIBLE PUMPS (2) ABS MODEL # XFP100E CB1 W/ 4" DISCHARGE 380 GPM @ 40' FT TDH 7.5HP, 1800 RPM, 1Ø, 60Hz, 230V. PUMP ASSEMBLIES TO INCLUDE (2) 2" 316 S.S. GUIDE BARS AND FLOAT HANGERS. ALL ATTACHMENT HARDWARE TO BE 316 S.S.
- 2 EXISTING 8 FT. I.D. CONCRETE WET WELL. FURNISH AND INSTALL NEW 8' DIA. TOP. FURNISH AND INSTALL NEW PRECAST CONCRETE WET WELL TOP WITH ALUMINUM ACCESS HATCHES (SEE 3 BELOW). KEY TOP SLAB TO NEW WET WELL SECTION. CONTRACTOR TO VERIFY DIAMETER BEFORE ORDERING TOP.
- 3 WET WELL SPRING ASSISTED ACCESS HATCH BILCO OR HALLIDAY PRODUCTS H-20 LOADING. COORDINATE ACCESS HATCH LOCATION WITH PUMP MOUNTING LOCATIONS. MINIMUM CLEAR OPENING 42"x60" TO PROVIDE CLEARANCE ON ALL SIDES OF PUMP FOR REMOVAL. ALL HARDWARE TO BE 316 S.S.
- 4 FURNISH AND INSTALL "RAVEN" OR "SPECTRASHIELD" EPOXY INTERIOR LINER IN NEW WET WELL. TO BE INSTALLED AFTER ALL PIPE AND HARDWARE AND PRIOR TO BASEPLATE INSTALLATION. (SEE PROJECT SPECIFICATIONS)
- 5 PRECAST VALVE VAULT. 5'x5' MINIMUM INTERIOR DIMENSION. FIELD INSTALL CONCRETE PIPE SUPPORTS.
- 6 VALVE VAULT SPRING ASSISTED ACCESS HATCH BILCO OR HALLIDAY PROD. H-20 LOADING 42"x42" MIN. CONTRACTOR TO VERIFY HATCH SIZE IS ADEQUATE. TO PROVIDE UNOBSTRUCTED ACCESS TO ALL VALVES. (SEE NOTE 2)
- 7 DISCHARGE RISER 6" HDPE DR9 PIPE WITH WELDED FLANGES AND 316 S.S. HARDWARE. (TYP. OF 2)
- 8 6" FL HDPE 90° BEND (TYP. OF 2)
- 9 GROUT SEAL AROUND DISCHARGE LINES WITH H₂S RESISTANT NON-SHRINK GROUT PRIOR TO LINER INSTALLATION (TYP.)
- 10 6"x8" M.J. REDUCER, DIP EPOXY LINED
- 11 6" FLANGED TEE. DIP EPOXY LINED (TYP. OF 2)
- 12 0-40 PSI GLYCERIN FILLED PRESSURE GAUGE IN TAPPED FLANGED CROSS BOSS WITH BRASS GATE VALVE
- 13 6" 90° BEND. DIP EPOXY LINED.
- 14 6" FL. CUSHIONED CHECK VALVE W/ SWING ARM. (TYP. OF 2)
- 15 6" AMERICAN BALL VALVE (TYP. OF 3)
- 16 6" GATE VALVE, EPOXY LINED WITH VALVE BOX. CONCRETE PAD AROUND VALVE BOX SHALL BE 12"x12"x6". (TYP OF 1)
- 17 4 FLOATS FOR PUMP CONTROL. SEE FLOAT SETTINGS CHART THIS SHEET
- 18 ANCHOR BASE ELBOW TO WET WELL FLOOR. INSTALL 1/2" 316 STAINLESS STEEL PLATE WITH 3/4" STAINLESS STEEL ALL THREAD TO ANCHOR BASE ELBOWS TO ONE (1) BASE PLATE. BASE PLATE TO BE ANCHORED TO WETWELL WITH MIN. FOUR (4) 3/4" ALL THREAD WITH EPOXY ANCHORS (MIN. 4" EMBEDDED) IN CONCRETE FLOOR
- 19 LEVEL TRANSDUCER STILLING WELL 6" PVC WITH 1/2" HOLES AS SHOWN. SUPPORT BRACKETS 316 S.S.
- 20 2" SCH80 PVC VALVE VAULT DRAIN WITH TRAP
- 21 8" MJ 45° BEND, DIP EPOXY LINED (TYP. OF 2)
- 22 6" SCH80 PVC WET WELL VENT WITH 316 S.S. INSECT SCREEN. 6" PIPE SLEEVE TO BE CAST INTO WETWELL TOP. PIPE AND FITTINGS DRY-FIT, NOT GLUED
- 23 8" C900 PVC FM
- 24 6" CAMLOCK EMERGENCY PUMP CONNECTION WITH DUST CAP PER CITY STANDARDS
- 25 6" DIP EPOXP LINED FM
- 26 GROUT SEAL AROUND DISCHARGE LINES WITH H₂S RESISTANT NON-SHRINK GROUT PRIOR TO LINER INSTALLATION (TYP.)
- 27 4"x6" M.J. REDUCER, DIP EPOXY LINED.

NO.	BY	REVISIONS	DATE	NO.	BY	REVISIONS	DATE

QLH

Quantin L. Hampton Associates

FLORIDA CERTIFICATE-OF-AUTHORIZATION NO. 626
PHONE: (386) 761-6810 FAX: (386) 761-3977 P.O.
DRAWER 290247, PORT ORANGE, FL 32129-0247

CITY OF
HOLLY HILL
VOLUSIA COUNTY, FL

LIFT STATION #7
REHABILITATION

PROJECT No. xxxxx

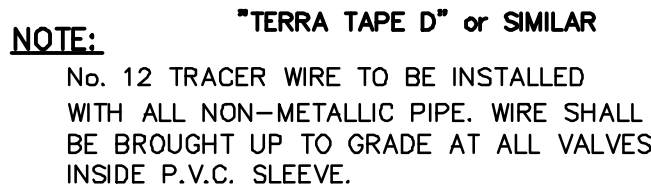
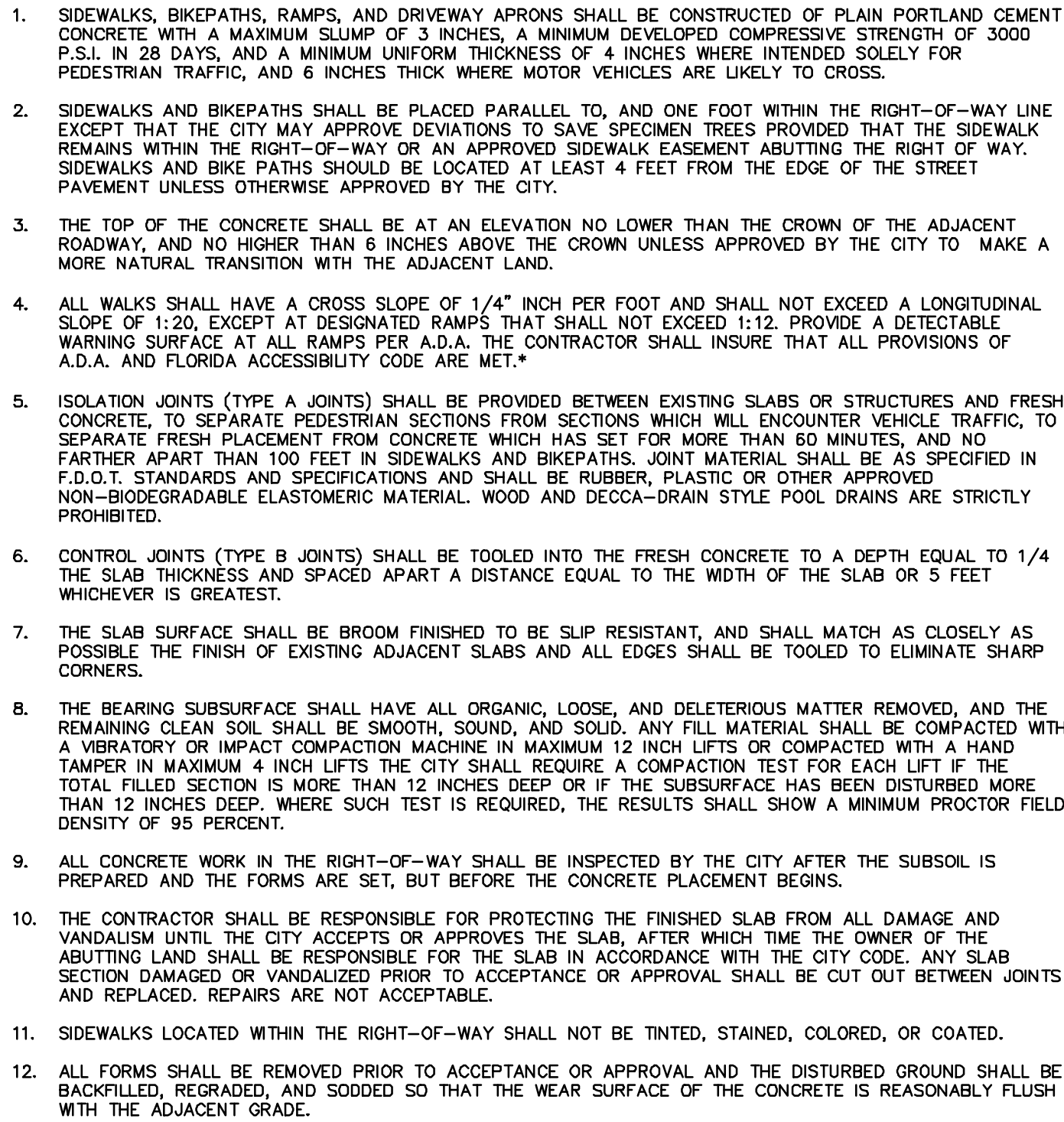
LIFT STATION
DETAILS

DRAWN BY: DWS

BRADLEY T. BLAIS, P.E.
FLORIDA REGISTRATION
#47130

SHEET NO.
5
OF 8

NTS



NOT TO SCALE



1. PIPE BEDDING: #57 STONE OR BEDDING ROCK COMPACTED TO 95% OF THE MAXIMUM DENSITY AS PER AASHTO T-180.
2. TRENCH BACKFILL: COMMON FILL COMPACTED TO 95% OF THE MAXIMUM DENSITY AS PER AASHTO T-180. (98% DENSITY REQUIRED UNDER PAVEMENT, DRIVEWAYS AND STRUCTURES.)
3. USE TYPE "A" BEDDING TO BE DETERMINED IN THE FIELD AS DIRECTED BY THE CITY.
4. (*): 15" MAX. FOR PIPE DIAMETER LESS THAN 24", AND 24" MAX. FOR PIPE DIAMETER 24" AND LARGER.
5. WATER SHALL NOT BE PERMITTED IN THE TRENCH DURING CONSTRUCTION.
6. ALL PIPE TO BE INSTALLED WITH BELL FACING UPSTREAM TO THE DIRECTION OF FLOW.
7. REFER TO SECTION 32.5 OF THE MANUAL FOR SHEETING AND BRACING IN EXCAVATIONS.
8. GRAVITY SEWERS SHALL UTILIZE TYPE "A" BEDDING, WHERE UNSUITABLE MATERIAL EXISTS. BEDDING DEPTH SHALL BE 4" MINIMUM FOR PIPE DIAMETER LESS THAN 15", AND 6" MINIMUM FOR PIPE DIAMETER 16" AND LARGER.
9. DEPTH FOR REMOVAL OF UNSUITABLE MATERIAL SHALL GOVERN DEPTH OF BEDDING ROCK BELOW THE PIPE. CITY SHALL DETERMINE IN THE FIELD REQUIRED REMOVAL OF UNSUITABLE MATERIAL TO REACH SUITABLE FOUNDATION.
10. REFER TO OSHA REQMS. FOR SLOPING, SHEETING AND BRACING IN EXCAVATIONS.

NOT TO SCALE



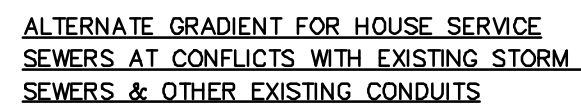
1. PAVING REPLACEMENT SHALL INCLUDE RAISING ALL MANHOLE FRAMES AND LIDS AND VALVE BOXES AND LIDS (AND SIMILAR APPURTENANCES) TO FINAL ELEVATION PRIOR TO RESURFACING
2. SUBBASE TO BE COMPACTED TO 98% MAXIMUM DENSITY AASHTO T-180
3. IN AREAS WHERE CONCRETE PAVEMENT IS TO BE UTILIZED, 3000 PSI - 28 DAY STRENGTH CONCRETE PAVEMENT MAY BE PERMITTED PROVIDED THAT THE SUBJECT AREA WILL REMAIN FREE OF VEHICULAR TRAFFIC FOR A MINIMUM OF 3 DAYS.

NOT TO SCALE



1. PIPE BEDDING: SELECT COMMON FILL COMPACTED TO 95% OF THE MAXIMUM DENSITY AS PER AASHTO T-180.
2. TRENCH BACKFILL: COMMON FILL COMPACTED TO 95% OF THE MAXIMUM DENSITY AS PER AASHTO T-180, (98% DENSITY REQUIRED UNDER DRIVEWAYS, PAVEMENT AND STRUCTURES).
3. PIPE BEDDING UTILIZING SELECT COMMON FILL OR BEDDING ROCK IN ACCORDANCE WITH TYPE "A" BEDDING AND TRENCHING DETAIL MAY BE REQUIRED AS DIRECTED BY THE CITY.
4. (*): 15" MAX. FOR PIPE DIAMETER LESS THAN 24", AND 24" MAX. FOR PIPE DIAMETER 24" AND LARGER.
5. WATER SHALL NOT BE PERMITTED IN THE TRENCH DURING CONSTRUCTION.
6. ALL PIPE TO BE INSTALLED WITH BELL FACING UPSTREAM TO THE DIRECTION OF FLOW.
7. REFER TO OSHA REQUIREMENTS FOR SLOPING, SHEETING AND BRACING IN EXCAVATIONS.
8. FINAL RESTORATION IN IMPROVED AREAS SHALL BE IN COMPLIANCE WITH ALL APPLICABLE DISTRICT OR GOVERNING AGENCIES. SURFACE RESTORATION WITHIN RIGHT-OF-WAY SHALL COMPLY WITH REQUIREMENTS OF RIGHT-OF-WAY UTILIZATION REGULATIONS AND ROAD CONSTRUCTION SPECIFICATIONS.

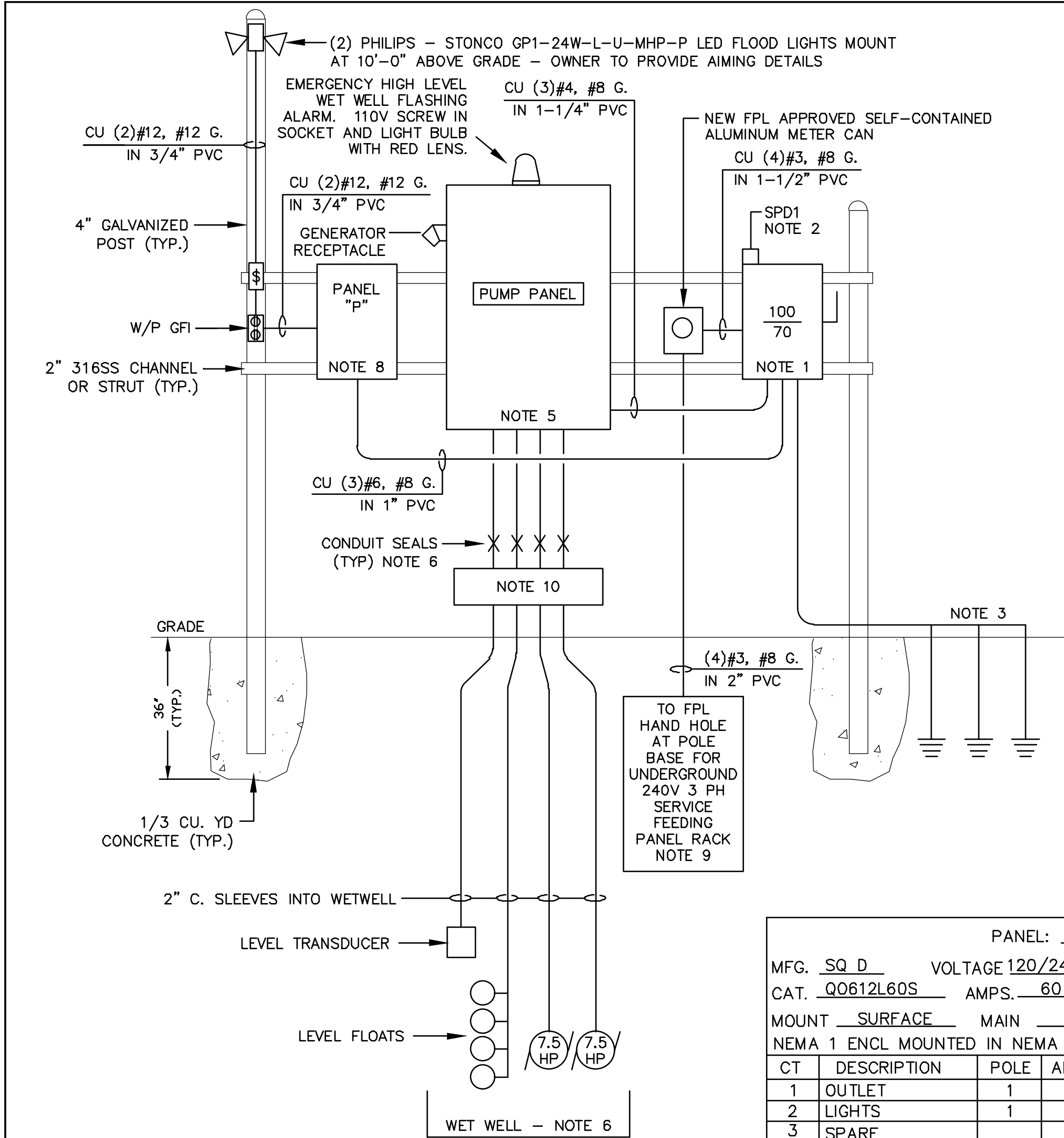
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OF 8

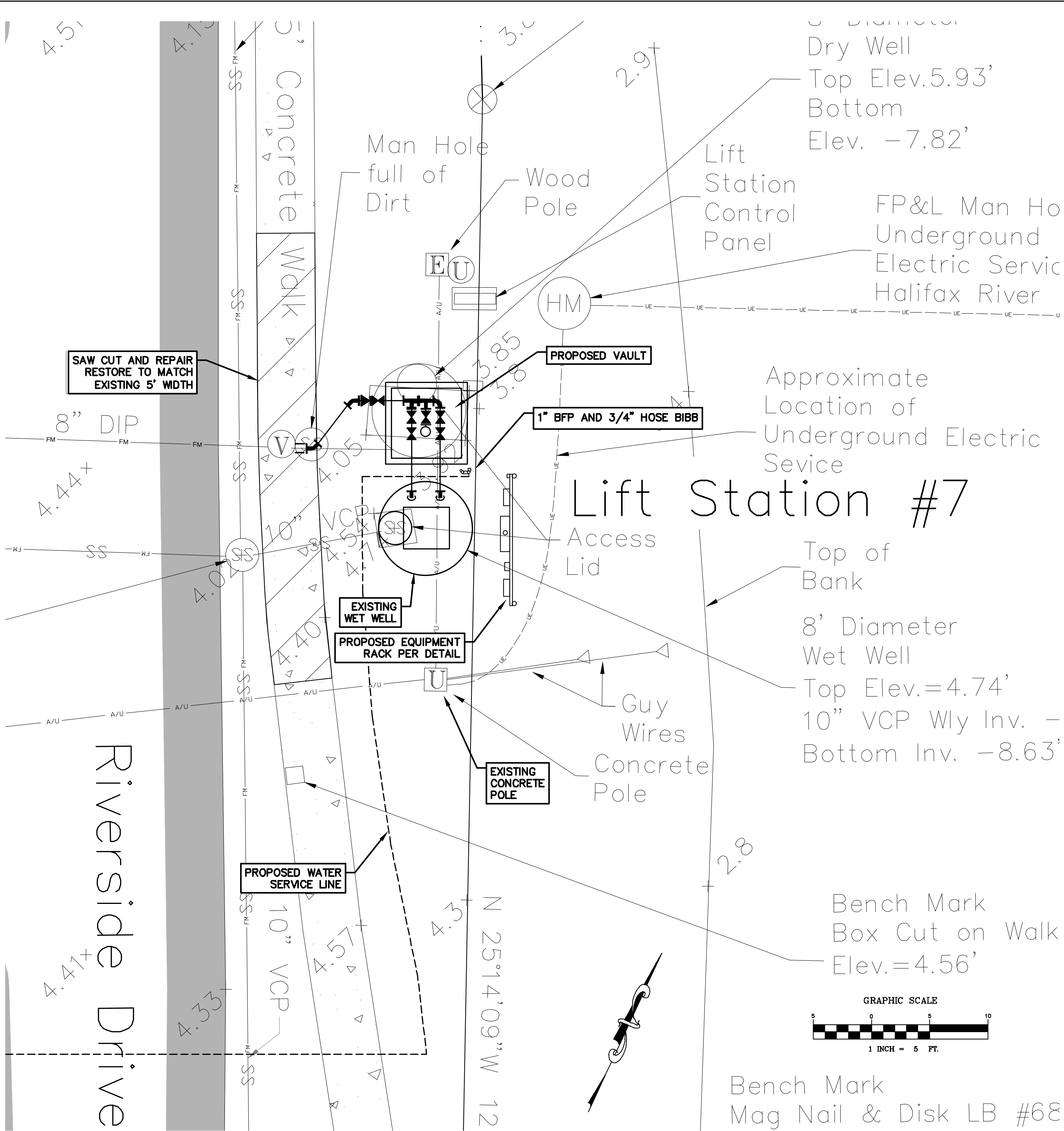


SERVICE RISER DIAGRAM
NOT TO SCALE

LIFT STATION RISER NOTES:

- 100 AMP - 3 POLE - SOLID NEUTRAL, FUSED NEMA 4X DISCONNECT WITH 70 AMP CLASS RK-1 FUSES. LABEL AS "SERVICE MAIN DISCONNECT".
- SPD1 TO BE SURGE ARRESTORS, SQ-D SDSA-3650. SUITABLE FOR 3 PH SERVICE.
- SERVICE GROUND TO INCLUDE #6 BARE COPPER RUN TO THREE (3) 5/8" x 10' COPPER CLAD DRIVEN ELECTRODE SPACED AT LEAST 10' APART AND BONDED TO WET WELL EQUIPMENT RACK, CONTROL PANELS, TELEMETRY PANELS, WET WELL TOP PLATE AND ALL SECURITY FENCE POSTS. RESISTANCE TO GROUND TO BE A 25 OHMS OR LESS. EXOTHERMIC WELD GROUND WIRES TO ELECTRODES. INCLUDE BATTERY BACKUP AND SPARE SC-2000 PUMP CONTROLLER WITH PANEL.
- ALL CONDUITS AND FITTINGS TO BE SCH80 PVC UNLESS NOTED OTHERWISE.
- CONTROL PANEL 316 STAINLESS STEEL NEMA 4X TO BE FURNISHED BY PUMP VENDOR. MOUNT ON THE RACK PER DETAIL AND PROVIDE POWER SUPPLY, WIRING, ETC. TO SERVE NEW LIFT STATION EQUIPMENT. CONTROL PANEL WILL INCLUDE VISIBLE AND AUDIBLE ALARM FOR HIGH FLOW CONDITION AND INCLUDE ELAPSED RUN TIME METERS FOR EACH PUMP AND GENERATOR RECEPTACLE.
- PROVIDE CONDUIT SLEEVES AND SEAL-OFFS INTO WET WELL FOR FLOAT SWITCHES AND PUMP CABLES PROVIDED BY VENDOR WITH CONTROL PANEL ASSEMBLY. PROVIDE CONDUIT SEALS 12 IN. ABOVE GRADE TO PREVENT MOISTURE AND GAS INTRUSION INTO CONTROL PANEL.
- LEVEL FLOATS, LEVEL SENSOR AND MOTORS INCLUDING CABLES AND CONNECTIONS TO BE PROVIDED BY PUMP CONTROL PANEL VENDOR. COORDINATE INSTALLATION AND WIRING ACCORDINGLY. MAKE ALL TERMINATIONS AS REQUIRED BY THAT VENDOR USING APPROVED MATERIALS AND METHODS.
- INSTALL PANEL "P" INSIDE A 20" x 16" x 8" NEMA 4X 316SS HINGED DOOR BOX WITH A PAD LOCKABLE HANDLE.
- CONTRACTOR TO INSTALL UG CONDUIT AND WIRE FROM THE EXISTING SERVICE DROP POLE TO THE SERVICE DISCONNECT.
- MOUNT A 16" x 16" x 6" NEMA 4X 316SS HINGED COVER TERMINAL BOX WITH INSULATED TERMINAL STRIP TO FACILITATE PUMP REMOVALS.
- SERVICE TO BE UNDERGROUND 240V - 3 PH - 4 WIRE "OPEN DELTA" FROM FPL. COORDINATE SERVICE SOURCE AND CONNECTION WITH FPL.
- ALL WIRING TO BE THWN FROM METER CAN TO PANEL AND FPL APPROVED UNDERGROUND WIRING FOR THE SERVICE DISCONNECT CONNECTION.
- MEET ALL NEC 2011 AND LOCAL CODE REQUIREMENTS.

PANEL: <u> P </u>									
MFG.	<u>SQ D</u>	VOLTAGE	<u>120/240</u>	PHASE	<u> 1 </u>	WIRE	<u> 3 </u>		
CAT.	<u>Q0612L60S</u>	AMPS.	<u> 60 </u>	SYM.	<u>A.I.C. (I.E.R.)</u>				
MOUNT	<u>SURFACE</u>	MAIN	<u> LUG </u>	GRD.	<u>BUS</u>	<u> X </u>			
NEMA 1 ENCL MOUNTED IN NEMA 4X ENCLOSURE PER NOTE 7 .									
CT	DESCRIPTION	POLE	AMPS	WIRE	COND	Ø A	Ø B		
1	OUTLET	1	20	#12	1/2"				
2	LIGHTS	1	20	#12	1/2"				
3	SPARE								
4	MAIN-BACK FED	2	60	#6	1"				



NO.	BY	REVISIONS	DATE	NO.	BY	REVISIONS	DATE		

QLH
Quentin L. Hampton Associates
FLORIDA CERTIFICATE OF AUTHORIZATION NO. 626
PHONE: (386) 761-6810 FAX: (386) 761-3977 P.O.
DRAWER 290247, PORT ORANGE, FL 32129-0247

CITY OF
HOLLY HILL
VOLUSIA COUNTY, FL

**LIFT STATION #7
REHABILITATION**

ELECTRICAL DETAILS

PROJECT No. xxxxx

DRAWN BY: DWS

BRADLEY T. BLAIS, P.E.
FLORIDA REGISTRATION
#47130

SHEET NO.

8

OF 8



**STAFF REPORT
CITY OF HOLLY HILL, FLORIDA**

**City Commission
Resolution**

MEETING DATE: July 11, 2017
FROM: Kurt Swartzlander
SUBJECT: Resolution 2017-R-39 a Resolution of the City Commission of the City of Holly Hill, Florida, Amending the Fiscal Year 2016-2017 Annual Budget; and Providing for Severability; and Providing for an Effective Date.
NUMBER: (ID # 1723)
APPLICANT:
PLANNER:

DISCUSSION: This is a request to appropriate Fund Balance for additional repairs and maintenance expenditures for the Wasterwater department. The repairs and maintenance account experienced a significant number of one time purchases for pump replacements and collection system repairs. For example, this fiscal year the city purchased three separate sets of bearings for the belt press rollers. Historically the city has averaged buying only one set a year at a cost of approximately \$6,500 per purchase. In addition, the City has needed to replace many more pumps this year. For example the City is replacing the Reuse pump at a cost of \$7,550.00 that has never been replaced since its initial installation. Due to these unique expenditures staff is requesting a one-time adjustment of \$25,000 for the remainder of the fiscal year.

FISCAL ANALYSIS: The attached budget amendments will be funded through the appropriation of fund balance from the Water and Sewer Fund.

STAFF RECOMMENDATION: Amend the Budget as per the attached Budget Amendment Request Form.

COMMISSION GOAL:

Goal **#1:**
Develop and maintain a sound and sustainable financial plan for the city that establishes sufficient reserves for all funds, ensures (whenever possible) that user fees pay for services rendered, provides a realistic capital improvement program, and encourages public/private sector partnerships and intergovernmental partnerships.

Goal #4: Provide proficient public health and safety services in terms of police and fire protection, water, storm water, waste water and solid waste management and disaster preparedness with a focus on intergovernmental collaboration, private sector partnerships, and utilization of technologies and proven innovations.

MOTION:
Approve Resolution 2017-R-39, amending the Budget as proposed.

ATTACHMENTS:

- budget info for pw (PDF)

Resolution No. (ID # 1723)**RESOLUTION 2017-R-39 A RESOLUTION OF THE CITY COMMISSION OF THE CITY OF HOLLY HILL, FLORIDA, AMENDING THE FISCAL YEAR 2016-2017 ANNUAL BUDGET; AND PROVIDING FOR SEVERABILITY; AND PROVIDING FOR AN EFFECTIVE DATE.****RESOLUTION 2017-R-39**

A RESOLUTION OF THE CITY COMMISSION OF THE CITY OF HOLLY HILL, FLORIDA, AMENDING THE FISCAL YEAR 2016-2017 ANNUAL BUDGET; AND PROVIDING FOR SEVERABILITY; AND PROVIDING FOR AN EFFECTIVE DATE.

WHEREAS, The wastewater department has experienced a significant increase in repairs and maintenance costs for the year; and

WHEREAS, In order to maintain public health and safety, staff is requesting additional funding for the remainder of the fiscal year; and

WHEREAS, the City requires all expenditures to be fully budgeted and requires a budget amendment to address these storm related costs.

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COMMISSION OF THE CITY OF HOLLY HILL, FLORIDA:

SECTION 1. The City hereby amends the budget as per the attached budget amendment forms and attachments.

SECTION 2. SEVERABILITY. If any section or portion of a section of this Resolution proves to be invalid, unlawful, or unconstitutional, it shall not be held to invalidate or impair the validity, force, or effect of any other section or part of this Resolution.

SECTION 3. EFFECTIVE DATE. This Resolution shall take effect immediately upon adoption by the City Commission.

APPROVED AND AUTHENTICATED on this 11TH day of July, 2017.

CITY OF HOLLY HILL
Budget Amendment Request
Fiscal Year 2016-17

Requesting Department		Date
Public Works		7/11/2017
TAKE FUNDS FROM ACCOUNT NUMBER:	ACCOUNT DESCRIPTION:	AMOUNT:
400-0000-380-1000	Appropriated Fund Balance	25,000.0
	Total	25,000.0
ADD FUNDS TO ACCOUNT NUMBER:		
400-3020-535-46-01	Repair and Maintenance	25,000.0
	Total	25,000.0

Purpose of Transfer: (include as much detail as possible)

Appropriating Fund Balance for additional repairs and maintenance expenditures. The repairs and maintenance account experienced a significant number of one time purchases for pump replacements and collection system repairs. Due to these unique expenditures staff is requesting a one-time adjustment of \$25,000 for the remainder of the year.

Note: Funds can only be transferred within the same fund and same department without requiring further commission action. In addition funds can only be expended after amendment is completed.

----- Management Approvals -----

Department Head Signature _____ Date _____

City Manager Signature _____ Date _____

----- For Finance Use Only -----

Step 1: Finance Review

Finance Director Signature _____ Date _____

Step 2: Budget Adjustment Entry

Funds are available for this request? ☐ Yes ☐ No

HTE Group #

Employee Signature _____ Date _____

Attachment: budget info for pw (1723 : Budget Amendments Wastewater)



**STAFF REPORT
CITY OF HOLLY HILL, FLORIDA**

**City Commission
Agenda Item**

MEETING DATE: July 11, 2017
FROM: Kurt Swartzlander
SUBJECT: Technology Asset Disposal
NUMBER: (ID # 1720)
APPLICANT:
PLANNER:

DISCUSSION:

Various computer items have become obsolete and are ready to be disposed of. Once computers and computer equipment lose their usefulness, they are donated to a firm called A1 Assets which will do a certified data destruction on all hard drives. A1 Assets then recycles the items.

FISCAL

ANALYSIS:

The City does not anticipate any proceeds from the donation of the items to A1 Assets.

STAFF

RECOMMENDATION:

Staff recommends that the attached list of assets be approved by the commission as surplus and donated to A1 Assets.

MOTION:

To approve of the items for surplus and donation.

- Disposal List(XLSX)

Reg Tag	Serial Number	Bar Code	Brand	Model	Model #	Purchase Date	Age
	7QS4YH1		DELL	PowerEdge 2950		01/13/2009	8.48
	7VQX6K1		DELL	PowerEdge R710		06/03/2009	8.09
990	MXL2390PVX	2013000051	HP	Compaq Pro 6300		9/27/2012	4.77
987	MXL2390PVY	2013000048	HP	Compaq Pro 6300		9/27/2012	4.77
988	MXL2390PW1	2013000049	HP	Compaq Pro 6300		9/27/2012	4.77
985	MXL2390PW3	2013000045	HP	Compaq Pro 6300		9/27/2012	4.77
991	MXL2390PW6	2013000052	HP	Compaq Pro 6300		9/27/2012	4.77
992	MXL2390PW7	2013000053	HP	Compaq Pro 6300		9/27/2012	4.77
984	MXL2390PWF		HP	Compaq Pro 6300		9/27/2012	4.77
986	MXL2390PWG	2013000044	HP	Compaq Pro 6300		9/27/2012	4.77
1016	MXL3020HDW		HP	Compaq Pro 6300	C7A01UT	1/11/2013	4.48
932	MXL6130431		HP	DC5100	PZ582UA	01/01/2013	4.51
879	MXL9040Z5W		HP	DC7900	KP719AV	02/16/2012	5.39
877	MXL9170K7N		HP	DC5800		01/01/2013	4.51
712	MXL9240316		HP	DC7900	KP719AV	06/13/2009	8.06
716	MXL924033S		HP	DC7900	KP719AV	06/13/2009	8.06
718	MXL924034V		HP	DC7900	KP719AV	6/13/2009	8.06
740	MXL9490Z9S		HP	Compaq Pro 6000	C7A01UT	12/5/2009	7.58
1003	MXL95013QJ		HP	DC7900	KP719AV	12/11/2009	7.57

Book Value

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**STAFF REPORT
CITY OF HOLLY HILL, FLORIDA**

**City Commission
Agenda Item**

MEETING DATE: July 11, 2017
FROM: Steve Aldrich
SUBJECT: Volusia County Law Enforcement Mutual Aid Agreement
NUMBER: (ID # 1717)
APPLICANT:
PLANNER:

DISCUSSION:

The Volusia County Sheriff's Office (VCSO) is committed to working with Volusia County Law Enforcement agencies to protect lives, property, public peace, and the safety of all citizens.

The VCSO is leading the effort by entering into a Mutual Aid Agreement of Voluntary Cooperation for and amongst all Volusia County Law Enforcement Agencies to ensure a harmonious Law Enforcement response during multi-jurisdictional preplanned law enforcement operations, task force operations, Joint operations and/or as requested for operational assistance during major regional events.

FISCAL

ANALYSIS:

The only financial impact from participation in this Mutual Aid Agreement is our responsibility for our personnel and equipment that could be requested during a response to an incident outside our city's jurisdiction.

As this agreement is reciprocal in nature, should we need the services of other agencies we would not be responsible for their personnel or equipment cost.

STAFF

RECOMMENDATION:

Allow the Holly Hill Police Department to enter into the Voluntary Cooperation Mutual Aid Agreement between the Participating Agencies and the Volusia County Sheriff's Office to enhance Law Enforcement services in the area.

COMMISSION

GOAL:

Goal #4: Provide public health and safety services in terms of police and fire protection, water, storm water, waste water and solid waste management and disaster preparedness with a focus on intergovernmental collaboration, private partnerships and utilization of technologies and proven innovations.

MOTION:

Motion to Approve the Holly Hill Police Department entering into the Volusia County Law Enforcement Mutual Aid Agreement.

- Law Enforcment Mutual Aid Agreement -2017-2020 (PDF)
- 2017MutualAidMarkup (PDF)

MUTUAL AID AGREEMENT

COMBINED OPERATIONAL ASSISTANCE AND VOLUNTARY COOPERATION AGREEMENT FOR VOLUSIA COUNTY, FLORIDA

WITNESSETH

WHEREAS, the subscribing law enforcement agencies are so located in relation to each other that it is to the advantage of each to receive and extend mutual aid in the form of law enforcement services and resources to adequately respond to:

1. intensive situations including but not limited to emergencies as defined under Section 252.34; Florida Statutes and
2. continuing, multi-jurisdictional law enforcement problems, so as to protect the public peace and safety, and preserve the lives and property of the people; and

WHEREAS, the Volusia County Sheriff's Office, the Daytona Beach Police Department; Daytona Beach Shores Department of Public Safety; DeLand Police Department; Edgewater Police Department; Holly Hill Police Department; Lake Helen Police Department; New Smyrna Beach Police Department; Orange City Police Department; Ormond Beach Police Department; Port Orange Police Department; Ponce Inlet Police Department; South Daytona Police Department; and the Division of Beach Safety, have the authority under Section 23.12, Florida Statutes (et seq.), the Florida Mutual Aid Act, to enter into a combined mutual aid agreement for law enforcement service which:

1. Permits voluntary cooperation and assistance of a routine law enforcement nature across jurisdictional lines, and;
2. Provides for rendering of assistance in a law enforcement emergency as defined in Section 252.34, Florida Statutes.

JURISDICTION: The jurisdiction under this agreement exists throughout the territorial limits of the participating municipalities, those municipalities that contract law enforcement services with the Volusia County Sheriff's Office, and the unincorporated areas of Volusia County. Any law enforcement officer of any of the participating agencies shall be considered to be operating under the provisions of this Mutual Aid Agreement when participating in any law enforcement activity (preplanned or unplanned) that is requested and approved under the terms of this agreement, or dispatched in response to a request for assistance from any other participating agency. Under this agreement, any law enforcement officer of a participating agency shall have the authority to operate, subject to the terms of the agreement, throughout the territorial jurisdiction of the agreement even if outside of the officer's primary jurisdiction. Any law enforcement officer of a participating agency shall, when engaging in authorized mutual cooperation and assistance pursuant to this agreement, have the same powers, duties, rights, privileges and immunities as if the law enforcement officer were performing duties inside the political subdivision of his/her normal primary jurisdiction.

NOW, THEREFORE, the parties agree as follows:

SECTION I: **PROVISIONS FOR VOLUNTARY COOPERATION**

Each of the aforesaid law enforcement agencies hereby approve and enter into this agreement whereby each of the agencies may request and render law enforcement assistance to the other in dealing with any violations of Florida Statutes to include, but is not necessarily limited to, investigating homicides, sex offenses, robberies, assaults, burglaries, larcenies, gambling, motor vehicle thefts, drug violations pursuant to Chapter 893, F.S., backup services during patrol activities, school resource officers on official duty out of their jurisdiction, and inter-agency task

forces and joint multi-jurisdictional preplanned law enforcement operations, including but not limited to: traffic enforcement, drug enforcement task forces, and/or joint investigations.

SECTION II: PROVISIONS FOR OPERATIONAL ASSISTANCE

Each of the aforesaid law enforcement agencies hereby approve and enter into this agreement whereby each of the agencies may request and render law enforcement assistance to the other to include, but not necessarily be limited to, dealing with terrorist activities, acts of sabotage, hostage and barricaded subject situations, civil disturbances, large demonstrations, aircraft disasters, fires, natural or man-made disasters, control of major crime scenes, area searches, perimeter control, pursuits, missing persons calls, high profile trials, sporting events, Spring Break, motorcycle weeks, automobile race events, concerts, parades, community events, escapes from detention facilities, and incidents requiring utilization of specialized units.

SECTION III: PROCEDURE FOR REQUESTING ASSISTANCE

In the event that a party to this agreement needs assistance, either of a voluntary cooperation or operational assistance nature, the agency head or designee of the requesting agency shall notify the agency head or designee of the agency from whom such assistance is required/requested. The agency head or designee of the agency whose assistance is sought shall evaluate the situation and the request, the agency's available resources, consult with supervisors as necessary and respond in an appropriate manner. The agency head or designee in whose jurisdiction assistance is being rendered may determine who is authorized to lend assistance in his/her jurisdiction, for how long such assistance is authorized, and for what purpose such authority is granted. This authority to grant mutual aid or receive mutual aid may be made verbally or in writing as the particular situation dictates.

Exigent Circumstances: In the event of exigent circumstances or other situations which precludes a formal request, any sworn member of the requesting agency may request such assistance directly from a sworn member of another participating agency. Such request may be made verbally, in writing, or by use of radio communication. As soon as the situation allows, the requesting officer shall notify his/her supervisor of the existence of the request and the basis for it.

Official Business Outside of Jurisdiction: Should a sworn law enforcement officer of a participating agency be in another subscribed agency's jurisdiction for matters of a routine nature, such as traveling through the jurisdiction on routine business, attending a meeting, going to or from work, or transporting a prisoner, and a violation of Florida Statutes occurs in the presence of said officer, he/she shall be empowered to render enforcement assistance and act in accordance with law. Should enforcement action be taken, the officer shall, as soon as possible, notify the agency having normal primary jurisdiction and upon arrival of officers with normal primary jurisdiction, turn the situation over to them and shall provide any assistance requested including, but not limited to, a follow up written report documenting the event and the actions taken. This provision is not intended to and does not grant general authority to conduct investigations, serve warrants and/or subpoenas or to respond without request to emergencies already being addressed by the agency of normal primary jurisdiction, but is intended to address critical, life threatening or public safety situations, prevent bodily injury to citizens, or secure apprehension of criminals whom the law enforcement officer may encounter. The agency head's decision in these matters shall be final.

SECTION IV: COMMAND AND SUPERVISORY RESPONSIBILITY

The personnel and equipment that are assigned by the assisting agency head shall be under the immediate command of a supervising officer designated by the assisting agency head. Such

supervising officer shall be under the direct supervision and command of the agency head or designee of the requesting agency.

Conflicts: Whenever an officer, deputy sheriff or other appointee is rendering assistance pursuant to this agreement, the officer, deputy sheriff or appointee shall abide by and be subject to the rules and regulations, personnel policies, general orders and standard operating procedures of his/her own employer. If any such rule, regulation, personnel policy, general order or standard operating procedure is contradicted, contravened or otherwise in conflict with a direct order of a superior officer of the requesting agency, then such rule, regulation, policy, general order or procedure shall control and shall supersede the direct order.

Handling Complaints: Whenever there is cause to believe that a complaint has arisen as a result of cooperative effort as it may pertain to this agreement, the agency head or designee of the requesting agency shall be responsible for the documentation of said complaint to ascertain at a minimum:

1. The identity of the complainant.
2. An address where the complaining party can be contacted.
3. The specific allegation.
4. The identity of the employees accused without regard to agency affiliation. If it is determined that the accused is an employee of the assisting agency, the above information, along with all pertinent documentation gathered during the receipt and processing of the complaint, shall be forwarded without delay to the agency head or designee of the assisting agency for administrative review. The requesting agency may conduct a review of the complaint to determine if any factual basis for the complaint exists and/or whether any of the employees of the requesting agency violated any of their agency's policies or procedures.

SECTION V: LIABILITY

Each party engaging in any mutual cooperation and assistance, pursuant to this agreement, agrees to assume responsibility for the acts, omissions, or conduct of its own employees while engaged in rendering such aid pursuant to this agreement, subject to the provisions of Section 768.28, Florida Statutes, where applicable.

SECTION VI: POWERS, PRIVILEGES, IMMUNITIES AND COSTS

1. Members of the participating agencies when actually engaging in mutual cooperation and assistance outside of their jurisdictional limits but inside this state under the terms of this agreement shall, pursuant to the provisions of Section 23.127(1), Florida Statutes, have the same powers, duties, rights, privileges and immunities as if they were performing duties inside the political subdivision in which they are normally employed.

2. Each party agrees to furnish necessary personnel, equipment, resources and facilities and to render services to each other party to the agreement as set forth above; provided however, that no party shall be required to deplete unreasonably its own personnel, equipment, resources, facilities and services in furnishing such mutual aid.

3. A political subdivision that furnishes equipment pursuant to this agreement must bear the cost of loss or damage to that equipment and must pay any expense incurred in the operation and maintenance of that equipment.

4. The agency furnishing aid pursuant to this section shall compensate its appointees/employees during the time such aid is rendered and shall defray the actual travel and maintenance expenses of its employees while they are rendering such aid, including any amounts paid or due for compensation due to personal injury or death while such employees are engaged in rendering such aid.

5. The privileges and immunities from liability, exemption from laws, ordinances and rules, and all pension, insurance, relief, disability, workers' compensation, salary, death and other benefits that apply to the activity of the officers, agents, or employees of the agencies when performing their respective public duties apply to them to the same degree, manner and extent while engaged in the performance of their duties extraterritorially under the provisions of this mutual aid agreement. The provisions of this section shall apply with equal effect to paid, volunteer and reserve employees.

6. Nothing herein shall prevent the requesting agency from requesting supplemental appropriations from the governing authority having budgeting jurisdiction to reimburse the assisting agency for any actual costs or expenses incurred by the assisting agency performing hereunder.

SECTION VII: CONCURRENT JURISDICTION

Whereas, it is to the mutual benefit of the subscribing law enforcement agencies, rendering assistance and/or conducting law enforcement activities, preplanned or unplanned, pursuant to this agreement, to exercise jurisdiction in and throughout the territorial limits of participating municipalities, those municipalities that contract law enforcement services with the Volusia County Sheriff's Office, and the unincorporated areas of Volusia County, Florida, the subscribing parties agree as follows and mandate their agency personnel to strict compliance with Section 6, General Requirements of this agreement for officer safety, case integrity and agency cooperation:

1. **Arrests**: Participating agency law enforcement officers are authorized to make arrests for felonies, misdemeanors, including arrestable traffic offenses, when operating under this agreement, in and throughout the territorial limits of participating municipalities and unincorporated areas within Volusia County, Florida, excluding those areas within the territorial

limits of municipalities not participating in this Mutual Aid Agreement. Authority derived pursuant to this subparagraph may be exercised only in places open to the public or private places into which the arresting officer has entered with the consent of an occupant entitled to give consent. No participating agency law enforcement officer is authorized, when operating under this agreement, to make non-consensual or forcible entries into private dwellings, residences, living spaces or business spaces which are not open to the public, absent a search warrant or constitutional exigent circumstances.

2. **Search Warrants**: When operating under this agreement, participating agency law enforcement officers may execute search warrants outside the normal primary jurisdiction of their employing municipality for offenses which occurred in the territory of their normal primary jurisdiction provided the participating law enforcement agency and the Volusia County Sheriff's Office are named in the search warrant and are present and participate in the execution of the search warrant.

3. **Crime Scene Perimeters**: Participating agency law enforcement officers are authorized to establish a crime scene perimeter or area of containment for the securing of a crime scene or apprehension of suspects.

4. **Surveillance Operations**: Participating agency law enforcement officers are authorized to conduct mobile and stationary surveillance, provided that appropriate notification is given including the general location of the surveillance, targets of the surveillance and a description of the vehicles involved.

5. **Traffic Enforcement**: Participating agency law enforcement officers are authorized to enforce Florida traffic statutes on roadways contiguous to and forming the border between participating law enforcement agency jurisdictions. Participating agency law enforcement

officers are also authorized to investigate and arrest any individual(s) found to be in violation of the Florida criminal statutes who has been identified as a result of enforcement of the Florida traffic statutes. For purposes of this agreement, “roadway” is defined as the paved portion subject to vehicular travel and the right-of-way constituting the “shoulder” of the road. Participating agency law enforcement officers are also authorized to enforce Florida traffic statutes when operating under this agreement, in and throughout the territorial limits of participating municipalities and unincorporated areas within Volusia County, Florida, excluding those areas within the territorial limits of municipalities not participating in this Mutual Aid Agreement.

6. **Radio Communications:**

The Volusia County Sheriff's Office is the provider agency for all county-wide consolidated public safety communications and is responsible for tracking and recording all radio communications relating to assistance provided. Mutual aid radio channels for law enforcement shall be as follows: MAPOL 1, MAPOL 2, MAPOL 3. All multi-discipline incidents, Law Enforcement, Fire/EMS, HAZ/MAT, Emergency Management, Public Works will utilize VC WIDE 1-15.

7. **General Requirements:**

- A. Prior to taking any enforcement action, the officer shall notify the agency in the jurisdiction where the action will be taken, unless exigent circumstances prevent such prior notification. In this case, notification shall be made as soon after the action as possible.
- B. Prior to executing a search warrant under this agreement, outside an agency's normal primary jurisdiction, the officer shall contact the jurisdictions's point of contact and the Volusia County Sheriff's Office

point of contact to coordinate the operation. Event deconfliction will be conducted through Case Explorer. Notification shall be made to the sergeant on duty in the area of responsibility where the search warrant will be executed prior to its execution.

- C. Prior to conducting stationary/mobile surveillance outside the officer's normal primary jurisdiction the officer shall conduct an event deconfliction through Case Explorer covering the location/areas under surveillance, target of surveillance and any other information necessary for deconfliction.
- D. Officers shall not utilize unmarked vehicles to make traffic stops or to engage in vehicle pursuits, except in the event of an emergency, exigent circumstances or when authorized in a preplanned operation.
- E. This agreement includes preplanned and unplanned operations, undercover investigations, stings or sweeps.
- F. Participating agency law enforcement officers shall not conduct any routine patrol activities outside of their primary jurisdiction unless authorized by any voluntary cooperation or operational assistance request under this agreement.
- G. Copies of reports of any action taken pursuant to this Mutual Aid Agreement shall be faxed or forwarded to the agency head of the agency within whose jurisdiction the action was taken as soon as possible after the completion of the action.

- H. Any conflicts regarding jurisdiction will be resolved by allowing the agency within whose jurisdiction the action took place to take custody of any arrestees and/or crime scenes.
- I. All provisions of the Volusia County Mutual Aid Agreement shall be in full force and effect as they relate to concurrent jurisdiction.

SECTION VIII: INSURANCE COVERAGE

Each party shall provide satisfactory proof of liability insurance by one or more of the means specified in Section 768.28(16)(a), Florida Statutes, in an amount which is, in the judgment of the governing body of that party, at least adequate to cover the risk to which that party may be exposed. Should the insurance coverage, however provided, of any party be canceled or undergo material change, that party shall notify all parties to this agreement of such change within ten (10) days of receipt of notice or actual knowledge of such change.

SECTION IX: EFFECTIVE DATE

This agreement shall take effect upon execution and approval by the hereinafter named officials and shall continue in full force and effect until January 1, 2020, unless terminated prior thereto by any or all of the parties here. Under no circumstances may this agreement be renewed, amended, or extended except in writing. This agreement when fully executed and filed with the Florida Department of Law Enforcement shall supersede any prior versions of this agreement.

SECTION X: CANCELLATION

Any party to this agreement may withdraw from participation by providing each other party with written notice of withdrawal which date shall be specified in the notice. Furthermore, any party wishing to withdraw from participation with one or more other parties may terminate voluntary cooperation with said party(ies) by providing written notice of termination to the

affected party(ies) and the Volusia County Sheriff's Office. Should this occur, voluntary cooperation shall remain in force only with respect to the remaining participants. The Volusia County Sheriff's Office shall keep all concerned agencies advised as to current parties to this Mutual Aid Agreement.

IN WITNESS WHEREOF, the parties hereto cause these presents to be signed on the date specified.

Michael J. Chitwood, Sheriff
Volusia County

Date signed

Ray Manchester, Director
Division of Beach Safety

Date signed

James T. Dinneen, County Manager
Volusia County

Date signed

Craig Capri, Chief
Daytona Beach Police Department

Date signed

James V. Chisholm, City Manager
City of Daytona Beach

Date signed

Stephan Dembinsky, Director
Daytona Beach Shores Dept. of Public Safety

Date signed

MUTUAL AID AGREEMENT

COMBINED OPERATIONAL ASSISTANCE AND VOLUNTARY COOPERATION AGREEMENT FOR VOLUSIA COUNTY, FLORIDA

WITNESSETH

WHEREAS, the subscribing law enforcement agencies are so located in relation to each other that it is to the advantage of each to receive and extend mutual aid in the form of law enforcement services and resources to adequately respond to:

1. intensive situations including but not limited to emergencies as defined under Section 252.34; Florida Statutes and
2. continuing, multi-jurisdictional law enforcement problems, so as to protect the public peace and safety, and preserve the lives and property of the people; and

WHEREAS, the Volusia County Sheriff's Office, the Daytona Beach Police Department; Daytona Beach Shores Department of Public Safety; DeLand Police Department; Edgewater Police Department; Holly Hill Police Department; Lake Helen Police Department; New Smyrna Beach Police Department; Orange City Police Department; Ormond Beach Police Department; Port Orange Police Department; Ponce Inlet Police Department; South Daytona Police Department; and the Beach Patrol, Department of Beach Services, have the authority under Section 23.12, Florida Statutes (et seq.), the Florida Mutual Aid Act, to enter into a combined mutual aid agreement for law enforcement service which:

1. Permits voluntary cooperation and assistance of a routine law enforcement nature across jurisdictional lines, and;
2. Provides for rendering of assistance in a law enforcement emergency as defined in Section 252.34, Florida Statutes.

JURISDICTION. The jurisdiction under this agreement exists throughout the territorial limits of the participating municipalities, those municipalities that contract law enforcement services with the Volusia County Sheriff's Office, and the unincorporated areas of Volusia County. Any law enforcement officer of any of the participating agencies shall be considered to be operating under the provisions of this Mutual Aid Agreement when participating in any law enforcement activity (preplanned or unplanned) that is requested and approved under the terms of this agreement, or appropriately dispatched in response to a request for assistance from any other participating agency. Under this agreement, any law enforcement officer of a participating agency shall have the authority to operate, subject to the terms of the agreement, throughout the territorial jurisdiction of the agreement even if outside of the officer's primary jurisdiction. Any law enforcement officer of a participating shall, when engaging in authorized mutual cooperation and assistance pursuant to this Agreement, have the same powers, duties, rights, privileges and immunities as if the employees were performing duties inside the political subdivision of his/her normal primary jurisdiction.

NOW, THEREFORE, the parties agree as follows:

SECTION I: PROVISIONS FOR VOLUNTARY COOPERATION

Each of the aforesaid law enforcement agencies hereby approve and enter into this agreement whereby each of the agencies may request and render law enforcement assistance to the other in dealing with any violations of Florida Statutes to include, but **is not necessarily limited** ~~not necessarily be limited~~ to, investigating homicides, sex offenses, robberies, assaults, burglaries, larcenies, gambling, motor vehicle thefts, drug violations pursuant to Chapter 893, F.S., backup services during patrol activities, school resource officers on official duty out of their jurisdiction, and inter-agency task forces and **joint multi-jurisdictional preplanned law enforcement operations**, including but not limited to: traffic enforcement, ~~and~~, drug enforcement task forces, and/or joint investigations.

SECTION II: PROVISIONS FOR OPERATIONAL ASSISTANCE

Each of the aforesaid law enforcement agencies hereby approve and enter into this agreement whereby each of the agencies may request and render law enforcement assistance to the other to include, but not necessarily be limited to, dealing with **terrorist activities including but not limited to acts of sabotage, hostage and barricaded subject situations**, civil disturbances, large demonstrations, aircraft disasters, fires, natural or man-made disasters, **control of major crime scenes, area searches, perimeter control, pursuits, and missing persons calls, high profile trials**, sporting events, Spring Break, motorcycle weeks, automobile race events, concerts, parades, escapes from detention facilities, and incidents requiring utilization of specialized units.

SECTION III: PROCEDURE FOR REQUESTING ASSISTANCE

In the event that a party to this agreement needs assistance, **either of a voluntary cooperation or operational assistance nature, as set forth above**, the agency head or designee of the requesting agency ~~an authorized representative of the agency requesting assistance~~ shall notify the agency head or ~~designee of other person authorized by~~ the agency from whom such assistance is required/requested. The agency head or ~~designee of other authorized person from~~ the agency whose assistance is sought shall evaluate the situation and the request, the agency's available resources, consult with supervisors as necessary and respond in an appropriate manner. The agency head **or designee** in whose jurisdiction assistance is being rendered may determine who is authorized to lend assistance in his/her jurisdiction, for how long such assistance is authorized, and for what purpose such authority is granted. This authority to grant mutual aid or receive mutual aid may be made verbally or in writing as the particular situation dictates.

Exigent Circumstances: In the event of exigent circumstances or other **situations** which preclude a formal request, any sworn member of the **requesting** agency **seeking assistance** may request such assistance directly from a sworn member of another **participating** agency. Such request may be made verbally, in writing, or by use of radio communication. As soon as the

situation allows, the requesting officer shall notify his/her supervisor of the existence of the request and the basis for it.

Official business Outside of jurisdiction: Should a sworn law enforcement officer of ~~an~~ a **participating** agency be in another subscribed agency's jurisdiction for matters of a routine nature, such as traveling through the jurisdiction on routine business, attending a meeting, going to or from work, or transporting a prisoner, and a violation of Florida Statutes occurs in the presence of said officer, he/she shall be empowered to render enforcement assistance and act in accordance with law. Should enforcement action be taken, ~~the officer~~ **said party** shall, as soon as possible, notify the agency having **normal primary** ~~normal~~ jurisdiction and upon **arrival of officers with normal primary jurisdiction** ~~the latter's arrival~~, turn the situation over to them and **shall provide** ~~offer~~ any assistance requested including, but not limited to, a follow up written report documenting the event and the actions taken. This provision is not intended to **and does not** grant general authority to conduct investigations, serve warrants and/or subpoenas or to respond without request to emergencies already being addressed by the agency of normal **primary** jurisdiction, but is intended to address critical, life threatening or public safety situations, prevent bodily injury to citizens, or secure apprehension of criminals whom the law enforcement officer may encounter. The agency head's decision in these matters shall be final.

SECTION IV: COMMAND AND SUPERVISORY RESPONSIBILITY

The personnel and equipment that are assigned by the assisting agency head shall be under the immediate command of a supervising officer designated by the assisting agency head. Such supervising officer shall be under the direct supervision and command of the agency head or **his/her** designee of the **requesting** agency. ~~requesting assistance.~~

CONFLICTS: Whenever an officer, deputy sheriff or other appointee is rendering assistance pursuant to this agreement, the officer, deputy sheriff or appointee shall abide by and be subject to the rules and regulations, personnel policies, general orders and standard operating procedures of his/her own employer. If any such rule, regulation, personnel policy, general order or standard operating procedure is contradicted, contravened or otherwise in conflict with a direct order of a superior officer of the requesting agency, then such rule, regulation, policy, general order or procedure shall control and shall supersede the direct order.

HANDLING COMPLAINTS: Whenever there is cause to believe that a complaint has arisen as a result of cooperative effort as it may pertain to this agreement, the agency head or ~~his/her~~ designee of the requesting agency shall be responsible for the documentation of said complaint to ascertain at a minimum:

1. The identity of the complainant.
2. An address where the complaining party can be contacted.
3. The specific allegation.
4. The identity of the employees accused without regard to agency affiliation. If it is determined that the accused is an employee of the assisting agency, the above information, along with all pertinent documentation gathered during the receipt and processing of the complaint, shall be forwarded without delay to the agency head or ~~his/her~~ designee of the assisting agency for administrative review. The requesting agency may conduct a review of the complaint to determine if any factual basis for the complaint exists and/or whether any of the employees of the requesting agency violated any of their agency's policies or procedures.

SECTION V: LIABILITY

Each party engaging in any mutual cooperation and assistance, pursuant to this agreement, agrees to assume responsibility for the acts, omissions, or conduct of its own employees while engaged in rendering such aid pursuant to this agreement, subject to the provisions of Section 768.28, Florida Statutes, where applicable.

SECTION VI: POWERS, PRIVILEGES, IMMUNITIES AND COSTS

1. Members of the participating agencies when actually engaging in mutual cooperation and assistance outside of their jurisdictional limits but inside this state under the terms of this agreement shall, pursuant to the provisions of Section 23.127(1), Florida Statutes, have the same powers, duties, rights, privileges and immunities as if they were performing duties inside the political subdivision in which they are normally employed.

2. Each party agrees to furnish necessary personnel, equipment, resources and facilities and to render services to each other party to the agreement as set forth above; provided however, that no party shall be required to deplete unreasonably its own personnel, equipment, resources, facilities and services in furnishing such mutual aid.

3. A political subdivision that furnishes equipment pursuant to this agreement must bear the cost of loss or damage to that equipment and must pay any expense incurred in the operation and maintenance of that equipment.

4. The agency furnishing aid pursuant to this section shall compensate its appointees/employees during the time such aid is rendered and shall defray the actual travel and maintenance expenses of its employees while they are rendering such aid, including any amounts paid or due for compensation due to personal injury or death while such employees are engaged in rendering such aid.

5. The privileges and immunities from liability, exemption from laws, ordinances and rules, and all pension, insurance, relief, disability, workers' compensation, salary, death and

other benefits that apply to the activity of the officers, agents, or employees of the agencies when performing their respective public duties apply to them to the same degree, manner and extent while engaged in the performance of their duties extraterritorially under the provisions of this mutual aid agreement. The provisions of this section shall apply with equal effect to paid, volunteer and reserve employees.

6. Nothing herein shall prevent the requesting agency from requesting supplemental appropriations from the governing authority having budgeting jurisdiction to reimburse the assisting agency for any actual costs or expenses incurred by the assisting agency performing hereunder.

SECTION VII: CONCURRENT JURISDICTION

Whereas, it is to the mutual benefit of the subscribing law enforcement agencies, rendering assistance and/or conducting law enforcement activities, pre-planned or unplanned, pursuant to this agreement, to exercise jurisdiction in and throughout the territorial limits of participating municipalities, those municipalities that contract law enforcement services with the Volusia County Sheriff's Office, and the unincorporated areas of Volusia County, Florida, ~~through voluntary cooperation, to exercise concurrent jurisdiction as set out below, in that officers, while in their or another jurisdiction, are often present at events where immediate action is necessary or are able to expeditiously conclude an investigation by identifying and arresting or citing an offender,~~ the subscribing parties agree as follows ~~and mandate their agency personnel to strict compliance with Section 6, General requirements for officer safety, case integrity and agency cooperation:~~

1. Arrests: ~~Participating agency law enforcement officers are authorized to make arrests for felonies, misdemeanors, including arrestable traffic offenses, when operating under this agreement, in and throughout the territorial limits of~~

participating municipalities and unincorporated areas within Volusia County, Florida, excluding those areas within the territorial limits of municipalities not participating in this Mutual Aid Agreement. ~~Concurrent law enforcement jurisdiction for lawful arrests shall exist in and throughout the territorial limits of participating municipalities and unincorporated areas within Volusia County, Florida, excluding those areas within the territorial limits of municipalities not participating in this Mutual Aid Agreement. This concurrent jurisdiction to arrest shall be limited to persons identified as a result of investigations for a felony, misdemeanor, or arrestable traffic offense occurring in the municipality employing the arresting officer and for which probable cause exists to arrest had the offender been apprehended within the municipality.~~ Concurrent jurisdiction under this subparagraph does not include authority to make non-consensual or forcible entries into private dwellings, residences, living spaces or business spaces which are not open to the public. Authority derived pursuant to this subparagraph may be exercised only in places open to the public or private places into which the arresting officer has entered with the consent of an occupant entitled to give consent. No participating agency law enforcement officer is authorized, when operating under this agreement, to make non-consensual or forcible entries into private dwellings, residences, living spaces or business spaces which are not open to the public, absent a search warrant or constitutional exigent circumstances.

2. Search Warrants: When operating under this agreement, participating agency law enforcement officers may execute search warrants outside the normal primary jurisdiction of their employing municipality for offenses which occurred in the

territory of their normal primary jurisdiction provided the participating law enforcement agency and the Volusia County Sheriff's Office are named in the search warrant and are present and participate in the execution of the search warrant.

3. **Crime Scene Perimeters:** Participating agency law enforcement officers are authorized to establish a crime scene perimeter ~~Concurrent law enforcement jurisdiction shall exist for the purpose of establishing a crime scene perimeter~~ or area of containment for the securing of a crime scene or apprehension of suspects.
4. **Surveillance Operations:** Participating agency law enforcement officers are authorized to conduct mobile and stationary surveillance, provided that ~~Participating Stationary surveillance activities shall be included within concurrent jurisdiction, provided, however, that~~ appropriate notification is given including the general location of the surveillance, **targets of the surveillance** and a description of the vehicles involved.
5. **Traffic Enforcement:** **Participating agency law enforcement officers are authorized to enforce** ~~Participating Concurrent law enforcement jurisdiction shall exist for the enforcement of the~~ Florida traffic statutes on roadways contiguous to and forming the border between **participating** law enforcement **agency** jurisdictions. **Participating agency law enforcement officers are also authorized to investigate and arrest** ~~This concurrent jurisdiction shall extend to and include the investigation and arrest of~~ any individual(s) found to be in violation of the Florida criminal statutes who has been identified as a result of enforcement of the Florida traffic statutes. For purposes of this ~~agreement concurrent jurisdiction~~, "roadway" is defined as the paved portion subject to vehicular travel and the right-of-way

constituting the “shoulder” of the road. Participating agency law enforcement officers, are also authorized to enforce Florida traffic statutes, when operating under this agreement, in and throughout the territorial limits of participating municipalities and unincorporated areas within Volusia County, Florida, excluding those areas within the territorial limits of municipalities not participating in this Mutual Aid Agreement.

7. Radio Communications:

The Volusia County Sheriff’s Office is the provider agency for all county-wide consolidated public safety communications and is responsible for tracking and recording all radio communications relating to assistance provided. Mutual aid radio channels for law enforcement shall be as follows: MAPOL 1, MAPOL 2, MAPOL 3.

All multi-discipline incidents, Law Enforcement, Fire/EMS, HAZ/MAT, Emergency Management, Public Works will utilize VCWIDE 1-15.

7. General Requirements:

~~The following requirements shall apply to any enforcement action taken, excluding traffic enforcement action, pursuant to concurrent jurisdiction.~~

- A. Prior to taking any enforcement action, the officer shall notify the agency in the jurisdiction where the action will be taken, unless exigent circumstances prevent such prior notification. In this case, notification shall be made as soon after the action as possible.
- B. Prior to executing a search warrant outside an agency’s normal primary jurisdiction, the officer shall contact the jurisdiction’s point of contact and the Volusia County Sheriff’s Office point of contact to coordinate the operation.

Event deconfliction will be conducted through Case Explorer. Notification shall be made to the sergeant on duty in the area of responsibility where the search warrant will be executed prior to its execution.

- C. Prior to conducting stationary/mobile surveillance outside the officer's normal primary jurisdiction the officer shall conduct an event deconfliction through Case Explorer covering the location/areas under surveillance, target of surveillance and any other information necessary for deconfliction.
- D. Officers shall not utilize unmarked vehicles to make traffic stops or to engage in vehicle pursuits, except in the event of an emergency or exigent circumstances or when authorized in a preplanned operation.
- E. This agreement includes preplanned and unplanned operations, undercover investigations, stings or sweeps. Concurrent law enforcement jurisdiction pursuant to this Mutual Aid Agreement does not include preplanned operations, undercover investigations, stings, or sweeps.
- F. Participating agency law enforcement officers shall not conduct any routine patrol activities outside of their primary jurisdiction unless authorized by any voluntary cooperation or operational assistance request under this agreement. Officers shall not conduct routine patrol activities outside of their jurisdiction.
- G. Copies of reports of any action taken pursuant to this Mutual Aid Agreement shall be faxed or forwarded to the agency head of the agency within whose jurisdiction the action was taken as soon as possible after the completion of the action.

- H. Any conflicts regarding jurisdiction will be resolved by allowing the agency within whose jurisdiction the action took place to take custody of any arrestees and/or crime scenes.
- I. All provisions of the Volusia County Mutual Aid Agreement shall be in full force and effect as they relate to concurrent jurisdiction.

SECTION VIII: INSURANCE COVERAGE

Each party shall provide satisfactory proof of liability insurance by one or more of the means specified in Section 768.28(16)(a), Florida Statutes, in an amount which is, in the judgment of the governing body of that party, at least adequate to cover the risk to which that party may be exposed. Should the insurance coverage, however provided, of any party be canceled or undergo material change, that party shall notify all parties to this agreement of such change within ten (10) days of receipt of notice or actual knowledge of such change.

SECTION IX: EFFECTIVE DATE

This agreement shall take effect upon execution and approval by the hereinafter named officials and shall continue in full force and effect until June 1, 2020, unless terminated prior thereto by any or all of the parties here. Under no circumstances may this agreement be renewed, amended, or extended except in writing.

SECTION X: CANCELLATION

Any party to this agreement may withdraw from participation by providing each other party with written notice of withdrawal which date shall be specified in the notice. Furthermore, any party wishing to withdraw from participation with one or more other parties may terminate voluntary cooperation with said party(ies) by providing written notice of termination to the **eaffected** party(ies) and the Volusia County Sheriff's Office. Should this occur, voluntary cooperation shall remain in force only with respect to the remaining participants. The Volusia

County Sheriff's Office shall keep all concerned agencies advised as to current parties to this Mutual Aid Agreement.

IN WITNESS WHEREOF, the parties hereto cause these presents to be signed on the date specified.

Michael J. Chitwood, Sheriff
Volusia County

Date signed

Mark Swanson, Director
Volusia County Beach Services

Date signed

James T. Dinneen, County Manager
Volusia County

Date signed

Craig Capri, Chief
Daytona Beach Police Department

Date signed

James V. Chisholm, City Manager
City of Daytona Beach

Date signed

Stephan Dembinsky, Director
Daytona Beach Shores Dept. of Public Safety

Date signed

Attachment: 2017MutualAidMarkup (1717 : Volusia County Law Enforcement Mutual Aid Agreement)

Michael Booker, City Manager
City of Daytona Beach Shores

Date signed

Jason Umberger, Chief
DeLand Police Department

Date signed

Michael Pleus, City Manager
City of DeLand

Date signed

David J. Arcieri, Chief
Edgewater Police Department

Date signed

Tracey Barlow, City Manager
City of Edgewater

Date signed

Stephen Aldrich, Chief
Holly Hill Police Department

Date signed

Kurt Swartzlander, Interim City Manager
City of Holly Hill

Date signed

Michael Walker, Chief
Lake Helen Police Department

Date signed

Buddy Snowden, Mayor
City of Lake Helen

Date signed

George E. Markert, Chief
New Smyrna Beach Police Department

Date signed

Pamela Brangaccio, City Manager
City of New Smyrna Beach

Date signed

Peter C. Thomas, Chief
Orange City Police Department

Date signed

Jamie Croteau, City Manager
City of Orange City

Date signed

Andy Osterkamp, Chief
Ormond Beach Police Department

Date signed

Joyce Shanahan, City Manager
City of Ormond Beach

Date signed

Frank G. Fabrizio, Chief
Ponce Inlet Police Department

Date signed

Jeaneen Witt, Town Manager
Town of Ponce Inlet

Date signed

Gerald M. Monahan, Jr., Chief
Port Orange Police Department

Date signed

David Harden, Interim City Manager
City of Port Orange

Date signed

Ronald R. Wright, Chief
South Daytona Police Department

Date signed

Joseph W. Yarbrough, City Manager
City of South Daytona

Date signed



**STAFF REPORT
CITY OF HOLLY HILL, FLORIDA**

**City Commission
Resolution**

MEETING DATE: July 11, 2017
FROM: Mark Juliano
SUBJECT: Resolution 2017-R-38 A Resolution Fo the City Commission of the City of Holly Hill, Florida, Authorizing the Agreement with Dredging and Marine Consultants to Perform the Engineering Services for "Sunrise Park North Seawall Improvements"; Providing for Severability; and Providing for an Effective Date.
NUMBER: (ID # 1705)
APPLICANT:
PLANNER:

DISCUSSION:

On October 7, 2016, surging waters and storm conditions from Hurricane Matthew caused significant structural damages to the northern portion of the seawall at Sunrise Park North, located at 1135 Riverside Drive in Holly Hill. The structural damages include cracks in the seawall itself and separation of the seawall at (2) locations. Dirt and sediment on the land-side of the seawall has eroded and is escaping through cracks in the seawall.

Staff intends to seek mitigation funds to help offset what is anticipated to be a substantial repair cost. This mitigation project would take part in 2 phases:

Phase I: Design/Engineering and Permitting (to be started in 2017-2018 fiscal year)

Phase II: Construction (funding dependent, to be started in 2018-2019 fiscal year)

The first phase of this project will include an assessment of existing conditions, surveying, engineering design, permitting and the development of bid specifications.

Dredging and Marine Consultants currently hold a contract with the City of Edgewater to provide engineering services for dredging and marine infrastructure. They have in-depth experience in marine construction, are currently the engineering firm working on the Sunrise Park South Improvements project and were the engineers of the Sunrise Park south side seawall mitigation project following the hurricanes of 2004.

They have supplied an estimate of \$51,470 for providing Phase I work, with labor amounts consistent with the contract approved by the City of Edgewater.

FISCAL ANALYSIS:

On March 14, 2017, the City Commission approved the transfer of \$50,000 in funds to cover engineering costs of the Sunrise Park North seawall through a consent agenda.

If the project is approved for 406 mitigation funding, the City will receive reimbursement in the amount of 75% of phase I costs. As such, for a contract amount of \$51,470, the City would be reimbursed the amount of \$38,602.50 towards engineering and would have an investment of \$12,867.50.

If the construction phase of the project is not approved for mitigation funding, the City will not be reimbursed for phase I engineering fees and will be responsible for the full investment of \$51,470.

STAFF RECOMMENDATION:

Waive the City's formal bidding procedure and authorize the City Manager to enter into a contract with Dredging and Marine Consultants for phase I of the Sunrise Park North seawall mitigation project.

COMMISSION GOAL:

Goal #1: Develop and maintain a sound and sustainable financial plan for the city that establishes sufficient reserves for all funds, ensures (whenever possible) that user fees pay for services rendered, provides a realistic capital improvement program, and encourages public/private sector partnerships and intergovernmental partnerships.

Goal #2: Enhance City aesthetics through beautification and maintenance of city property and public rights of way, consistent enforcement of zoning and property maintenance codes, and development of reasonable design standards and a corresponding process which is applicable to all new developments and business improvements in the city.

Goal #5: Promote a small town city “branding” that focuses on the city’s accessible staff and interactive use of technologies (i.e. city website), the city’s business friendly approach to attract and retain business, and the city’s available open space, parks, and waterfront amenities that enhance the quality of life for citizens

MOTION:

APPROVE RESOLUTION 2017-R-38, AUTHORIZING THE CITY MANAGER TO WAIVE THE CITY'S FORMAL BIDDING PROCEDURE AND CONTRACT WITH DREDGING AND MARINE CONSULTANTS FOR PHASE I OF THE SUNRISE PARK NORTH SEAWALL MITIGATION PROJECT.

ATTACHMENTS:

- DMC Contract with the City of Edgewater (PDF)
- DMC Sunrise Park North Seawall Assessment and Repair Proposal (PDF)

Resolution No. (ID # 1705)**RESOLUTION 2017-R-38 A RESOLUTION FO THE CITY COMMISSION OF THE CITY OF HOLLY HILL, FLORIDA, AUTHORIZING THE AGREEMENT WITH DREDGING AND MARINE CONSULTANTS TO PERFORM THE ENGINEERING SERVICES FOR "SUNRISE PARK NORTH SEAWALL IMPROVEMENTS"; PROVIDING FOR SEVERABILITY; AND PROVIDING FOR AN EFFECTIVE DATE.****RESOLUTION 2017-R-38**

A RESOLUTION OF THE CITY COMMISSION OF THE CITY OF HOLLY HILL, FLORIDA, AUTHORIZING THE AGREEMENT WITH DREDGING AND MARINE CONSULTANTS TO PERFORM THE ENGINEERING SERVICES FOR "SUNRISE PARK NORTH SEAWALL IMPROVEMENTS"; PROVIDING FOR SEVERABILITY; AND PROVIDING FOR AN EFFECTIVE DATE.

WHEREAS, During Hurricane Matthew, the seawall at Sunrise Park North sustained damages along its north side; and

WHEREAS, On March 14, 2017, funds were approved through consent agenda to cover \$50,000 in up-front fees for the engineering portion of seawall repairs; and

WHEREAS, Dredging and Marine Consultants has experiential knowledge of the design of the seawall at Sunrise Park North; and

WHEREAS, Dredging and Marine Consultants currently holds a contract with the City of Edgewater providing engineering services for marine projects.

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COMMISSION OF THE CITY OF HOLLY HILL, FLORIDA:

SECTION 1. That the City Commission does authorize the City Manager to enter into a contract with Dredging and Marine Consultants.

SECTION 2. SEVERABILITY. If any section or portion of a section of this Resolution proves to be invalid, unlawful, or unconstitutional, it shall not be held to invalidate or impair the validity, force, or effect of any other section or part of this Resolution.

SECTION 3. EFFECTIVE DATE. This Resolution shall take effect immediately upon adoption by the City Commission.

APPROVED AND AUTHENTICATED this 11th day of JULY, 2017.



December 9, 2013

Shailesh K. Patel
Dredging & Marine Consultants, LLC
4643 S. Clyde Morris Blvd., Unit 302
Port Orange, FL 32129

RE: Dredging/marine Design/Permitting Services Agreement

Dear Mr. Patel,

Please find enclosed for your records the original signed change order as referenced above.

Should you have any questions regarding this matter please do not hesitate to contact me.

Sincerely,

A handwritten signature in blue ink that reads "Bonnie Wenzel". The signature is written in a cursive, flowing style.

Bonnie Wenzel, CMC
City Clerk

**PROFESSIONAL SERVICES AGREEMENT
DREDGING/MARINE DESIGN/PERMITTING SERVICES
DREDGING & MARINE CONSULTANTS, LLC.**

This Agreement is made and entered into this 2nd day of December, 2013, by and between the **CITY OF EDGEWATER, FLORIDA**, a municipal corporation (hereinafter referred to as "City"), 104 North Riverside Drive, P. O. Box 100, Edgewater, Florida 32132-0100 and **DREDGING & MARINE CONSULTANTS, LLC.**, (hereinafter referred to as "Engineer"), 4643 South Clyde Morris Boulevard, Unit 302, Port Orange, Florida 32129.

PREMISES

WHEREAS, the City wishes to employ a professional engineering firm to assist the City with various dredging and marine related infrastructure and environmental projects; and

WHEREAS, the City desires to employ the Engineer in connection therewith upon terms and conditions hereinafter set forth, and the Engineer is desirous of obtaining such employment and has represented that it is qualified and competent to perform such services; and

WHEREAS, in July 2013, the City advertised for "Requests for Qualifications" from qualified engineering firms; and

WHEREAS, during the City Council meetings on September 23, 2013 and October 7, 2013, Council authorized selection of five (5) engineering firms for continuing professional services in accordance with the "Consultants' Competitive Negotiation Act" (CCNA) pursuant to §287.055, Florida Statutes (2013); and

WHEREAS, this Agreement shall constitute a "continuing contract" as defined under the laws of the State of Florida.

NOW, THEREFORE, in consideration of the premises and mutual covenants hereinafter set forth, City and Engineer agree as follows:

1. SCOPE OF PROFESSIONAL SERVICES

The Engineer agrees that it shall diligently and timely perform professional services as requested by the City. Engineer understands that the City may request these professional services on an as-needed basis and that the requested services may include dredging and marine related infrastructure and environmental projects and all local, state and federal permitting required for the same.

Upon request for professional services by the City for a specific project, the Engineer shall provide the City with a Scope of Work and detailed itemization of costs and time required to complete the project(s) outlined in the Scope of Work.

Upon approval by the City, the Scope of Work, costs and time relating to the Project will be specifically set out and incorporated into a Purchasing Agreement to be issued under and become a part of this Agreement. This Agreement standing alone does not authorize the performance of any Work or require the City to place any orders for Work. The City reserves the right to contract with other parties for professional services within the scope of this Agreement when it is determined to be in the best interests of the City to do so.

The Engineer or his/her designee as approved by the City, agrees to perform the functions of their office in a competent and professional manner. The Engineer shall maintain an adequate and competent staff of professionals and may associate with other qualified firms for the purpose of rendering services hereunder, without cost to the City, and upon approval by the City. The Engineer, however, shall not sublet, assign, or transfer any Work under this Agreement without the written consent of the City.

2. TIME FOR COMPLETION

The services to be rendered by the Engineer shall be commenced, upon receipt of the Notice to Proceed and Purchasing Agreement to be issued hereunder, and shall be completed within the time specified therein. In the event the Engineer is unable to complete the services within the time specified because of delays resulting from untimely review and approval by the City, City shall grant a reasonable extension of time for completion of Work upon timely written request for same which shall be given by Engineer to the City no later than 48 hours after such occurrence.

In the event there are delays on the part of the City or regulatory agencies as to the approval of any work product submitted by the Engineer, which might delay the project's scheduled completion date, the City shall grant to the Engineer in writing an extension of the Contract time equal to the aforementioned delays. The City shall be solely responsible for determination of whether any extension of the time for performance should be awarded to the Engineer.

3. AUTHORIZATION FOR SERVICES

Authorization for performance of professional services by the Engineer shall be in the form of Purchasing Agreements issued by the City. Each Purchasing Agreement shall describe the Project, the services required, and shall establish the method of payment and time frame.

4. COMPENSATION AND METHOD OF PAYMENT

- A. Upon satisfactory completion of the Work required under the appropriate Purchasing Agreement issued hereunder or any Change Orders thereto, and, upon acceptance of the Work by the City, the Engineer may invoice the full final amount of compensation provided for under the terms of the Purchasing Agreement less amounts already paid by the City. All invoices, whether partial or final billing, shall be accompanied by appropriate documentation of work accomplished to date. Upon approval of such payment request submitted by the Engineer, City agrees that it will make its best efforts to pay the Engineer within thirty (30) days of receipt of such invoice. If construction management is involved, final payment to the Engineer shall be made by the City within sixty (60) calendar days of City's acceptance of the fully executed Certificate of Contract Completion for the Construction Contract and submittal of appropriate documentation and invoicing.
- B. At the end of each month the Engineer may submit an invoice for services rendered during that month relating to the Project outlined in the appropriate Purchasing Agreement. At no time shall the invoices exceed the total amounts negotiated for each task as outlined in the Scope of Services/Purchasing Agreement regardless of actual hours worked toward completion of the authorized services.
- C. The City may perform, or cause to have performed, an audit of the records of the Engineer after final payment to support final payment under any Purchasing Agreement issued hereunder. This audit shall be performed at a time mutually agreeable to the Engineer and the City subsequent to the close of the final fiscal period in which the last Work is performed. Total compensation to the Engineer may be determined subsequent to an audit as provided for in this Section, and the total compensation so determined shall be used to calculate final payment to the Engineer. Conduct of this audit shall not delay final payment as required by Paragraph A of this Section.
- D. In addition to the above, if federal, state or county funds are used for any Work under this Agreement, the Comptroller General of the United States or of the State of Florida or of the County of Volusia, or any representatives, shall have access to any books, documents, papers, and records of the Engineer which are directly pertinent to Work performed under this Agreement for purposes of making audit, examination, excerpts and transcriptions. The stipulations contained in any federal, state or county grant pertaining to Engineer will be adhered to by the Engineer. Copies of such grants shall be furnished to Engineer.

- E. The Engineer agrees to maintain all books, documents, papers, accounting records and other evidences pertaining to Work performed under this Agreement in such a manner as will readily conform to the terms of this Agreement and to make such materials available at all reasonable times during the Agreement period and for three (3) years from the date of final payment under the contract for audit or inspection as previously provided. Accounting books or records must be maintained for each Purchasing Agreement. Incomplete or incorrect entries in such books and records may be grounds for disallowance by the City of amounts due based upon such entries.
- F. In the event any audit or inspection conducted reveals any overpayment by the City under the terms of the Agreement, Engineer shall refund such overpayment to the City within thirty (30) days of notice by the City.

5. CHANGES IN SCOPE OF WORK

City or Engineer may request changes that would increase, decrease, or otherwise modify the Scope of Work to be provided under a particular Purchasing Agreement or this Agreement. Such changes and method of compensation must be agreed upon in writing by written Change Order to the Purchasing Agreement or this Agreement prior to any deviation from the terms of the Purchasing Agreement or the Contract, including the initiation of any extra Work. Such changes, shall not bind the City unless executed with the same formality as the respective Purchasing Agreement or this Agreement. Written Change Orders shall be in form and content acceptable to the City.

6. SUBCONSULTANTS/SEPARATE CONSULTANTS:

If the Engineer desires to employ Subconsultants in connection with the performance of its Services hereunder:

- A. Any proposed Subconsultants shall be submitted to the City for written approval prior to Engineer entering into a Subconsultant Agreement.
- B. Engineer shall coordinate the services and work product of any Subconsultants, and remain fully responsible under the terms of this Agreement. Engineer shall be and remain responsible for the professional, quality services necessary to accomplish dredging and marine related infrastructure and environmental projects and all local, state and federal permitting required for the same.
- C. Any Subconsultant Agreement shall be in writing and shall reflect the terms of this Agreement and require the Subconsultant to assume performance of Engineer's duties commensurately with Engineer's duties to City under this

(Agreement/Dredging-2013)

Agreement, it being understood that nothing contained herein shall in any way relieve the Engineer from any of its duties under this Agreement. Engineer shall provide the City with copies of all Subconsultant Agreements upon request of the City.

- D. Engineer shall cooperate at all times with the City and its other planning consultants or design professionals, and cooperate and coordinate with, and incorporate the Work product of, any separate Engineer/Consultant, planning consultant or design professional retained by the City, in any fashion appropriate or necessary to a Project within the Project Budget and Schedule.

7. RESPONSIBILITY OF THE CITY

City shall furnish the Engineer with all existing data, plans, maps, and other planning information available and useful in connection with a proposed project on file with the City which shall be returned to the City upon the completion of the services to be performed by the Engineer, unless such data, plans, maps, and other planning information are necessary for daily operations; then such information shall be promptly reproduced or copied by the Engineer and returned to the City.

8. RESPONSIBILITY OF THE ENGINEER

- A. Engineer shall be responsible for providing professional, quality services necessary to accomplish dredging and marine related infrastructure and environmental projects and all local, state and federal permitting required for the same. Engineer shall, without additional compensation, correct or revise any errors or deficiencies in the services performed pursuant to this Agreement.
- B. Neither the City's review, approval or acceptance of, nor payment for, any of the services required shall be construed to operate as a waiver of any rights under this Agreement or of any cause of action arising out of the performance of this Agreement and the Engineer shall be and remain liable to the City in accordance with applicable law for all damages to the City caused by the Engineer's errors, omissions, misconduct or negligent performance of any of the services furnished under this Agreement.
- C. In the event that arbitration or litigation becomes necessary for any reason with regard to the terms of this Agreement, the prevailing party shall be due the cost and expense of this action including, but not limited to, court or arbitration costs, interest and reasonable attorney's fees.

- D. The rights and remedies of the City, provided for under this Agreement, are in addition to any other rights and remedies provided by law.

9. REPRESENTATIVE OF CITY AND ENGINEER:

- A. It is recognized that questions in the day-to-day conduct of performance pursuant to this Agreement will arise. The City hereby designates the representative identified under "NOTICES" as the employee to whom all communications pertaining to the day-to-day performance of the Agreement shall be addressed. The designated representative shall have the authority, as the City's coordinator for this Agreement, to transmit instructions, receive information, and interpret and define the City's policy and decisions pertinent to the work covered by this Agreement.
- B. Engineer shall, at all times during the normal work week, designate or appoint one or more representatives who are authorized to act on behalf of the Engineer regarding all matters involving the conduct of the performance pursuant to this Agreement and shall keep the City continually advised of such designation in writing.
- C. For purposes of this Agreement only, the designated Engineer representative is:

Shailesh K. Patel, M.Sc. CPSSc.
Dredging & Marine Consultants, LLC
4643 South Clyde Morris Boulevard
Unit 302
Port Orange, FL 32129
Telephone: (386) 304-6505
Facsimile: (386) 304-6506

10. NON-EXCLUSIVE CONTRACT:

The City reserves the right at its sole discretion to enter into the contracts with other engineers to provide similar services as those identified herein.

11. TERM OF THE CONTRACT:

The term of this Agreement shall be for three (3) years from the date first written above. The City, with the mutual agreement of the Engineer may elect to renew the contract for three (3) additional terms of one (1) year each. Engineer shall perform all services authorized during any renewal period in accordance with the terms and conditions herein.

12. TERMINATION:

- A. The City may, by written notice to the Engineer, terminate this Agreement or any Purchasing Agreement issued hereunder, in whole or in part, at any time, either for the City's convenience or because of the failure of the Engineer to fulfill his Agreement obligations. Upon receipt of such notice, the Engineer shall:
1. Immediately discontinue all services affected (unless the notice directs otherwise); and
 2. Deliver to the City all data, plans, maps, reports, schedules, summaries, and such other information and materials as may have been accumulated by the Engineer in performing this Agreement, whether completed or in process.
- B. If the termination is for the convenience of the City, the Engineer shall be paid full compensation for services performed to the date of termination.
- C. If the termination is due to the failure of the Engineer to fulfill the Agreement obligations, the City may take over the work and prosecute the same to completion by Agreement or otherwise. In such case, the Engineer shall be liable to the City for reasonable additional costs occasioned to the City thereby including, but not limited to, all damages arising from Engineer's breach and all attorney's fees and expenses incurred as a result of any action or proceeding, litigation or arbitration, if applicable, arising therefrom.
- D. If, after notice of termination for failure to fulfill Agreement obligations, it is determined that the Engineer had not so failed, the termination shall be deemed to have been effected for the convenience of the City. In such event, adjustment in the Agreement price shall be made as provided in Paragraph B of this Section and such adjustment in Agreement price shall be deemed to be the sole remedy of the Engineer.
- E. The City reserves the right to cancel and terminate this Agreement, without penalty, in the event that the Engineer or any employee, servant, or agent of the Engineer is indicted or has any direct information issued against him for any crime arising out of or in conjunction with any work being performed by the Engineer for or on behalf of the City. It is understood and agreed that in the event of such termination, the Engineer shall be compensated for services rendered under this Agreement up to the time of termination in accordance with this Paragraph. The City also reserves the right to terminate and cancel this Agreement in the event that the Engineer shall be placed in either voluntary or

involuntary bankruptcy or an assignment be made for the benefit of Engineer's creditors.

- F. The rights and remedies of the City provided in this clause are in addition to any other rights and remedies provided by law or under this Agreement.
- G. The Engineer shall have the right to terminate for failure of the City to fulfill its Agreement obligations and all other rights and remedies otherwise available to Engineer under law.

13. INDEMNIFICATION OF CITY:

- A. To the fullest extent permitted by law, the Engineer shall indemnify and hold harmless the City and its employees, from and against damages, losses, and expenses, including but not limited to reasonable attorney's fees and other reasonable legal costs such as those for paralegal, investigative, and legal support services, and the actual costs incurred for each witness testimony, arising out of or resulting from the performance of services required under this Agreement, provided that same is caused by the error, omission, negligent act, or misconduct of the Engineer, its agents, servants, employees, or Subconsultants. In accordance with Florida Statutes, Chapter 725, adequate consideration has been provided to the Engineer for this obligation, the receipt and sufficiency of which is hereby specifically acknowledged. Nothing herein shall be deemed to affect the rights, privileges, and immunities of the City as set forth in Section 768.28, Florida Statutes. In claims against any person or entity indemnified under this section by an employee of the Engineer or Subconsultants, anyone directly or indirectly employed by them or anyone for whose acts they may be legally liable, the indemnification obligation under this section shall not be limited by a limitation on amount or type of damages, compensation or benefits payable by or for the Engineer or its agents or Subconsultants, under Workers' Compensation acts, disability benefit acts, or other employee benefit acts.
- B. The execution of this Agreement by the Engineer shall obligate the Engineer to comply with the foregoing indemnification provision; however, the collateral obligation of insuring this indemnity must be complied with as set forth below.
- C. The City will require that any engineer/consultant, performing work in connection with data collection, plans, maps, reports, schedules and summaries produced under this Agreement, agrees to hold harmless and indemnify the City and Engineer, their consultants and each of their officers and employees from any and all losses or damages arising out of the Engineer's (or subconsultant's) performance of the work described in the preparation of any documents, but not

including liability that may be due to the negligence of the City, the Engineer, their subconsultants, or their officers and employees.

14. INSURANCE:

- A. Engineer shall provide, pay for, and maintain in force at all times during the services to be performed, such insurance, including Workers' Compensation insurance, Commercial General Liability insurance, Automobile Liability insurance, and Errors and Omissions or Professional Malpractice insurance as will assure to the City, the protection contained in the foregoing Indemnification undertaken by Engineer.

Such policy or policies shall be issued by companies authorized to do business in the State of Florida, and having agents upon whom service of process may be made in Florida. Engineer shall specifically protect the City by naming the City as an additional insured under the policies hereinafter described.

- (1) Errors and Omissions or Professional Malpractice Insurance: The limits of liability provided by such policy shall be no less than ONE MILLION AND NO/100 DOLLARS (\$1,000,000.00) per occurrence to insure and hold harmless the City under the indemnification specified in Section 13.
- (2) Commercial General Liability Insurance (Occurrence Form): The limits of liability provided by such policy shall be no less than ONE MILLION AND NO/100 DOLLARS (\$1,000,000.00) single limit per occurrence to insure and hold harmless the City pursuant to the indemnification specified in Section 13, for which Engineer is not insured under the terms of its Professional Malpractice Insurance above specified in Section 14(a). Such insurance coverage shall be patterned after the current I.S.O. form with no limiting endorsements and cover bodily injury and property damage.
- (3) Worker's Compensation Insurance: statutory limits of Chapter 440, Florida Statutes, and all federal government statutory limits and requirements.
- (4) Automobile Liability Insurance: FIVE HUNDRED THOUSAND DOLLARS (\$500,000.00) each occurrence, owned/non-owned/hired automobile included.

- (5) Engineer shall provide to City a Certificate of Insurance required by this Section showing that the City has been named as an additional insured under such policies, or, in the alternative, a certificate evidencing that the required additional endorsement has been obtained under such policies. Such policies shall be provided by an insurer acceptable to the City and the deductible amounts of such policies shall also be subject to acceptance by the City.
- (6) Each insurance policy shall include the following conditions by endorsement to the policy:
 - (a) Each policy shall require that at least thirty (30) days prior to expiration, cancellation, non-renewal or any material change in coverages or limits, a notice thereof shall be given to the City by certified mail to: Legal Department, P. O. Box 100, Edgewater, Florida 32132-0100. Engineer shall also notify City, in a like manner, within twenty-four (24) hours after receipt of any notices of expiration, cancellation, non-renewal or material change in coverage received by said Engineer from its insurer; and nothing contained herein shall absolve Engineer of this requirement to provide notice.
 - (b) The City of Edgewater shall be endorsed to the required Comprehensive General Liability policy or policies as an additional named insured.
 - (c) The insurance requirements shall remain in effect throughout the term of this Agreement.
- B. Said insurance shall be evidenced by delivery to the City of a certificate of insurance executed by the insurers listing coverage and limits, expiration dates and terms of policies and all endorsements whether or not required by the City, and listing all carriers issuing said policies.
- C. OTHER: City will require that any engineer performing work in connection with the project for which Engineer is providing professional services, hold harmless, and indemnify City, Engineer, their consultants, and each of their directors, officers and employees from any and all losses, damage and costs, including attorney's fees, arising out of or alleged to arise from the Engineer's performance of the work described in preparation of any documents, but not including liability that may be due to the negligence of City, Engineer, their consultants, or their directors, officers and employees.

City will require the Engineer to provide workers' compensation and commercial general liability insurance, including completed operations and contractual liability, with the latter coverage sufficient to insure the Engineer's indemnity, as above required; and such insurance shall include City, Engineer, their consultants, and each of their directors, officers, agents and employees as additional insureds.

The insurance afforded to these additional insureds shall be primary insurance. If the additional insureds have other insurance, which might be applicable to any loss, the amount of the insurance provided under this article shall not be reduced or prorated by the existence of such other insurance.

15. OWNERSHIP OF DOCUMENTS:

It is understood and agreed that all documents, including detailed reports, plans, original maps and all other data, prepared or obtained by the Engineer in connection with its services hereunder shall become the property of the City. The Engineer shall not be liable for any use by the City of said documents or data if modified in any manner without written approval of the Engineer.

16. REUSE OF DOCUMENTS:

- A. Wherever and whenever applicable, all data, documents including maps furnished by Engineer pursuant to this Agreement may be reused by the City for future projects.
- B. Should the City determine that significant benefits would accrue from such reuse, Purchasing Agreement(s) will be negotiated on that basis.
- C. City shall have the right to reuse the data, documents and maps and contract with other parties, not the Engineer. Such reuse will be without need of written approval of the Engineer, however, Engineer shall not be held professionally responsible for any such reuse. City shall indemnify and hold Engineer harmless for any and all damages resulting from such reuse.
- D. If the City elects to reuse the documents and engage the professional services of the Engineer for future work, Engineer agrees to perform said services for a mutually agreed upon discounted fixed fee to be negotiated under such Change Order for additional Work. If issuance of any Purchasing Agreement for future work shall require that a "Clerk-of-the-Works" be employed pursuant to the Scope of Work, compensation for his/her services shall be negotiated as part of that Purchasing Agreement. If any modifications are required to adapt the documents, compensation for such work shall be negotiated.

17. NOTICES:

All notices or other communications required or permitted hereunder shall be in writing and shall be deemed duly given if delivered in person or sent by certified mail return receipt requested and addressed as follows:

If to City:

Legal Department
City of Edgewater
P. O. Box 100
104 North Riverside Drive
Edgewater, Florida 32132-0100
(386) 424-2403

With Copy to:

City Manager
City of Edgewater
P. O. Box 100
104 North Riverside Drive
Edgewater, Florida 32132-0100
(386)424-2404

If to Engineer:

Shailesh K. Patel, M.Sc. CPSSc.
Dredging & Marine Consultants, LLC
4643 South Clyde Morris Boulevard
Unit 302
Port Orange, Florida 32129
(386) 304-6505

18. EQUAL OPPORTUNITY EMPLOYMENT:

Engineer agrees that it will not discriminate against any employee or applicant for employment for Work under this Agreement because of race, color, religion, sex, age or national origin and will take affirmative steps to insure that applicants are employed and employees are treated during employment without regard to race, color, religion, sex, age or national origin. This provision shall include, but not be limited to the following: employment, upgrading, demotion or transfer; recruitment, advertising; layoff or termination; rates of pay or their forms of compensation; and selection for training, including apprenticeship.

19. NO CONTINGENT FEES:

Engineer warrants that it has not employed or retained any company or persons, other than a bona fide employee working solely for the Engineer to solicit or secure this Agreement and that it has not paid or agreed to pay any person, company, corporation, individual or firm, other than a bona fide employee working solely for Engineer, any fee, commission, percentage, gift, or other consideration contingent upon or resulting from the award or making of this Agreement. For the breach or violation of this provision, the City shall have the right to terminate the Agreement without liability, and, at its discretion, to deduct from the contract price,

(Agreement/Dredging-2013)

or otherwise recover, the full amount for such fee, commission, percentage, gift or consideration.

20. COMPLIANCE WITH § 287.133, FLORIDA STATUTES:

Engineer shall, simultaneous with the execution of this Agreement, if not previously done, execute a public entity crime statement required by §287.133, Florida Statutes.

21. COMPLIANCE WITH FEDERAL, STATE AND LOCAL LAWS:

The Engineer shall comply with all Federal, State and Local laws and ordinances applicable to the work or payment for work thereof, and shall not discriminate on the grounds of race, color, religion, sex or national origin in the performance of work under this Agreement.

22. CONFLICT OF INTEREST:

Engineer agrees that at the time of the execution of this Agreement it has no employment or agreement, oral or written, with any third party relating to any interests which are in conflict with or otherwise inconsistent with any interest or position of the City of Edgewater. Further, Engineer shall not accept during the term of this Agreement any retainer or employment from a third party whose interests appear to be conflicting or inconsistent with those of the City of Edgewater. Notwithstanding the foregoing, Engineer may accept employment or retainers from third parties whose interests appear conflicting or inconsistent with those of the City of Edgewater if, after full written disclosure of the facts to the City of Edgewater, the City of Edgewater determines that the apparent conflict shall not interfere with the performance of the work within the Scope of Work by the Engineer.

23. ASSIGNMENT:

This Agreement, or any interest herein, shall not be assigned, transferred, or otherwise encumbered, under any circumstances, by the parties hereto without prior written consent of the opposite party and only by a document of equal dignity herewith. However, this Agreement shall run to the Edgewater City Government and its successors.

24. ALL PRIOR AGREEMENTS SUPERSEDED:

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

(Agreement/Dredging-2013)

- B. It is further agreed that no modifications, amendment or alteration in the terms or conditions contained herein shall be effective unless contained in a written document executed with the same formality and of equal dignity herewith.

25. INDULGENCE NOT WAIVER:

The indulgence of either party with regard to any breach or failure to perform any provision of this Agreement shall not be deemed to constitute a waiver of the provision or any provision of this Agreement either at the time the breach or failure occurs or at any time throughout the term of this Agreement.

26. INDEPENDENT CONTRACTOR:

It is hereby mutually agreed that the Engineer is and shall remain an independent contractor and not an employee of the City.

27. NO THIRD-PARTY BENEFICIARIES:

The Agreements contained herein are for the sole benefit of the parties hereto and their successors and permitted assigns and no other party shall have the right to enforce any provision of this Agreement or to rely upon the provisions of this Agreement.

28. INTERPRETATION; VENUE:

In the event it is necessary for either party to initiate legal action regarding this Agreement, venue shall be in the Seventh Judicial Circuit for Volusia County, Florida, for claims under state law and the Middle District of Florida for any claims which are justiciable in federal court.

29. ATTORNEY'S FEES:

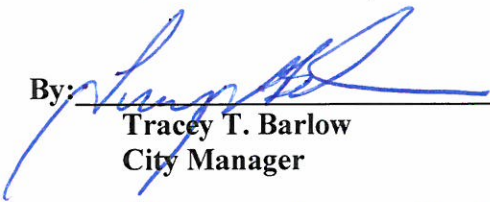
If the City is required to institute or defend any legal proceedings in connection with this Agreement, the Engineer agrees to pay the costs thereof, together with reasonable attorney's fees for the City's attorney in the event such legal proceedings are terminated in favor of the City.

IN WITNESS WHEREOF, the parties have hereto caused the execution of these documents, the year and date first written above.

WITNESSES:

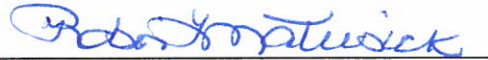
Lisa Bloomer
Bonnie Wenzel

CITY OF EDGEWATER, FLORIDA

By: 

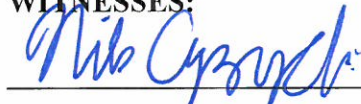
Tracey T. Barlow
 City Manager

Dated: December 2, 2013



Robin L. Matusick
 Legal Assistant/Paralegal

WITNESSES:

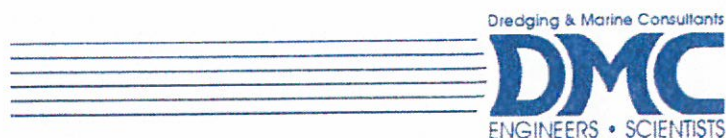

Curtis N. Todd

Dredging & Marine Consultants, LLC.



Shailesh K. Patel, M.Sc. CPSSc.
 MANAGING MEMBER

Dated: 11-20-2013



PROFESSIONAL SERVICES RATES
CITY OF EDGEWATER RFQ 13-GS-006 – Continuing Professional Engineering Services
 Effective October 1, 2013

<u>Project Staff</u>	<u>Hourly Rate*</u>
Principal Engineer & Scientist.....	\$140.00
Senior Engineer	\$120.00 - \$135.00
Project Manager.....	\$110.00
Senior Professional.....	\$95.00 - 105.00
Engineering Professional	\$80.00 - 90.00
Environmental Professional	\$65.00 - 75.00
 <u>Technical Support Staff</u>	
CADD Technician.....	\$75.00
Grants / Programmer / Modeler	\$65.00 - 85.00
Administrative / Accounting.....	\$50.00 - 55.00
 <u>Construction Inspection / Administration</u>	
Construction Manager.....	\$95.00
Senior Resident Inspector.....	\$80.00
Environmental/Construction Inspector	\$70.00 - 75.00
Field Technician.....	\$55.00 - 65.00
 <u>Expenses</u>	
Administrative Support Expenses	
Based on Professional Labor (includes telephone, faxing, copying, emailing)	10%
Lodging and Meals (per day)	\$150.00 ea
Black and White Reproduction:	
8.5 x 11	\$0.10 ea
11 x 17	\$0.20 ea
24 x 36	\$8.00 ea
30 x 42	\$10.00 ea
Color Reproduction:	
8.5 x 11	\$2.00 ea
11 x 17	\$5.00 ea
24 x 36	\$35.00 ea
30 x 42	\$50.00 ea
Vehicle Mileage.....	\$0.70 mi
Jon Boat (per day).....	\$200.00
Turbidity Meter/Standards (per day)	\$30.00
Sediment Sampler (per day)	\$50.00
Subcontractor and Reimbursable Expenses.....	Cost + 10%
*Mediation, Deposition, Court Appearance (min. 4 hrs + Expenses)	1.5 x Hourly Rate



CERTIFICATE OF LIABILITY INSURANCE

 DATE (MM/DD/YYYY)
 11/19/2013

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER SIHLE INSURANCE GROUP, INC. P. O. BOX 160398 ALTAMONTE SPRINGS FL 32716	CONTACT NAME: Nicole Nerone PHONE (A/C, No, Ext): 407-389-3547 E-MAIL ADDRESS: nnerone@sihle.com	FAX (A/C, No): 407-389-8416
	INSURER(S) AFFORDING COVERAGE INSURER A: ADMIRAL INSURANCE COMPANY INSURER B: Summit Consulting, Inc. INSURER C: INSURER D: INSURER E: INSURER F:	
INSURED DREDG-1 Dredging & Marine Consultants, 4643 S Clyde Morris Blvd, #302 Port Orange FL 32129	NAIC #	

COVERAGES

CERTIFICATE NUMBER: 1071922432

REVISION NUMBER:

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSR	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS
A	GENERAL LIABILITY ☒ COMMERCIAL GENERAL LIABILITY ☐ CLAIMS-MADE ☒ OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: ☐ POLICY ☐ PRO-JECT ☐ LOC	Y		FEIECC1089800	11/28/2012	11/28/2013	EACH OCCURRENCE \$2,000,000 DAMAGE TO RENTED PREMISES (Ea occurrence) \$50,000 MED EXP (Any one person) \$5,000 PERSONAL & ADV INJURY \$2,000,000 GENERAL AGGREGATE \$2,000,000 PRODUCTS - COMP/OP AGG \$2,000,000 \$
	AUTOMOBILE LIABILITY ☐ ANY AUTO ☐ ALL OWNED AUTOS ☐ HIRED AUTOS ☐ SCHEDULED AUTOS ☐ NON-OWNED AUTOS						COMBINED SINGLE LIMIT (Ea accident) \$ BODILY INJURY (Per person) \$ BODILY INJURY (Per accident) \$ PROPERTY DAMAGE (Per accident) \$ \$
	UMBRELLA LIAB ☐ OCCUR EXCESS LIAB ☐ CLAIMS-MADE DED ☐ RETENTION \$						EACH OCCURRENCE \$ AGGREGATE \$ \$
B	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below	Y	N/A	83052166	12/18/2012	12/18/2013	☒ WC STATU-TORY LIMITS ☐ OTH-ER E.L. EACH ACCIDENT \$1,000,000 E.L. DISEASE - EA EMPLOYEE \$1,000,000 E.L. DISEASE - POLICY LIMIT \$1,000,000
A	PROFESSIONAL LIABILITY			FEIECC1089800	11/28/2012	11/28/2013	Ded/5,000 2,000,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (Attach ACORD 101, Additional Remarks Schedule, if more space is required)

Certificate Holder is listed as additional insured as to the general liability coverages.
 City of Edgewater RFQ#13-GS-006-Continuing Professional Engineering Services

CERTIFICATE HOLDER

CANCELLATION

 City of Edgewater
 Attn: Pat Drost
 104 N Riverside Drive
 Edgewater FL 32132

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

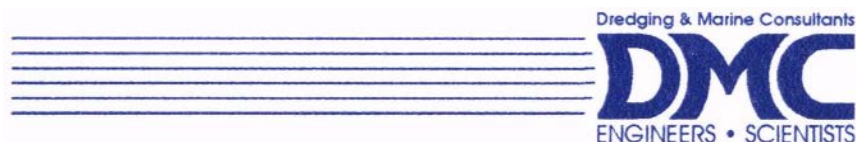
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PROFESSIONAL SERVICES RATES

CITY OF EDGEWATER RFQ 13-GS-006 – Continuing Professional Engineering Services
Effective October 1, 2013

<u>Project Staff</u>	<u>Hourly Rate*</u>
Principal Engineer & Scientist.....	\$140.00
Senior Engineer	\$120.00 - \$135.00
Project Manager.....	\$110.00
Senior Professional.....	\$95.00 - 105.00
Engineering Professional	\$80.00 - 90.00
Environmental Professional	\$65.00 - 75.00
 <u>Technical Support Staff</u>	
CADD Technician.....	\$75.00
Grants / Programmer / Modeler	\$65.00 - 85.00
Administrative / Accounting.....	\$50.00 - 55.00
 <u>Construction Inspection / Administration</u>	
Construction Manager.....	\$95.00
Senior Resident Inspector.....	\$80.00
Environmental/Construction Inspector	\$70.00 - 75.00
Field Technician	\$55.00 - 65.00
 <u>Expenses</u>	
Administrative Support Expenses	
Based on Professional Labor (includes telephone, faxing, copying, emailing)	10%
Lodging and Meals (per day)	\$150.00 ea
Black and White Reproduction:	
8.5 x 11	\$0.10 ea
11 x 17	\$0.20 ea
24 x 36	\$8.00 ea
30 x 42	\$10.00 ea
Color Reproduction:	
8.5 x 11	\$2.00 ea
11 x 17	\$5.00 ea
24 x 36	\$35.00 ea
30 x 42	\$50.00 ea
Vehicle Mileage.....	\$0.70 mi
Jon Boat (per day).....	\$200.00
Turbidity Meter/Standards (per day)	\$30.00
Sediment Sampler (per day)	\$50.00
Subcontractor and Reimbursable Expenses.....	Cost + 10%
*Mediation, Deposition, Court Appearance (min. 4 hrs + Expenses)	1.5 x Hourly Rate



May 23, 2017

Mr. Steve Juengst
Facilities Supervisor, Department of Public Works
City of Holly Hill
453 LPGA Blvd.
Holly Hill, FL 32117

**RE: Sunrise Park North Seawall Assessment and Repair
Engineering Design, Permitting, Bidding and Construction Management**

Mr. Juengst:

Dredging & Marine Consultants LLC (DMC) is pleased to submit the following proposal to provide assessment, engineering design, permitting, bidding and construction management to repair or replace the existing seawall along the north side of Sunrise Park North.

Scope of Services: DMC will complete the following tasks:

- 1. Assessment of Existing Conditions** – DMC staff will assess the existing condition of the wall and determine the best solution for repair or replacement. In addition, DMC will provide a brief report documenting the existing condition and cost estimates for repair and replacement solutions.
- 2. Surveying and Geotechnical Investigation** – DMC will coordinate a supplemental topographic and hydrographic to the existing survey provided by to add additional depth and existing structure information. From this survey DMC will create cross-sections for proper design of the wall or wall repairs. In addition, DMC will coordinate completion of three (3) standard penetration tests (SPT) to a depth of 40 feet below existing grade. This testing will be necessary to identify the existing sub-surface conditions as well as identify the elevation of any rock or dense sand layers. A report of all test results will be provided to the Client.
- 3. Engineering Design** – DMC will complete all structural calculations and design drawings (plans) for construction and permitting of the proposed improvements. DMC will discuss seawall, dock and utilities options with the Client and will attend any necessary meetings to discuss the proposed improvements and construction budget. Upon selection of an agreed upon solution DMC will provide plans for review at 30, 60 and 90 percent complete. In addition, DMC will complete the necessary scour analysis and identify the potential surge elevations needed for proper design. DMC will also provide cost estimation and technical specifications to ensure successful construction.
- 4. Permitting** – DMC will submit a complete Environmental Resource Permitting (ERP) application to the Florida Department of Environmental Protection (FDEP) and the U.S Army Corps of Engineers (Corps) for the proposed construction. DMC shall complete all application forms, required narratives, permit drawings, and any other information necessary for permit submittal. DMC will also respond to any Requests for Additional Information (RAI) from the regulatory agencies until the permit is issued. **All Local and State permit and construction fees shall be paid by the Client.**
- 5. Bidding and Construction Management** – DMC will create bid documents and assist the Client with soliciting bids from qualified contractors. Upon receipt of bids DMC will review all bids submitted and assist with contractor selection. In addition, DMC will review all shop drawings submitted by the selected contractor during construction and provide onsite inspection and engineering assistance during critical stages of the construction process. Upon completion of the construction DMC will provide as-built certification of the final completed structure.

Budget:

- 1. Assessment of Existing Conditions – \$5,400**
- 2. Surveying and Geotechnical Investigation – \$8,500**
- 3. Engineering Design – \$15,870**
- 4. Permitting – \$7,200**
- 5. Bidding and Construction Management – \$14,500**

Total Project – \$51,470.00

Schedule: These services will be completed with 150 days from the date of Notice-to-Proceed. Delays in the timeline may

Respectfully,

Dredging and Marine Consultants, LLC

Niles Cyzycki
Project Manager

DMC Engineering Fees Budget Breakdown

Client: City of Holly Hill

Date: May 23, 2017

Project Name: Sunrise Park North Seawall Assessment and As-Built Repair

DMC Project Number:

Client Project Manager: Steve Juengst

DMC Project Manager: Shailesh K. Patel

Task Descriptions:

Task 1: Assessment of Existing Conditions

Task 2: Surveying and Geotechnical Investigation

Task 3: Engineering Design

Task 4: Permitting

Task 5: Bidding and Construction Management

Table A: DMC Labor								
	Hourly Rate	Task 1	Task 2	Task 3	Task 4	Task 5	Total Hours	Total Cost
		Hours						
Principal	140.00			10			10	\$ 1,400.00
Senior Engineer	120.00	16	4	60	8		88	\$ 10,560.00
Project Manager	110.00	8	8	32	18		66	\$ 7,260.00
Senior Professional	100.00						0	\$ -
Engineering Professional	85.00	20				30	50	\$ 4,250.00
Environmental Professional	70.00				33		33	\$ 2,310.00
CADD	75.00	12	4	50	26		92	\$ 6,900.00
Admin/Accounting	50.00						0	\$ -
Construction Manager	95.00					30	30	\$ 2,850.00
Senior Resident Inspector	80.00						0	\$ -
Environ/Const Inspector	70.00					130	130	\$ 9,100.00
Surveying	\$ 2,540.00		1				1	\$ 2,540.00
Geotechnical Services	\$ 4,300.00		1				1	\$ 4,300.00
Total Hours		56	16	152	85	190	499	
Total Cost		\$ 5,400.00	\$ 8,500.00	\$ 15,870.00	\$ 7,200.00	\$ 14,500.00		\$ 51,470.00



**STAFF REPORT
CITY OF HOLLY HILL, FLORIDA**

**City Commission
Agenda Item**

MEETING DATE: July 11, 2017
FROM: Thomas Harowski
SUBJECT: 999 Third Street Special Exception Request to Approve a Child Day Care as Special Exception Use in the B-1 Professional Office Zoning District.
NUMBER: (ID # 1718)
APPLICANT:
PLANNER:

INTRODUCTION:

The applicant is seeking a special exception approval to allow a child day care facility in the B-1 Professional Office District. The subject property is located at the southeast corner of Third Street at Nova Road.

BACKGROUND:

The subject property is located at the southeast corner of Third Avenue and Nova Road, and has previously been used for office development and a Volusia County Sheriff substation. The property is zoned B-1 Professional Office which allows child day care centers as a special exception use subject to the provisions of Section 114-667. The property includes a building of about 5,500 square feet located on a property of about 0.80 acres. The property is accessed by a circular driveway from Third Street. There is no direct access from Nova Road. Parking is located along the north side and west side of the building, and there is a carport located on the south side of the building.

The applicant proposes to accommodate up to 75 children in the day care center. The proposed business, Kids Cabana Learning Center, is established on Beville Road in Daytona Beach and is seeking to relocate to Holly Hill. The business has been in operation for about seven years, including a three year period when the business had a Holly Hill location. The business is currently licensed by the State of Florida for day care operation, and the state representative has done a preliminary inspection of the subject parcel for compliance with state requirements. The applicant has reported that the state inspection was positive in this regard.

DISCUSSION:

In order to approve a day care facility at the subject location, the City Commission must find that the site and the applicant meet the requirements of Section 114-667. These requirements are listed below:

Sec. 114-667. Child day care centers.

Child day care centers are permitted as special exceptions, provided:

- (1) No play equipment shall be located in any front or side yard, except on corner lots, in which play equipment may be located in a side yard.

The applicant proposes to construct a fenced play area on the south side of the building. The play area at this location is in a side yard, which is permitted for corner lots.

- (2) The play area shall be enclosed by a fence at least five feet in height.

The applicant will construct a fence around the play area meeting these requirements. The fence height will be verified when the building permit is issued.

- (3) Off-street parking shall be provided at the rate of one space for each six children (licensed capacity).

A licensed capacity of 75 students will require 13 parking spaces including one handicapped space. The applicant reports the site currently has 25 parking spaces including two handicapped designated spaces.

- (4) An occupant identification sign shall be permitted on the building facade. The sign shall not exceed six square feet and shall be attached and non-illuminated.

The applicant is requesting approval to relocate a wall sign of approximately 24 square feet from their current location to the new location. The relocated sign would fall below the City's general requirements for wall signs and would be placed on the Nova Road frontage.

- (5) The day care center shall be designed and constructed according to the standards adopted pursuant to F.S. § 402.30 et seq. and section 10C-10.20 et seq., Florida Administrative Code.

The applicant will be required to submit state certifications for this location prior to issuance of a business tax receipt. As noted above, a preliminary inspection of the site has indicated the site will meet state requirements.

- (6) The center shall be appropriately licensed by the county health department and the state department of health and rehabilitative services.

Prior to issuance of a business tax receipt the applicant must present all required certifications.

The applicant has noted that during morning and afternoon peak times for drop-off and pick-up there will be a parking attendant on duty to manage the traffic flow. The facility on Beville Road does not currently use a drive-through pick-up system. Parents are required to enter the building to pick up children. The applicant also plans to have the parking area re-stripped.

RECOMMENDATION:

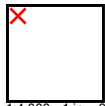
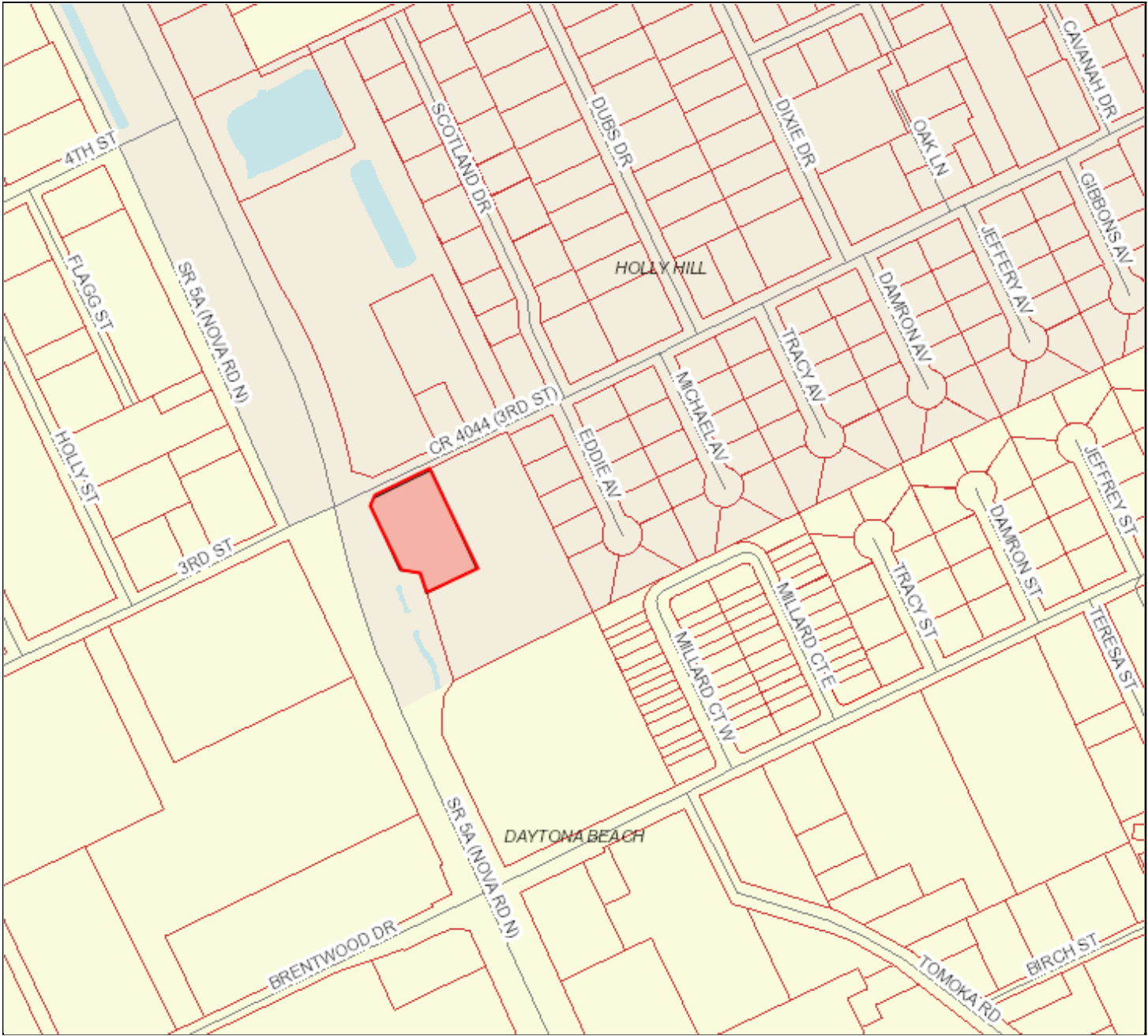
The staff has determined that the criteria for approval of the day care facility are met or will be met in the normal course of business permitting and licensing. The City Commission should make a determination on the sign proposal. The proposed sign would be well within the limits for signage allowed for an office use allowed at this location.

MOTION:

AS DETERMINED BY THE CITY COMMISSION.

- SE-2017-03 Location Map (PDF)
- SP-2017-03 Application (PDF)

SE-2017-03 LOCATION MAP



DISCLAIMER: This product is for informational purposes and may not have been prepared for, or be suitable for legal, engineering, or surveying purposes. Users of this information should review or consult the primary data and information sources to ascertain the usability of the information. Use at your own risk.
SOURCE: PARCEL DATA, VOLUSIA COUNTY PROPERTY APPRAISER



GENERAL LAND DEVELOPMENT APPLICATION

1065 Ridgewood Avenue, Holly Hill, Florida 32117

Phone: (386) 248-9424

Fax: (386) 248-9498

Date Received: 6-28-17 Application ID: SE-2017-03 Received By: [Signature]

REQUESTED ACTION

- | | | | |
|--|---|--|--|
| ☐ Comp Plan Amend | ☐ Variance | ☐ Site Plan | ☐ PUD |
| ☐ Rezoning | ☒ Special Exception | ☐ Subdivision Major | ☐ Subdivision Minor |
| ☐ Waiver Request | ☐ Other: _____ | | |

Describe Request: Child Day Care in B-1

✓ APPLICANT INFORMATION:

Name: Michelle Bondi

E-Mail: mbondi@shawhomes.com

Address: 910 Breville Rd

Phone: 724-506-0329

Daytona Beach FL 32114

Fax: 386-256-2548

☒ Owner ☐ Agent for Owner ☐ Attorney for Owner

✓ OWNER INFORMATION:

Name: Eddie Sabbagh

E-Mail: Eddie.Sabbagh@Gmail.com

Address: 15150 Surrey Bend

Phone: 813-468-3094

Brocksville, FL 34609

Fax: _____

✓ PROPERTY INFORMATION:

Address: 999 3rd St Holly Hill FL 32117

General Location: 3rd and Nova

Current Zoning: B-1 Current Land Use: Commercial

Parcel Size: _____ Tax Parcel #: _____

Legal Description Attached ☐ Yes ☒ No Survey Attached ☐ Yes ☒ No

Attachment: SP-2017-03 Application (1718 : 999 Third Street Special Exception)

June 21, 2017

Pre-Application Meeting Date: _____
 (Attach Pre-Application Form)

Application Fee: \$ _____ # 500

✓ Applicant's Signature: Michelle Bondi
 (Signature)

6-26-17
 (Date)

Michelle Bondi
 (Print)

Owner's Signature: _____
 (Provide letter of Authorization)

6-26-17
 (Date)

90 BCD
G. D. DISOR
 (Print)

Applications must be complete to initiate the preview process.

Any questions please contact our City Planner, Tom Harowski at (386) 248-9424, fax (386) 248-9498 or email him at tharowski@hollyhillfl.org



CITY OF HOLLY HILL SPECIAL EXCEPTION CHECKLIST AND REQUIREMENTS

SPECIAL EXCEPTION CHECKLIST

- ☒ Pre-Application Meeting Form completed and meeting held prior to completion of application
- ☒ Application Fee and Estimated Deposit
- ☒ Completed Special Exception Application
- ☐ One signed and sealed survey of the property (no more than 2 years old).
- ☒ Legal Description (Digital in MS Word)
- ☒ Notarized Authorization of Owner (if applicant is other than owner or attorney for owner).
- ☐ List of property owners within 300 feet
- ☒ A Description of the Special Exception and how it complies with the Special Exception Criteria of Chapter 114, Article III, Division 2.

PUBLIC NOTIFICATION (Sec. 82-347)

- a) The applicant shall provide written notice to property owners regarding his intention to seek a special exception and shall pay all costs of providing such notice as follows:
 - 1) An applicant seeking a special exception shall provide written notice to property owners, as identified in the current tax roll, within 300 feet of the property perimeter which is the subject of the special exception request.
 - 2) In addition to written notice provided in accordance with this section, city staff shall also post a notice on the subject property ten days prior to the board of planning and appeals meeting.
- b) A notice letter will be provided to the applicant by the City. The written notices shall be made at least ten days prior to the date of hearing before the board of planning and appeals. The written notice shall be sent by certified mail, return receipt requested.

ADMINISTRATIVE REVIEW (Section 82-343)

1. All requests for special exceptions shall be reviewed administratively by the development code administrator in conjunction with pertinent city staff. The development code administrator shall make a written determination that the request be approved, approved with conditions, or denied based upon the conditions described in section 82-346.
2. A determination by the development code administrator to deny a request for special exception shall become final unless the applicant appeals the determination to the city commission within 30 days of the date of such determination.
3. When the development code administrator determines that a special exception should be approved or approved with conditions, he shall schedule the matter for review and final determination by the city commission.

CITY COMMISSION PUBLIC HEARING

The City Commission schedules public hearings the second and fourth Tuesday of each month at 7:00 p.m. in the City Commission Chambers, 1065 Ridgewood Avenue, and Holly Hill, Florida 32117. At this public hearing, the City Commission votes to approve, deny, or continue the application.

Attachment: SP-2017-03 Application (1718 : 999 Third Street Special Exception)

WRITTEN PETITION FOR A SPECIAL EXCEPTION

The following items must be completed in sufficient detail to allow the City to determine if the application complies with the City Code Chapter 114 and Section 82-346.

1. Is it inconsistent with the purpose or intent of this subpart? ☐ YES ☒ NO Explain.

2. Is it inconsistent with any element of the comprehensive plan? ☐ YES ☒ NO Explain.

3. Will it adversely affect the public interest? ☐ YES ☒ NO Explain.

4. Does it meet the expressed requirements of the applicable special exception? ☒ YES ☐ NO Explain.

During morning and afternoon drop off we have a parking attendant helping and monitoring the traffic flow. We will continue to do so at this property also.

5. Is the applicant able to meet all requirements imposed by federal, state or local governments, or by the city commission? ☒ YES ☐ NO Explain.

6. Will it generate undue traffic congestion? ☐ YES ☒ NO Explain.

This where we will have a parking attendant to help with parking and traffic. at our Facility Parent drop off and pick up at different times it's not all at once.

Attachment: SP-2017-03 Application (1718 : 999 Third Street Special Exception)

7. Will it create a hazard or a public nuisance, or be dangerous to individuals or to the public? ☐ YES ☒ NO Explain.

8. Will it materially alter the character of surrounding neighborhoods, or adversely affect the value of surrounding land, structures or buildings? ☐ YES ☒ NO Explain.

9. Will it adversely affect the natural environment, natural resources or scenic beauty, or cause excessive pollution? ☐ YES ☒ NO Explain.

Michelle Bondi
Print Applicant Name

Michelle Bondi
Applicant Signature

Print Applicant Name

Applicant Signature

6.26.17
Date

6.26.17
Date

Attachment: SP-2017-03 Application (1718 : 999 Third Street Special Exception)