DEPARTMENTAL INPUT
CONTRACT/PROJECT MEASURE ANALYSIS AND RECOMMENDATION

☒ New Contract ☐ OTR ☐ Sole Source ☐ Bid Waiver ☐ Emergency Previous Contract/Project No. **RTQ-00103**

☐ Re-Bid ☐ Other LIVING WAGE APPLIES: ☐ YES ☒ NO

Requisition No./Project No.: **187577** TERM OF CONTRACT **90 DAYS**

Requisition /Project Title: **SDWWTP EFFLUENT WET WELLS Nos. 3 & 4 AND DRAIN LINES REHABILITATION PROJECT**

Description: **SDWWTP EFFLUENT WET WELLS Nos. 3 & 4 AND DRAIN LINES REHABILITATION PROJECT CONSENT DECREE PROJECT 1.05(1) PCTS No. 13179**

Issuing Department: **WASD** Contact Person: **Joseph Lee** Phone: **786-268-5676**

Estimate Cost: **$866,673**

GENERAL FEDERAL OTHER

Funding Source: **GENERAL**

ANALYSIS

Commodity Codes: **630**

Contract/Project History of previous purchases three (3) years

Check here ☐ if this is a new contract/purchase with no previous history.

	EXISTING	2ND YEAR	3RD YEAR
Contractor:			
Small Business Enterprise:			
Contract Value:			

Comments:

Continued on another page (s): ☐ Yes ☐ No

RECOMMENDATIONS

	Set-aside	Sub-contractor goal	Bid preference	Selection factor
SBE			x	

Basis of recommendation:

Signed:

Date sent to SBD:

Date returned to PMS:

MIAMI-DADE COUNTY, FLORIDA

BOARD OF COUNTY COMMISSIONERS

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SDWWTP EFFLUENT WET WELLS Nos. 3 & 4 AND DRAIN LINES REHABILITATION PROJECT

CONSENT DECREE PROJECT 1.05(1)

PCTS No. 13179

SOLICITATION UNDER RTQ-00103
PROTECTIVE COATING SERVICES – PREQUAL

ER No. S049579

BID SET
JULY 2018

MIAMI-DADE WATER AND SEWER DEPARTMENT
KEVIN LYNSKEY, DIRECTOR

PREPARED BY
CENIT, LLC

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APPENDICES

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These Special Provisions are intended to modify, clarify, or quantify items within the General Terms and Conditions and Instructions to Bidders based on the unique requirements of this contract.

Compliance with the foregoing requirements shall not relieve the Contractor of his liability and obligation under this section or under any other section of this agreement.

SP 1.0 ADDITIONAL QUALIFICATIONS OF BIDDERS

In order to aid the County in making an award of the Contract, the Bidder shall be pre-qualified under County Contract RTQ-00103.

SP 2.0 INSURANCE REQUIREMENTS

Refer to requirements under County Contract RTQ-00103.

SP 3.0 LIQUIDATED DAMAGES

This project is mandated by a Consent Decree and has established construction schedule milestones that are critical for completion of this construction contract. These milestones have either “Contract Liquidated Damages”, “Consent Decree Liquidated Damages”, or both associated with them.

SP 3.1 Contract Liquidated Damages

The parties to the Contract agree that time, in the completion of the Work, is of the essence. The County and the Contractor recognize and agree that the precise amount of actual damages for delay in the performance and completion of the Work is impossible to determine as of the date of execution of the Contract and that proof of the precise amount will be difficult. Therefore, the Contractor shall be assessed Contract Liquidated Damages on a daily basis for each Day that individual milestones, as specified below, are not timely achieved or that Contract Time is exceeded due to a non-excusable delay. These Contract Liquidated Damages shall be assessed, not as a penalty, but as compensation to the County for expenses which are difficult to quantify with any certainty and which were incurred by the County due to the delay. The amount of Contract Liquidated Damages assessed shall be an amount, as stipulated below, per day for each calendar day that individual milestones as specified in the Contract are not timely achieved or that the Project is delayed due to a non-excusable delay.

In the event the Contractor fails to perform any other covenant or condition (other than time-related) of this Contract relating to the Work, the Contractor shall become liable to the County for any actual damages which the owner may sustain on the part of the Contractor. The County reserves the right to retain these amounts from monies due the Contractor.

Failure to complete Milestone(s) 2 within the duration indicated in Table 1 below shall result in Contract Liquidated Damages.

Table 1

Milestones	Description	Duration (Calendar days from NTP)	Contract Liquidated Damages (1)
1	Accepted Safety Plan/Accepted Schedule/Company Background Check & Acquire WASD Security ID Badges	45	
2	Substantial Completion(2)	180	$300 Per Calendar Day
3	Final Completion	210	

NOTES:

(1) The above Contract Liquidated Damages are specifically related to Contract Time. Additional Liquidated Damages may be incurred as noted in Section SP 3.2. Contract Liquidated Damages listed in this table are cumulative with those listed in Section SP 3.2.

(2) Substantial Completion entails completion of work, conducting a substantial completion inspection, resolution of all substantial completion inspection punchlist items, and turning over the facility to WASD for full beneficial usage.

SP 3.2 Consent Decree Liquidated Damages

Miami-Dade County has entered into a Consent Decree (United States District Court for the Southern District of Florida, Case No. 1:12-cv-24400-FAM, herein referred to as Consent Decree) with the United States, Environmental Protection Agency, the State of Florida, and Florida Department of Environmental Protection (FDEP) (collectively "Regulatory Agencies"), to remediate its aging wastewater infrastructure. This project is intended to satisfy the requirements identified in the Consent Decree as CD Project CD 1.05. The full text of the Consent Decree is available online at:

http://www.miamidade.gov/water/library/reports/consent-decree/consent-decree-signed.pdf

The Consent Decree provides that the Regulatory Agencies may impose stipulated penalties against Miami-Dade County for failure to meet the project's Consent Decree Compliance Date and for certain sanitary sewer overflows (SSOs). In the event the Regulatory Agencies impose such penalties against Miami-Dade County and such penalties are a result of the Contractor's lack of performance, failure to meet the Consent Decree Compliance Date, or an SSO that occurs during construction, the Contractor shall be liable to the County for such amounts as additional

Liquidated Damages ("Consent Decree Liquated Damages"). Please note these Consent Decree Liquidated Damages are in addition to the Contract Liquidated Damages and may be assessed separately and/or in combination.

(a) Failure to complete work on or before the Consent Decree Compliance Date per table below shall result in Consent Decree Liquidated Damages as listed below.

CD Project No.	Consent Decree Compliance Date
1.05	April 7, 2022

***Note: In the event the above Consent Decree Compliance Date occurs before the Substantial Completion date established in Section SP 3.1, Table 1, the Consent Decree Liquidated Damages shall commence on the later of the two dates.**

Period of Noncompliance per Violation per Day (Calendar Days from NTP):

One (1) to fourteen (14) days	$1,000
Fifteen (15) to thirty days (30) days	$2,000
Thirty one (31) to sixty (60) days	$3,000
Sixty one (61) to one hundred eighty (180) days	$4,000
More than one hundred eighty (180) days	$5,000

(b) Consent Decree Liquidated Damages for each SSO reaching waters of the United States due to a release of wastewater caused by Contractor may be assessed as:

Description	Before 4/09/2019	After 4/09/2019
1 to 10,000 gallons	$1,000	$1,000
10,000 to 250,000 gallons	$2,000	$4,000
250,000 to 1,000,000 gallons	$5,000	$10,000
Greater than 1,000,0000 gallons	$10,000	$20,000

(c) Consent Decree Liquidated Damages for each SSO NOT reaching waters of the United States due to a release caused by Contractor may be assessed as:

Description	Before 4/09/2019	After 4/09/2019
1 to 10,000 gallons	$500	$500
10,000 to 250,000 gallons	$1,000	$2,000

250,000 to 1,000,000 gallons	$2,500	$5,000
Greater than 1,000,0000 gallons	$5,000	$10,000

SP 4.0 SMALL BUSINESS MEASURES

Pursuant to Section 10-33.02 of the Code of Miami-Dade County, Florida, "a contractor who fails to meet an established CSBE goal shall submit a CSBE Make-Up Plan for approval of the [Small Business Development ("SBD")] Division Director. A Make-up Plan and a corresponding Schedule of Intent Affidavit must be submitted as part of any bid or proposal submitted for future contracts at the time of bid or proposal submittal." Failure to include the required Schedule of Intent Affidavit with bids or proposals for any future contracts shall result in the submittal being deemed non-responsive. **To verify whether your company has a SBE make-up requirement,** please refer to the SBD webpage at:

http://www.miamidade.gov/smallbusiness/library/reports/goal-deficit.pdf

For questions regarding this requirement, contact Alice Hidalgo-Gato, Division Director, Contract Monitoring and Compliance at (305) 375-3153.

Small Business Goals for this contract are as stated in the Advertisement for Bids.

SP 5.0 COMMUNITY WORK FORCE GOALS

Not Applicable

SP 6.0 USER ACCESS PROGRAM

Not Applicable Bond Funded

SP 7.0 REVIEW OF RECORDS

In addition to the five (5) year retention period specified in this Contract, the following retention for Consent Decree projects shall apply: Until five (5) years after the termination of this Consent Decree, the contractors and agents shall preserve, all non-identical copies of all documents, records, or other information (including documents, records, or other information in electronic form) in its or its agents' possession or control, or that come into its or its agents' possession or control, and that relate in any manner to the Contractor or its agents performance of its obligations under this Contract. This information-retention requirement shall apply regardless of any contrary corporate or institutional policies or procedures. At any time during this information-retention period, upon request by the County, the Contractor shall provide copies of any documents, records, or other information required to be maintained under this Paragraph.

SECTION 01005A

DEFINED TERMS

PART 1 - GENERAL

1.01 SCOPE

When used in this publication the following underlined terms shall have meaning as hereinafter defined:

A. The masculine pronoun shall include the feminine and neuter, and the singular shall include the plural;

B. "And" shall also mean "or" and "or" shall also mean "and", wherever the context or purpose so requires;

C. "Person" shall mean and include any individual, combination of individuals, partnership, society, association, joint stock company, corporation, estate, receiver, trustee, assignee, referee or any other person acting in a fiduciary or representative capacity, whether appointed by a court or otherwise;

D. "County", "Dade County", "Miami-Dade County" or "Metropolitan Dade County (MDC)" shall mean Miami-Dade County, Florida, a political subdivision of the State of Florida, acting by and through the Board of County Commissioners, which is a party hereto and for which this Contract is to be performed;

E. "Department" shall mean the Miami-Dade Water and Sewer Department of Miami-Dade County, Florida;

F. "Director" shall mean the Director of the Miami-Dade Water and Sewer Department;

G. "Engineer" shall mean the Chief, Engineering Division of the Miami-Dade Water and Sewer Department or an authorized representative;

H. "Inspector" shall mean any person designated by the Engineer to examine and inspect materials and work for the purpose of insuring compliance by the Contractor with all requirements of the Plans and Specifications;

I. "Developer" shall mean the person, who has entered into an agreement with the Department to construct a Project.

J. "Contractor or Vendor" shall mean the party of the second part to the contract. The person, firm, or corporation, holding a current Certificate of Competency applicable to the type of work to be performed, with whom a contract has been made directly or through accredited representatives, that may have entered into a contract with the County and who is primarily liable for the acceptable performance of the work for which he has contracted and also for the payment of all legal debts pertaining to the work, or Contractor shall mean any person engaged by the Developer to supply labor, materials or equipment for use in the fulfillment of the project.

K. "Subcontractor" shall mean any person engaged by the Contractor to supply labor, materials or equipment for use in the fulfillment of the Project;

L. "Engineer of Record" shall mean the Florida-certified professional engineer engaged by the Developer or the Department to design the proposed Project.

M. "Project" shall mean and include all construction for which the Contractor is responsible under the Contract Documents, or shall mean and include all construction for which the Developer or Engineer of Record is responsible under the agreement with the Department.

N. "Plans" shall mean construction drawings prepared by the Developer or Engineer of Record for the proposed Project.

O. "Standards Details" or "Standards" the Department's latest published standard construction details, copies of which are bound herein.

P. "Equal" or "Approved Equal" shall mean only that material or product which is specifically approved by the Engineer as being an acceptable substitute for a material or product designated in the Specifications or by a trade name or the name of the manufacturer.

Q. "Domestic" when applied to materials, shall mean materials or products produced within the continental limits of the United States.

R. "Water level" or "water table" shall mean the top elevation of the natural ground water table as it exists in the trench at any particular site and time during the installation.

S. "Surveyor" shall mean a professional surveyor registered in the State of Florida to engage in the practice of surveying.

T. "Substantial Completion" as used herein shall mean completion of construction and installation of equipment or infrastructure, in accordance with the contract documents, such that the equipment or infrastructure has been placed in operation, and is expected to both function and perform as designed. This specifically includes all control systems and instrumentation necessary for normal operations and all residual handling systems are in place and operational. Punch List and Miscellaneous items related to construction activities, such as restoration of surrounding areas or installation of other items not necessary for the equipment or infrastructure to function and perform as designed, is not required to be completed prior to Miami-Dade Water and Sewer Department certifying that the project has met Substantial Completion.

U. “Final Completion” as used herein shall mean that Substantial Completion has been achieved and that all Punch List and Miscellaneous items have been completed according to the terms and conditions set forth in the contract documents.

V. “Construction” as used herein shall mean Maintenance Repair.

PART 2 - PRODUCTS

(Not Used)

PART 3 - EXECUTION

(Not Used)

END OF SECTION

SECTION 01010A

SUMMARY OF WORK

1. GENERAL

a. SCOPE OF WORK

i. Work Included: This Section describes the project in general, and provides an overview of the extent of the work to be performed under this Contract. Detailed requirements and extent of work is stated in the applicable Specification sections. The Contractor shall, except as otherwise specifically stated herein or in any applicable parts of the Contract Documents, provide and pay for all labor, materials, equipment, tools, construction equipment, and other facilities and services necessary for proper execution, testing, and completion of the work under this Contract.

b. SPECIFICATIONS

i. The Specifications included in these Contract Documents establish the minimum performance and quality requirements for materials and equipment together with the minimum standards for quality of workmanship and appearance. Generally, there has been no attempt to separate the Specification sections into groups for the work of separate subcontractors, or for work to be performed by the various trades. Should there be any question as to the interpretation of any particular Specification section or part of Specification section, such question should be directed to the Department prior to the submittal of a proposal for the work under this Contract.

ii. The work described in the Specifications is intended to be comprehensive and descriptive, not an exact and complete representation of the actual finished work. Installed work shall include all accessories required to provide complete and satisfactory systems as specified, even though some items may not be specifically mentioned in the Specifications.

iii. It is the intent of the Department to obtain a complete functional, and satisfactory installation under this project, and any items of labor, equipment or materials which may be reasonably assumed as necessary to accomplish this end shall be supplied whether or not they are specifically stated herein. The Contractor shall provide all materials for the project unless they are specifically called out in these specifications as being supplied by the Department. The Contractor shall also supply all sheeting, shoring, bracing and all other labor, material or equipment required to preclude damage to, or loss of functionality of, any existing facility or system.

c. REASONABLY IMPLIED PARTS OF THE WORK SHALL BE DONE THOUGH ABSENT FROM SPECIFICATIONS

i. Any part of the work which is not mentioned in the Specifications but which is necessary or normally required as a part of such work, or is necessary or required to make each installation satisfactorily and legally operable, shall be performed by the Contractor as incidental work without extra cost to the Department, as if fully described in the, and the expense thereof shall be included in the applicable unit prices or lump sum bid for the work.

d. DESCRIPTION OF WORK

i. **The project consists of furnishing all materials, labor and equipment necessary to rehabilitate the effluent wet well basins number 3 and 4 at Miami-Dade's South District Wastewater Treatment Plant.**

The Work shall include:

- Water pressure cleaning (4,000-5,000 psi) shall be used to provide a clean, contamination-free, roughened and sound surface.

- Abrasive Blast Cleaning, High/Ultra High Pressure Jetting (Min. 25,000psi), and/or Mechanical Cleaning in accordance with SSPC-SP13 / NACE No.6 "Surface Preparation of Concrete" (as required) to all concrete surfaces; walls, columns, floor and ceiling of the wet wells.

- Reparation of concrete defects such as cracks, scaling and spalling.

- Application of an epoxy cementitious mortar (up to 1/4") to all concrete surface to be coated, to create a smooth, monolithic surface (at a minimum 1/16").

- Application of a primer coat, followed by two coats of 100% solid epoxy coating (32-40 Mils total) on all concrete walls, columns, floor, interior of influent pipes and ceiling of the wet wells.

- Installation of new joint sealant in all concrete joints.

- Restoration of all valves in both wet wells, including high pressure water washing and epoxy coating of the interior valve surface.

- Replacement of the entire drainage system inside the wet wells with new PVC pipping, including the replacement of the pipe hanging system and the drainage sumps and covers.

- Replacement of the electrical conduits' hanging system.

Bidder shall field-verify actual scope of work and amount of materials required to rehabilitate the wet well basin before submitting the bid.

ii. There is very limited access into this underground tank, the work will take place in areas defined by the Occupational Safety and Health Administration (OSHA) as an entry permit required confined space. The dimensions of the tanks are approximately: horizontal dimensions 50’ by 55’ (interior dimensions) and depths that exceed 15'.

iii. The work will involve preparation of surfaces by abrasive blasting, grit blasting or (ultra) high pressure water blasting as required for each particular surface. Structural concrete repairs by troweling, gunite, or other specified method of epoxy or cementitious compounds are generally required, as applicable. A protective coating is then applied by either rolling or spraying. The protective coating will be a two-part, 100% solids, no-solvents, epoxy.

iv. After completion of the work, the successful contractor shall thoroughly clean the inside of the tank and any surrounding affected areas of all grit, debris, and material residue, and properly dispose of such.

v. Approved submitters shall be required to provide 24 hours, 7 days a week Emergency Service to WASD under any subsequently awarded spot market competitions. Emergency Service shall be defined as a non-warranty related repair service requirement and its response time shall not exceed twenty-four (24) hours after notification by WASD.

vi. Surface preparation shall be done in accordance with the requirements of Section 03721.

vii. Concrete patching and rebar repairs shall be completed per Section 03732.

viii. Protective coatings shall be applied per Section 09960.

e. WORKING CONDITIONS

i. On-site storage space is limited.

ii. Sandblasting is required on new steel installed to prepare the surface area for the coating application.

iii. Certification in the application of the coating material is required with the bid to ensure proper application and a timely repair. The Department needs to have the structure repaired, coated and back in service promptly to meet operational needs.

iv. The time allowed between prime and top coats is a maximum of 30 days

and a minimum of 24 hours. The time allowed between pressure cleaning and primer is 24 hours or less.

v. Stripe coating is required at all corners and edges.

vi. The allowable working hours are Monday through Friday between 7 am and 5 pm.

vii. Electric power and water are available free of charge for small tools and lighting. Contractor shall provide portable power for the welding machines and dewatering pumps. The Contractor is required to use a floating water meter to measure the amount of water used. No charges will be made for the water used to perform the work.

viii. All unusable materials and spills shall be removed from the premises immediately, and disposed of in an appropriate manner. Upon final completion, the awarded contractor shall thoroughly clean up all areas where work has been involved as mutually agreed with the WASD's project manager.

ix. COMPLETION OF WORK

1. All work shall be performed in accordance with good commercial practice. The work schedule and completion dates shall be adhered to by the successful bidder(s); except in such cases where the completion date will be delayed due to acts of nature, strikes, or other causes beyond the control of the contractor. In these cases, the successful contractor shall notify the County of the delays in advance of the original completion date so that a revised delivery schedule can be appropriately considered by the County.

2. Should an awarded contractor of a spot market solicitation fail to complete the work within the number of days as stated in its offer, or the timeframe cited in the spot market solicitation, the County may terminate the order, secure the services of another contractor to complete the work, and/or terminate the contract with the contractor.

x. LICENSES, PERMITS AND RECORD KEEPING

1. The following is required in addition to the standard licenses, permits and fees requirements listed in section 1.14 of the general terms and conditions, the awarded contractor of a subsequent spot market solicitation shall

provide the following:

2. Provide WASD one copy of all applications, permits, reports, records and correspondence, within 30 calendar days of submission or receipt.

3. Maintain a file of the above items and make this file available for inspection by the County and County authorized representatives.

4. Maintain this file for the duration of the contract, plus five (5) years.

xi. MANUFACTURER'S FIELD SERVICE TECHNICIAN SERVICES

1. The Contractor shall obtain the services of the Coating Manufacturer's Field Service Technician. The Coating Manufacturer's Field Service Technician shall provide inspection and written approval of surface preparation prior to application of the product, and shall provide a final inspection and written approval after the coating application.

xii. PRICING

1. Contractor shall supply all labor, materials, equipment and any other incidental items necessary to complete the services specified in the Contract Documents. No additional cost will be paid by the County.

xiii. PROTECTION OF PROPERTY

1. All existing structures, utilities, services, road, trees, shrubbery, etc., shall be protected against damage or interrupted services at all times by the contractor during the term of this contract; and the contractor shall be held responsible for repairing or replacing property to the satisfaction of the County which is damaged by reason of the contractor's operation on the property.

xiv. SAFETY

1. The contractor shall provide suitable explosion proof blowers, as necessary to make up for any lack of ventilation and to provide comfortable working conditions for its personnel. No smoking or open flame shall be permitted in any areas within a tank or on the roof of the

tank or any adjacent tanks.

2. The contractor's personnel will be in the vicinity of raw sewage. The successful contractor shall check with the Miami Dade County Health Department, and based on their recommendation, have its personnel properly immunized against disease.

3. Prior to any mobilization or other work on the site work being done, the contractor will be required to submit a specific Site Safety Plan outlining the work sequence for review and approval by WASD.

4. The contractor shall coordinate with the Construction Manager to arrange mandatory Project Safety Management (PSM) training for all his personnel who will be onsite. This training must be completed prior to mobilization or any other work on site. The successful contractor shall also be responsible that all on-site personnel of his subcontractors, at whatever tier, receive this training. Contact information for the Construction Manager will be provided upon award approval.

5. The contractor must submit and obtain approval for a confined space entry plan prior to starting work. Continuous air monitoring of the tank is required in a confined space work. The contractor shall conduct continuous air monitoring when employees are working in the confined space. The contractor shall also submit the Safety Data Sheets (SDS) for all chemicals, including coatings, that are brought onto the site and submit them as part of their report.

6. The contractor must use warning devices such as traffic cones, barricades and warning lights to warn plant personnel of any hazard, as considered necessary by the County.

xv. SUPERVISION

1. The contractor shall employ a competent superintendent who shall be in attendance at the project site during the progress of the work. The superintendent shall be the primary representative for the contractor and all communications given to and all decisions made by the superintendent shall be binding to the contractor.

2. Notwithstanding, the superintendent shall be considered to be, at all times, an employee of the contractor under its sole direction and not an employee or agent of Miami-Dade County.

xvi. WARRANTY

1. The warranty period for the coating installation shall be a minimum of three (3) years for defects in installation.

2. The warranty period for the protective coating manufacturer shall be a minimum three (3) years for defects in material.

xvii. COMPLIANCE WITH GOVERNMENT STANDARDS

1. All services to be purchased under this pool shall be in accordance with all governmental standards, to include, but not limited to, those issued by the American National Standards Institute (ANSI), the American Society for Testing Materials (ASTM), the Environmental Protection Agency (EPA), The Instrument Society of America (ISA), the International Standards Organization (ISO), Occupational Safety and Health Administration (OSHA), the National Institute of Occupations Safety Hazards (NIOSH), the National Sanitation Foundation (NSF), and the National Fire Protection Association (NFPA). Special attention is made to OSHA's 29CFR 1910 regulations relating to hazardous atmospheres in confined spaces. Submitters will be responsible for ventilation and Personal Protection Equipment (PPE) per OSHA requirements.

2. It shall be the responsibility of all submitters to be regularly informed and to conform to any changes in standards issued by any regulatory agencies during the term of this pool.

xviii. MIAMI-DADE COUNTY RESPONSIBLE WAGE ORDINANCE

Submitters are advised that the provisions of Miami-Dade County Code Section 2.11.16 will apply to any spot market solicitation awarded pursuant to this pool that exceeds $100,000. By submitting a response pursuant to these specifications, a submitter is hereby agreeing to

comply with the provisions of Section 2.11.16, and to acknowledge awareness of the penalties for noncompliance. The supplemental general conditions and the Responsible Wages and Benefits Schedule can be found by accessing the following link: http://www.miamidade.gov/internalservices/small-business.asp (Heavy Construction). However, the spot market solicitation will include the applicable Responsible Wages and Benefits Schedule for the specific project. Submitter is advised that the Wages and Benefits Schedule will be reviewed and increased, if appropriate, once a year, on January 1st. The rates for wages and benefits to be paid for work performed under this pool and during each subsequent calendar year will be the rate in effect on January 1st of the year in which the work is performed.

xix. INDEMNIFICATION AND INSURANCE

1. The standard insurance requirements listed herein shall apply:

2. Commercial General Liability Insurance on a comprehensive basis in an amount not less than $1,000,000 combined single limit per occurrence for bodily injury and property damage. Miami-Dade County must be shown as an additional insured with respect to this coverage

3. Automobile Liability Insurance covering all owned, non-owned and hired vehicles used in connection with the work, in an amount not less than $1,000,000 combined single limit per occurrence for bodily injury and property damage.

2. PRODUCTS AND TESTING

a. Protective coatings furnished shall be a modified epoxy or higher level of coating. Calcium aluminates will not be allowed. The concrete repair and patching material, underlayment and primer used shall be of the same manufacturer and/or compatible with the applied coating.

b. Products Furnished by the Contractor

i. The type of protective coating shall be determined based on the application required in the in future spot market competition. This shall be determined by specific factors such as application, abrasion, adhesion, structure to be

coated, allowable shut down time of facility, NSF approval for contact with drinking water, compatibility with existing coating for spot repairs, level of hydrogen sulfide gas, chemical resistance, bond strength, humidity level in enclosed spaces and other factors.

ii. Severe Wastewater: ASTM- G210-13 Severe Wastewater Analysis Testing, ASTM D4227

iii. Qualification of Coating Applicators for Application of Coatings to Concrete Surfaces, ASTM D4228 Qualification of Coating Applicators for Application of Coatings to Steel Surfaces, ASTM D-4541 Test Method for Pull Strength of Coatings Using Portable Adhesion Testers.

iv. Abrasion Resistance: ASTM D4060 Test Method for Abrasion Resistance, Tensile Strength ASTM D-638,

v. Compressive Strength ASTM D-695

vi. Contact with Drinking Water: NSF 61 Approval required for products in contact with drinking water.

c. Patching Materials

i. Concrete Patching Material: Tnemec Series 217 MortarCrete, Epoxytec CPP or Ceramico or Mortar Tec Silicate, SikaTop 123 Plus, A.W. Cook Cement Silatec MSM Modified Repair Mortar, or approved equal.

ii. Existing reinforcing steel that remains and is exposed shall be coated with Tnemec Series 20HS Pota-Pox, Epoxytec A-1 Primecoat, Sikatop 108 Armatec, Sika Armatec 110, or approved equal.

d. Products Furnished by the Department

i. The Water and Sewer Department (WASD) will provide NO products for this project. The contractor shall provide all products, necessary tools, scaffolding, equipment, materials, and supplies.

ii. The contractor shall be responsible for the proper and necessary use of the materials in the performance of the work.

3. EXECUTION

NOT USED

END OF SECTION

SECTION 01011A

SITE CONDITIONS AND PROTECTION OF EXISTING FACILITIES

PART 1 -- GENERAL

1.1 SITE INVESTIGATION AND REPRESENTATION

A. The CONTRACTOR acknowledges that he has satisfied himself as to the nature and location of the work, the general and local conditions, particularly those bearing upon availability of transportation; disposal, handling and storage of materials; availability of labor, water, electric power, roads; disposal of water from construction; uncertainties of weather; the conformation and conditions at the ground; the type of equipment and facilities needed preliminary to and during the prosecution of the work and all other matters which can in any way affect the work or the cost thereof under this Contract.

B. The CONTRACTOR further acknowledges that he has satisfied himself as to the character, quality, and quantity of surface and subsurface materials to be encountered from inspecting the site and from evaluating information derived from exploratory work that may have been done by the Department or included with these Contract Documents. Any failure by the CONTRACTOR to acquaint himself with all the available information will not relieve him from responsibility for properly estimating the difficulty or cost thereof under this Contract.

C. The CONTRACTOR acknowledges that by personal field observation or other means satisfactory to himself, performed prior to the bid, he has included in the bid prices all costs for dealing with all construction problems created by observable above or on grade features on or adjacent to the site of the work whether or not these features are shown on the Plans or described in the Specifications. In instances where the observable features indicate subsurface conditions which may affect the Project work, as for example, a pavement patch or catch basin gratings indicating respectively a utility or storm sewer not shown on the Plans, the CONTRACTOR acknowledges that he has made timely, diligent, inquiry to the ENGINEER or by other means fully satisfied himself prior to the bid as to the nature of, and costs created by, the subsurface condition and included all costs therefore in the bid prices.

1.2 CONTRACTOR'S RESPONSIBILITY FOR UTILITY PROPERTIES AND SERVICE

A. Where the CONTRACTOR'S operation could cause damage or inconvenience to telephone, fiber optic, electrical power, oil, gas, water, sewer, irrigation system, or any other utility, the CONTRACTOR shall make all arrangements necessary for the protection of these utilities and services.

B. Notify all utility companies that are affected by the construction operation at least 48 hours in advance. Under no circumstance expose any utility without first obtaining permission from the appropriate agency. Once permission has been granted, locate, expose, and provide temporary support for all existing underground utilities and utility poles where

necessary. Absolutely no extra compensation will be allowed for construction problems created by utility poles of whatever size, overhead electric, telephone or other lines, whether shown on the Plans or not. The CONTRACTOR is solely responsible for discerning such items in the field prior to bidding and including all costs for such work in the bid prices.

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

D. Replace, with material approved by the ENGINEER, at CONTRACTOR'S expense, any and all other laterals, existing utilities or structures removed or damaged during construction, unless otherwise provided for in these Contract Documents and as approved by the ENGINEER.

1.3 LAWN AREAS

A. Lawn or landscaped areas damaged during construction shall be repaired to match the pre-construction condition to the satisfaction of the Miami Dade Water and Sewer Department (OWNER).

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 01015A

INDEX OF DRAWINGS

PART 1 -- GENERAL

1.1 CONTRACT DRAWINGS

A. Plans labeled **ISSUED FOR BID 2018**, and any subsequent revision thereto introduced by Addenda prior to Bid, showing the work of the Contract are hereby made a part of the Contract Documents and are listed as follows:

SDWWTP Effluent Wet Wells No.3&4 and Drain Lines Rehabilitation – Consent Decree 1.05(1)

SP	Site Plan
M-3	General Plan and Details
M-7	Section and Details
S-11	Foundation Plan
S-15	Wet Well Sections
M-4	Pump Sump Detail. Existing Drainage
RD	Repair Details

B. Due to the possibility of typing errors or omissions, the above list shall not be considered as necessarily complete, nor shall the Standard Details which may be included elsewhere herein be considered as forming a complete listing of all Standard Details which may apply to this Project. Perform all work shown on all sheets of the Plans, as specified herein or necessary for a complete functional installation and no extra compensation will be made due to the omission or incorrect listing of a Drawing in this Section**.** The CONTRACTOR shall field investigate and verify as necessary for this work prior the construction**.**

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 01090A

REFERENCE STANDARDS

PART 1 GENERAL

1.1 SUMMARY

A. Comply with the requirements of standard with date as specified herein. Standards without dates shall be understood as the Standard current at the time of bid. In case of conflict between the referenced standards, the one having the more stringent requirements shall govern.

B. In case of conflict between the referenced standards and the Project Documents, the Project Documents shall govern.

C. When no reference is made to a code, standard, or specification, the standard specifications of the ASTM, the ANSI, the ASME, the IEEE, or the NEMA shall govern.

1.2 ABBREVIATIONS

AA:	Aluminum Association.
AAMA:	Architectural Aluminum Manufacturer's Association.
AASHTO:	American Association of State Highway & Transportation Officials.
ACI:	American Concrete Institute.
AGA:	American Gas Association.
AGMA:	American Gear Manufacturer's Association.
AIEE:	American Institute of Electrical Engineers (Now IEEE).
AISC:	American Institute of Steel Construction.
AISI:	American Iron and Steel Institute.
ANSI:	American National Standards Institute.
API:	American Petroleum Institute.
ASCE:	American Society of Civil Engineers.
ASME:	American Society of Mechanical Engineers.
ASTM:	American Society for Testing and Materials.
AWPA:	American Wood Preservers Association.
AWS:	American Welding Society.
AWWA:	American Water Works Association.
DOT or FDOT	Florida Department of Transportation.
CIPRA:	Cast Iron Pipe Research Association.
DIPRA:	Ductile Iron Pipe Research Association.
EPA:	Environmental Protection Agency (U.S.).
FED. SPEC.:	Federal Specification.
FBC:	Florida Building Code.
IEEE:	Institute of Electrical and Electronic Engineers.
NBS:	National Bureau of Standards.

NCPI:	National Clay Pipe Institute.
NEC:	National Electrical Code.
NEMA:	National Electrical Manufacturer's Association.
NESC:	National Electric Safety Code.
NEWWA:	New England Water Works Organization.
NFPA:	National Fire Protection Association.
NLMA:	National Lumber Manufacturers Association.
NSF:	National Sanitation Foundation.
OSHA:	U.S. Department of Labor, Occupational Safety and Health Association.
SAE:	Society of Automotive Engineers.
SHBI:	Steel Heating Boiler Institute.
SSPC:	Steel Structures Painting Council.
ISA:	Instrument Society of America.
TCA:	Tile Council of America.
UL:	Underwriter's Laboratories, Inc.

A. The above list shall not be considered complete, as there are other "Standards" used; however, in most cases complete titles have been given.

B. Wherever "Standards" are indicated herein for reference, the referenced portion shall have the same force and effect as if it were included herein in its entirety, latest revision if date of publication not shown.

C. When used within these specification: ”Owner or Department” shall mean the Miami-Dade Water and Sewer Department; “Director” shall mean the Director of the Miami-Dade Water and Sewer Department; and “Engineer” shall mean the Chief, Engineering Division of the Miami-Dade Water and Sewer Department, or an authorized representative.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 01120A

SEQUENCE OF CONSTRUCTION

PART 1 GENERAL

1.1 SUMMARY

A. Before commencement of any work, in compliance with the requirements of Section 01150A - Project Schedules, Meetings and Reports, submit to the ENGINEER for approval a detailed sequence of construction, clearly showing the interrelationship and the interdependency of work activities with one another.

B. Coordinate sequence of construction with progress schedule to ensure timely performance of the work and project completion within the specified construction time.

1.2 GENERAL NOTES

A. CONTRACTORs working at the Waste Water Treatment Plants are required to pass a background check and obtain a WASD ID Badge (see Appendix C). Subcontractors who work for more than 5 days within a 90-day period are also required to obtain the security background check and identification. The CONTRACTOR's personnel shall obtain all background checks and ID Badges prior to the issuance of the Notice to Proceed.

B. Following receipt of Notice to proceed with the work, the CONTRACTOR shall notify the ENGINEER at least five (5) days before he is ready to start actual construction, to allow the Department time to make arrangements for inspection of the work.

C. The CONTRACTOR's equipment must be in first class operating condition. All equipment must be properly lubricated on a special maintenance type schedule to reduce noise, including compressors, pumps and other noise producing components. Care must be taken to prevent oil spillage of any kind or oil dripping from equipment. The CONTRACTOR shall provide a temporary electric service for his electric equipment as specified herein below, and shall pay all cost thereof, including all charges for electricity used during the entire course of the Project until its acceptance by the Department.

D. If the equipment used proves less than satisfactory and is unduly or needlessly disturbing the plant operations and staff, in the opinion of the ENGINEER, he will have the right to order the CONTRACTOR to immediately modify the equipment to make it satisfactory, or to change to other equipment that is satisfactory at no additional cost to the Department.

E. All items shall be performed by the CONTRACTOR with special emphasis on the fact that numerous standard and miscellaneous construction phases are not mentioned specifically, but shall be performed by the CONTRACTOR as required for a completed Project.

F. During construction the CONTRACTOR shall, by sprinkling with water or by other means approved by the ENGINEER, eliminate dust annoyance to plant staff. No additional compensation will be paid to the CONTRACTOR for any costs incurred in complying with the provisions herein.

G. Valves between the existing system and new work being installed hereunder shall only be operated by Department personnel. The CONTRACTOR's personnel, under no circumstances, shall operate any such valve.

H. Working hours noted on the specifications are subject to change. In the event that changed working hours affect the work of the CONTRACTOR, the CONTRACTOR's sole remedy shall be a non-compensable time extension. Said extension to be full compensation for all direct and indirect costs, including but not limited to loss of efficiency, loss of opportunity, increased bond or insurance premiums, or home office or extended overhead, incurred by the CONTRACTOR as a result of such change, and no additional compensation shall be considered.

1.3 SEQUENCE OF CONSTRUCTION

A. Calendar day completion dates for each Milestone are provided and coordinated with the Consent Decree Construction Milestone Dates provided in Section 01010A – Summary of Work. The CONTRACTOR shall be responsible for developing a detailed sequence of construction and schedule for review and approval by the ENGINEER before any work is started. The Department reserves the right to make changes to the sequence as necessary to facilitate the work or minimize any conflict with operations.

B. The proposed sequence of construction (progression) is provided below.

<u>Sequence of Construction:</u>

1. Mobilize to site and set up CONTRACTOR's field offices and temporary utilities.

2. The proposed construction sequence for each Wet Well Rehabilitation Project shall be as follows:

   i. Water pressure washing

   ii. Chemical cleaning of efflorescence

   iii. Abrasive Blast Cleaning, High/Ultra High Pressure Jetting and/or Mechanical Cleaning.

   iv. Concrete surface inspection

   v. Concrete and valve repair activities.

   vi. Concrete resurfacing.

vii. Concrete resurfacing inspection.

viii. Primer application

ix. Epoxy coating

x. Epoxy curing

xi. Construction/expansion joint sealant replacement.

xii. Inspection and Punch List

xiii. Final Inspection for each basin.

The drain lines and electrical conduit rehabilitation can be done at any time during the construction phase.

3. After the two wet wells (Nos. 3 and 4) have been completed:

   i. Submit final As-built drawings (if needed).

   ii. Final cleanup.

   iii. Final Completion and project closeout.

C. In performing the work in the above described sequence, all requirements of the specifications shall be strictly followed, particularly those pertaining to tests and cleanup as the work progresses.

D. Due to the ongoing operations at the SDWWTP during this rehabilitation project, the County reserves the right to stop the Construction activities at any time and postpone them to a later date. In such case, the Contractor shall only be entitled to an additional demobilization and re-mobilization charge as budgeted on the Bid proposal, as well as an extension of construction time.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 01150A

PROJECT SCHEDULES, MEETINGS AND REPORTS

PART 1 GENERAL

1.1 THE SUMMARY

A. The CONTRACTOR shall schedule the Work in accordance with the requirements set forth in the Contract. The CONTRACTOR shall have discretion in scheduling the Work. The Project Manager, in his/her sole discretion, may require that a detailed schedule be submitted for review and acceptance. **Such schedule shall be submitted to the Project Manager no later than ten (10) calendar days after the issuance of the Purchase Order**. The County reserves the right to require such information from the Contractor as may be necessary to determine the accuracy of the progress schedule. Where the Project Manager requires such schedules the CONTRACTOR shall create the schedule utilizing **Microsoft Project or compatible software**. The Project Manager shall be furnished with copies of the schedules as often as deemed necessary by the Project Manager in both paper and disk formats. The Project Manager's basis for not accepting any schedule shall be limited to a determination that the Work sequence lacks logic, is unreasonable, is incomplete or is inconsistent with any other contractual requirements, such as a phasing plan or time for completion.

B. This schedule shall be updated prior to the CONTRACTOR submitting his request for payment, showing actual progress versus scheduled. The Project Manager and the CONTRACTOR will review this update to analyze the project progress and allocate responsibility if the project is behind schedule. Should the CONTRACTOR fail to update and submit the schedule, as required, he/she shall not be entitled to any delay claims for that period and the request for payment may be delayed pending satisfaction of this requirement.

C. With respect to any submission by the CONTRACTOR under this paragraph, no review, acceptance or approval by the Project Manager shall release or relieve the CONTRACTOR from its obligation to fully and properly complete the Project, or any other duty, responsibility or liability imposed on it under the Contract, including, but not limited to the obligation to complete the Work within the time set forth in the applicable Contract.

D. Receipt by the Project Manager of an updated or revised schedule shall not be construed to mean that the Project Manager agrees that the progress of the Work is as shown or indicated therein or that the updated or revised schedule is acceptable to the Project Manager.

Any reference in this section to the CONTRACTOR shall be deemed to include suppliers, and permitted SUBCONTRACTORS, whether or not in privates of contract with the CONTRACTOR for the purpose of this section.

E. The CONTRACOR's schedule shall include sufficient "weather days" within the construction schedule to allow for normal weather delays expected in South Florida during each month of the construction period, and for which the CONTRACTOR will not be entitled to an extension of time. This can be achieved by including additional duration for weather days in the individual activities, or through a single "Weather Day" activity at the end of the construction schedule's critical path.

A "weather day" is defined as a normal work day during which the CONTRACTOR was unable to perform work for a continuous period of four (4) hours during the day. The CONTRACTOR must submit a record of each rain delay within three (3) days of the event.

F. The request for a schedule time extension shall be made within ten (10) calendar days after the time when the CONTRACTOR knows or should have known of any cause for which it may claim an extension of time and shall provide any actual or potential basis for an extension of time, identifying such causes and describing, as fully as practicable at that time, the nature and expected duration of the delay and its effect on the completion of that part of the Work identified in the request. The Project Manager may require the CONTRACTOR to furnish such additional information or documentation, as the Project Manager shall reasonably deem necessary or helpful in considering the requested extension.

G. The CONTRACTOR shall not be entitled to an extension of time unless the CONTRACTOR affirmatively demonstrates that it is entitled to such extension.

H. The Project Manager shall endeavor to review and respond to the CONTRACTOR'S request for a schedule time extension in a reasonable period of time; however, the CONTRACTOR shall be obligated to continue to perform the Work required regardless of whether the Project Manager has issued a decision or whether the CONTRACTOR agrees or disagrees with that decision.

I. If the CONTRACTOR is delayed at any time during the progress of the Work beyond the Completion Date set forth in the Contract by the neglect or failure of the County or by a Force Majeure, then the Completion Date set forth in the RPQ and/or Notice of Award shall be extended by the County subject to the following conditions:

1. The cause of the delay arises after issuance of the Contract and could not have been anticipated by the CONTRACTOR by reasonable investigation before proceeding with the Work;

2. The CONTRACTOR demonstrates that the completion of the Work will be actually and necessarily delayed;

3. The effect of such cause cannot be avoided or mitigated by the exercise of all reasonable precautions, efforts and measures whether before or after the occurrence of the cause of delay.

PRE-CONSTRUCTION MEETING

A. The Project Manager may require the CONTRACTOR and the CONTRACTOR'S subcontractor(s) to attend a meeting to review the scope of work, the method of performance, and any other issues related to the site.

B. The Project Manager will record significant issues discussed at the meeting and record agreements and disagreements, along with the final plan of action, and distribute a record of the meeting to all parties in attendance.

PROGRESS MEETINGS

A. When necessary, progress meetings will be held by the Project Manager. Present at these meetings shall be the CONTRACTOR, the Project Manager, the Department's Representative, if applicable, and invitees associated with the Project, as identified by the Project Manager.

B. The CONTRACTOR shall arrange for the participation of its subcontractors and/or vendors when the Project Manager requires their presence.

C. The Project Manager shall maintain minutes of the meeting and distribute copies of the minutes to all parties in attendance.

END OF SECTION

SECTION 01340A

SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES

PART 1 -- GENERAL

1.1 DESCRIPTION OF WORK

A. Submit to the ENGINEER for review and approval, such shop drawings, test reports and data on materials, equipment, and material samples as are required for the proper control of work, and as specified in the Specification sections. Shop drawings shall be submitted for all materials and equipment to be furnished and in accordance with the requirements of Section 9 of the General Covenants and Conditions.

B. Submit to the ENGINEER a complete list of preliminary data on items for which shop drawings are to be submitted as required by Section 01150A - PROJECT SCHEDULES, MEETINGS, AND REPORTS. Included in this list shall be the names of all proposed manufacturers furnishing specified items. Review of this list by the ENGINEER shall in no way expressed or implied relieve the CONTRACTOR from submitting complete shop drawings and providing materials, equipment, etc., fully in accordance with the Specifications. This procedure is required in order to expedite final review of shop drawings.

C. Maintain an accurate updated shop drawing submittal log which shall include the following items:

1. Submittal-Description and Number assigned.
2. Specification Section.
3. Drawings Sheet Number.
4. Date to Engineer.
5. Date returned to CONTRACTOR (from ENGINEER).
6. Status of Submittal (Approved, Approved as Noted, Rejected/Resubmit).
7. Date of Resubmittal and Return (as applicable).
8. Date material release (for fabrication).
9. Projected date of fabrication.
10. Projected date of delivery to site.
11. Status of O&M manuals submittal (if applicable).

1.2 CONTRACTOR'S RESPONSIBILITY

A. The CONTRACTOR shall submit shop drawings to the ENGINEER for approval in accordance with the requirements of "Shop Drawings" of the Special Conditions with the exception that no less than seven (7) hard copies and one (1) electronic PDF copy shall be submitted. The ENGINEER will retain five (5) sets and two (2) will be returned to the CONTRACTOR.

B. Shop drawings shall be submitted for all materials and equipment to be furnished, in addition, the submission shall include the motor efficiency, and motor torque speed curves from zero to full load speed for motors over 10 hp.

C. Shop drawings shall be submitted prior to any project construction activity. In a timely fashion, well before the contemplated ordering for fabrication of special order or long lead time items or construction use of any standard element of the work, the CONTRACTOR shall furnish shop drawings for the review and approval of the Department.

D. Furnish the ENGINEER with a schedule of shop drawings submittals fixing the respective dates for the submission of shop 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.

E. Submit to the ENGINEER all drawings and schedules sufficiently in advance of construction requirements to provide maximum time for checking and appropriate action from the time the ENGINEER receives them.

F. Prior to submission, the CONTRACTOR shall thoroughly check such drawings, satisfying himself that they meet the requirements of the Contract Documents and that they are coordinated with the arrangements set forth on other shop drawings, and shall place on them the project’s name, ER number, address, the date and his stamp of approval. Where items for which shop drawings are submitted are to meet special conditions listed in the detailed Specifications, the conditions shall be so noted on the drawing. Where there is a deviation from the Specifications, the CONTRACTOR shall note it and state the reason why a deviation is required.

G. Each and every copy of the Drawings and data shall bear CONTRACTOR's stamp showing that they have been so checked and approved. Shop drawings shall indicate any deviations in the submittal from requirements of the Contract Documents and the CONTRACTOR shall state the reason why a deviation is required, and the deviation noted on the transmittal sheet. If the CONTRACTOR fails to notify the ENGINEER of a deviation and that deviation mistakenly gets approved by the ENGINEER**,** the CONTRACTOR shall be required to provide the contract specified material and/or equipment to the satisfaction of the ENGINEER**.**

H. Furnish a Certificate of Unit Responsibility, as specified in equipment specification section. Form is attached to this Section.

I. Shop drawings submitted without the required approval as specified above shall be returned without review and no extension of time will be granted for any delays caused by such improper submission.

J. 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 drawings, data, and sample submitted.

5. Notification of deviations from Contract Documents.

6. Submittal Log Number conforming to and referring to Specification Section Numbers.

7. Certification the submittal conforms to the specifications or contains deviations to the specifications.

K. Any delays or costs caused, either directly or indirectly, by non-timely submissions; submission of items differing significantly from the intent of the Plans and/or Specifications; repeated submission of or argument over, rejected elements or changes required for acceptance; arguments with the criteria or requirements of the Plans or Specifications; or any other such similar activities shall be at the sole expense of the CONTRACTOR.

L. For major equipment submittals, as defined by the ENGINEER, the CONTRACTOR shall include in the submittal a copy of the specification with each and every paragraph initialed be the CONTRACTOR indication compliance, or indication a deviation is requested followed by a request for deviation listing/form.

M. Design calculations, drawings, and materials specifications shall be supplied as specified herein and by the individual specification sections.

N. After receiving approval of the shop drawings by the ENGINEER, the CONTRACTOR shall be responsible for submitting to the City of Miami Building Department and the Miami-Dade Department of Regulatory and Economic Resources shop drawings of all pre-manufactured items and all other shop drawings as required and obtain their approval prior to the manufacturing or installation of the submitted items. The successful bidder shall also be responsible for contesting any interpretations by the City of Miami Building Department and the Miami-Dade Department of Regulatory and Economic Resources that the Miami-Dade Water and Sewer Department considers non-acceptable. The CONTRACTOR shall include in the prices bid, all costs for permits, fees and expenses associated with the submittals, including resubmittals (if any) of such shop drawings to the

City of Miami Building Department and the Miami-Dade Department of Regulatory and Economic Resources.

O. Do not begin any of the work covered by a drawing, data, or a sample returned as “AMEND-RESUBMIT” or “REJECTED-RESUBMIT” until a revision or correction thereof has been reviewed and returned to him, by the ENGINEER, with approval as “NO EXCEPTIONS TAKEN” or "MAKE CORRECTIONS NOTED”. 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 receiving ENGINEER's approval or approval “As Noted” of the necessary shop drawings.

P. Shop drawings shall be of such character that they may be used as fabrication drawings. Prior to submission, the CONTRACTOR shall thoroughly check such drawings, satisfying himself that they meet the requirements of the Plans and Specifications and that they are coordinated with the arrangements set forth on other shop drawings, and shall place on them the Contract Number, the date and his stamp of approval. Two (2) copies will be returned to the CONTRACTOR with the ENGINEER's mark of approval thereon, or will be marked to indicate changes necessary to effect compliance with the Specifications and the remaining copies will be retained by the Department. When drawings are approved by the ENGINEER, they shall be as binding as any of the Contract Documents. Any errors or omissions on the shop drawings shall not relieve the CONTRACTOR of his responsibility. He shall correct such errors, or omissions, including any necessary additions or alterations to construction, at his expense upon notification by the ENGINEER.

Q. Be fully responsible for observing the need for and for making any changes in the arrangement of piping, connections, wiring, manner of installation, etc., which may be required by the materials/equipment he proposes to supply, both as they pertain to his own work, work of others, or of other Divisions herein or Trades and clearly show such changes on the shop drawings. All changes shall be clearly called out.

R. Determine and verify:

1. Field measurements.

2. Field construction criteria.

3. Catalog numbers and similar data.

4. Conformance with Specifications.

5. Installation and Maintenance clearances.

1.3 ENGINEER'S REVIEW OF SHOP DRAWINGS

A. Except as otherwise indicated, the ENGINEER will return prints of each submittal to the CONTRACTOR with comments noted thereon, within 20 Days following receipt by the ENGINEER.

B. It is considered reasonable that the CONTRACTOR shall make a complete and acceptable submittal to the ENGINEER by the first resubmittal on an item.

C. The Department reserves the right to withhold monies due to the CONTRACTOR to cover additional costs of the ENGINEER's review beyond the first resubmittal.

D. The ENGINEER'S maximum review period for each submittal or resubmittal will be 20 Days; thus, for a submittal that requires 2 resubmittals before it is complete, the maximum review period could be 60 Days.

E. If a submittal is returned to the CONTRACTOR marked "NO EXCEPTIONS TAKEN," formal revision and resubmission will not be required.

F. If a submittal is returned marked "MAKE CORRECTIONS NOTED," the CONTRACTOR shall make the corrections on the submittal, but formal revision and resubmission will not be required. If the CONTRACTOR does not agree to abide in full with the corrections, the CONTRACTOR must notify the ENGINEER within in 5 days and the status will be revised to "AMEND-RESUBMIT".

G. Resubmittals

1. If a submittal is returned marked "AMEND-RESUBMIT," the CONTRACTOR shall revise the submittal and resubmit the required number of copies.

2. Resubmittal of portions of multi-page or multi-drawing submittals will not be accepted: For example, if a Shop Drawing submittal consisting of 10 drawings contains one drawing noted as "AMEND-RESUBMIT," the submittal as a whole is deemed "AMEND-RESUBMIT," and 10 drawings are required to be resubmitted.

3. Every change from a submittal to a resubmittal or from a resubmittal to a subsequent resubmittal shall be identified and flagged on the resubmittal. Submittal review comments shall be addressed as numbered in the review comments and all review comments addressed.

H. Rejected Submittals

1. If a submittal is returned marked "REJECTED-RESUBMIT," it shall mean either that the proposed material or product does not satisfy the specification, the submittal is so incomplete that it cannot be reviewed, or is a substitution request not submitted in accordance with the requirements of this section.

2. In the first 2 cases, the CONTRACTOR shall prepare a new submittal and shall submit the required number of copies.

3. In the latter case, the CONTRACTOR shall submit the substitution request according to the requirements of this section.

4. The resubmittal of rejected portions of a previous submittal will not be accepted.

I. The fabrication of an item may commence only after the ENGINEER has reviewed the pertinent submittals and returned copies to the CONTRACTOR marked either "NO EXCEPTIONS TAKEN" or "MAKE CORRECTIONS NOTED."

J. Corrections indicated on submittals shall be considered as changes necessary to meet the requirements of the Contract Documents and shall not be taken as changes to the contract requirements.

K. The CONTRACTOR shall be responsible for confirming and correlating quantities and dimensions, fabrication processes and techniques, coordinating WORK with the trades, and satisfactory and safe performance of the WORK.

L. Conformance

1. Corrections or comments made on the CONTRACTOR's Shop Drawings during review shall not relieve the CONTRACTOR from compliance with Contract Drawings and Specifications.

2. Review is for conformance to the design concept and general compliance with the Contract Documents only.

3. The ENGINEER's review will not constitute an approval of dimensions, quantities, and details of the material, equipment, device, or item shown. The review of drawings and schedules will be general, and shall not be construed:

a. As permitting any departure from the Contract requirements;

b. As relieving the CONTRACTOR of responsibility for any errors, including details, dimensions, and materials;

c. As approving departures from details furnished by the ENGINEER, except as otherwise provided herein.

4. The CONTRACTOR shall be responsible for confirming and correlating quantities and dimensions, fabrication processes and techniques, coordinating WORK with the trades, and satisfactory and safe performance of the WORK.

M. Variations:

1. 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 Department 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.

2. If the drawings or schedules, as submitted, describe variations and show a departure from the Contract requirements which the ENGINEER finds to be minor enough to be corrected by redlining the submittal, he shall do so and return the submittal marked "approved as noted." The redlined corrections shall be as binding on the CONTRACTOR as would be a resubmission embodying the same corrections.

N. Resubmittals will be handled in the same manner as first submittals. On resubmittals 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.

O. If the CONTRACTOR considers any correction indicated on the shop drawings to constitute a change to the Contract Drawings or Specifications, the CONTRACTOR shall give written notice thereof to the ENGINEER.

P. When the shop drawings have been approved by 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.

Q. No partial submittals will be reviewed. Submittals not complete will be returned to the CONTRACTOR for resubmittal. Unless otherwise specifically permitted by the ENGINEER, all submittals shall be made in groups containing all associated items for systems, processes or as indicated in specific 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.

R. The approval of shop drawings and data will be general, and shall mean that upon examination of the drawings, no variations from the Contract requirements have been discovered, and approval will not relieve the CONTRACTOR of his responsibilities as defined under the Contract. The Department’s review will not constitute an approval of dimensions, quantities and details of the material, equipment, device or item shown.

1.4 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 complete and detailed. Shop drawings shall consist of fabrication, erection and setting drawings and schedule drawings, manufacturer's scale drawings, 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.

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. Each shop drawing shall have a blank area 3-1/2 inches by 3-1/2 inches, 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. Application Contract Drawing Number.

D. If drawings show variations from Contract requirements because of standard shop practice or for other reasons, describe such variations in the letter of transmittal. 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 and approved.

E. For all mechanical and electrical equipment furnished, provide a list including the equipment name, address of and telephone number of the manufacturer's representative and service company so that service and/or spare parts can be readily obtained.

F. All manufacturers or equipment suppliers who propose 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 installations where identical equipment has been installed and has been in operation for a period of at least five years, unless otherwise specified. Manufacturers and/or equipment which fails to meet the specified experience period will be considered if the manufacturer or supplier provides a bond or cash deposit which will guarantee replacement of the equipment or process in the event of failure or unsatisfactory service.

G. Only the ENGINEER will utilize the color "red" in marking shop drawing submittals.

1.5 REQUIRED INFORMATION

A. Transmittal Form

1. Shop Drawing submittals shall be accompanied by the ENGINEER's standard submittal transmittal form, a reproducible copy of which is available from the ENGINEER.

2. A submittal without the form, or where applicable items on the form have not been completed, will be returned for resubmittal.

B. Organization

1. Use a single submittal transmittal form for each technical specification Section or item or class of material or equipment for which a submittal is required.

2. A single submittal covering multiple Sections will not be accepted, unless the primary specification references other Sections for components: For example, if a pump Section references other Sections for the motor, shop-applied protective coating, anchor bolts, local control panel, and variable frequency drive, a single submittal would be accepted, whereas a single submittal covering vertical turbine pumps and horizontal split-case pumps would not be accepted.

3. On the transmittal form, index the components of the submittal and insert tabs in the submittal to match the components.

4. Relate the submittal components to specification paragraph and subparagraph, Drawing number, detail number, schedule title, room number, or building name, as applicable.

5. Unless otherwise indicated, match terminology and equipment names and numbers used in the submittals with those used in the Contract Documents.

C. Format

1. Minimum sheet size shall be 8-1/2 inches by 11 inches, and maximum sheet size shall be 24 inches by 36 inches.

2. Number every page in a submittal in sequence.

3. Collate and staple or bind, as appropriate, each copy of a submittal; the ENGINEER will not collate sheets or copies.

4. Where product data from a manufacturer is submitted, clearly mark which model is proposed, with complete pertinent data capacities, dimensions, clearances, diagrams, controls, connections, anchorage, and supports.

5. Present a sufficient level of detail for assessment of compliance with the Contract Documents.

6. Numbering

   a. Assign to each submittal a unique number.

   b. Number the submittals sequentially, with the submittal numbers clearly noted on the transmittal.

   c. Assign original submittals a numeric submittal number followed by a decimal point and a numeric digit in order to distinguish between the original submittal and each resubmittal: For example, if submittal "25.1" requires a resubmittal, the first resubmittal will bear the designation "25.2" and the second resubmittal will bear the designation "25.3," and so on.

D. Disorganized submittals that do not meet the requirements of the Contract Documents will be returned without review.

E. Submit, as applicable, the following for all prefabricated or manufactured structural, mechanical, electrical, plumbing, process system, and equipment:

1. Shop drawings or equipment drawings, including dimensions, size and location of connections to other work, and weight of equipment.

2. Catalog information and cuts.

3. Installation or placing drawings for equipment, drives, and bases.

4. Supporting calculations, signed and sealed by a Florida Registered Engineer when required, for equipment and associated supports, or hangers required or specified to be designed by equipment manufacturers.

5. Signed and sealed calculations and drawings by in-house Florida Registered Professional Engineer for structural systems, indicating compliance to the structural design criteria specified in the Drawings.

6. Complete manufacturer's specifications, including materials description and paint system.

7. Performance data and pump curves.

8. Suggested spare parts with current price information.

9. List of special tools required for testing, checking, parts replacement, and maintenance. (Special tools are those which have been specially designed or adapted for use on parts of the equipment, and are not customarily and routinely carried by maintenance mechanics).

10. List of special tools furnished with the equipment.

11. List of materials and supplies required for the equipment prior to, and during startup.

12. List of materials or supplies furnished with the equipment.

13. Special handling instructions.

14. Requirements for storage and protection prior to installation.

15. Requirements for routine maintenance required prior to equipment startup.

16. List of all requested exceptions to the Contract Documents.

1.6 SAMPLES

A. Furnish, for the approval of the ENGINEER, samples required by the Specifications 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. Quantity

1. The CONTRACTOR shall submit the number of samples indicated by the Specifications.

2. If the number is not indicated, submit not less than 3 samples.

3. Where the quantity of each sample is not indicated, submit such quantity as necessary for proper examination and testing by the methods indicated.

C. Identification and Distribution

1. Individually and indelibly label or tag each sample, indicating the salient physical characteristics and the manufacturer's name.

2. Each sample shall have a label indicating:

a. Name of Project.

b. Material or Equipment Represented.

c. Name of Producer and Brand (if any).

d. Location in Project

3. Upon acceptance by the ENGINEER, one set of the samples will be stamped and dated by the ENGINEER and returned to the CONTRACTOR, one set of samples will be retained by the ENGINEER, and one set shall remain at the Site in the ENGINEER's field office until completion of the WORK.

D. 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 samples of each item shall be submitted.

E. The CONTRACTOR shall schedule sample submittals such that:

1. Sample submittals for color and texture selection are complete so the ENGINEER has 45 Days to assemble color panels and select color- and texture-dependent products and materials without delay to the construction schedule; and,

2. After the ENGINEER selects colors and textures, the CONTRACTOR has sufficient time to provide the products or materials without delay to the construction schedule.

3. The Contract Times will not be extended for the CONTRACTOR's failure to allow enough review and approval or selection time, failure to submit complete samples requiring color or texture selection, or failure to submit complete or approvable samples.

F. Selection

1. Unless otherwise indicated, the ENGINEER will select colors and textures from the manufacturer's standard colors and standard materials, products, or equipment lines.

2. If certain samples represent non-standard colors, materials, products, or equipment lines that will require an increase in Contract Times or Price, the CONTRACTOR shall clearly state so on the transmittal page of the submittal.

G. Approval of a sample shall be only for the characteristics or use named in such approval and shall not be construed to change or modify any Contract requirements.

1.7 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

1.8 MANUFACTURER'S EXPERIENCE RECORD

A. When a manufacturer's experience record is required by these specifications, the following may be provided in lieu of the specified record:

1. Manufacturers and/or equipment which does not meet the specified experience period will be considered if the manufacturer or supplier provides a bond or cash deposit valid for five years less his years of experience, which will guarantee replacement of the equipment or process in the event of failure or unsatisfactory performance or service

1.9 SUBMITTAL REQUIRED FOR FOREIGN MANUFACTURED ITEMS

A. In addition to the submittal requirements stated above, suppliers of foreign manufactured items shall submit the names and addresses of companies within the United States that maintain technical service representatives and a complete inventory of spare parts and accessories for each foreign-made item proposed for incorporation into the Work. Failure to prove the foregoing capabilities shall be cause for rejection of the foreign manufactured items.

B. Foreign manufactured equipment and materials shall in all cases be clearly and permanently marked with the manufacturer's name and country of origin of the item. The name of the U.S. importing/supplying firm is not acceptable. Shop drawing submittals of said foreign made items shall be accompanied by written information to include name and location (i.e. country, city, and street address) of the manufacturer. This requirement shall also apply to the foreign made elements of items assembled in this country from parts wholly or partially manufactured overseas.

C. The words, "permanently marked" as used in this subsection shall be construed to mean; die stamped, cast-in, welded, or otherwise marked such that the removal of the marking by any mechanical or chemical means will result in obvious permanent damage to the surface marked. These markings shall be on surfaces which are not hidden by assembly.

D. Where specified elsewhere herein or at the sole discretion of the ENGINEER, who's word shall be final, supply verification of quality, suitability or other aspects, as directed by the ENGINEER, from a Professional Engineer licensed to practice in the State of Florida or the state where the U.S. firm is located. The verification shall be signed, sealed, and dated. All costs for this verification shall be at the sole expense of the CONTRACTOR and no extra compensation will be allowed. Verification by foreign based engineers, firms, manufacturers, etc. will not be acceptable. Verification by means of a very stringent foreign testing agency/standard (for example ISO 9000 series) may be acceptable. However, this shall again be at the sole discretion of the ENGINEER and the full burden

of proof and satisfaction of the Department shall rest with the CONTRACTOR. No extra time will be permitted due to the requirement for verification and the CONTRACTOR has the sole responsibility to make his submittals with all necessary information in a timely fashion.

E. Items which are fabricated (i.e. assembled in this country from partially or wholly foreign manufactured parts) may also be required to have verification of their foreign made elements as specified for wholly foreign made items in the preceding paragraph.

F. Any items in contact with or being added to potable water shall have AWWA/NSF 61 or 60, as appropriate, certification and acceptance.

1.10 PROPOSED SUBSTITUTIONS OR "OR APPROVED EQUAL" ITEMS

A. The CONTRACTOR's bid price shall include materials or equipment meeting the specifications. Proposed substitutions will only be considered following award of the Contract as described herein

B. Changes in products, materials, equipment, and methods of construction required by the Contract Documents which are proposed by the CONTRACTOR after award of the Contract are considered to be requests for substitutions. Where the Plans and/or Specifications designate the products of a particular manufacturer, the product specified has been found suitable for the intended use. Articles or products of similar characteristics may be offered for the approval of the ENGINEER if sufficient information is submitted by the CONTRACTOR to allow the ENGINEER to determine that the material or equipment proposed is equivalent or equal to that named, subject to the following requirements:

1. The burden of proof as to the type, function, and quality of any such substitution product, material or equipment shall be upon the CONTRACTOR.

2. The ENGINEER will be the sole judge as to the type, function, and quality of any such substitution and the ENGINEER's decision shall be final.

3. The ENGINEER may require the CONTRACTOR to furnish additional data about the proposed substitution.

4. The Department may require the CONTRACTOR to furnish a special performance guarantee or other surety with respect to any substitution.

5. Acceptance by the ENGINEER of a substitution item proposed by the CONTRACTOR shall not relieve the CONTRACTOR of the responsibility for full compliance with the Contract Documents and for adequacy of the substitution.

6. The CONTRACTOR shall pay all costs of implementing accepted substitutions, including redesign and changes to WORK necessary to accommodate the substitution.

C. The procedure for review by the ENGINEER will include the following:

1. Prior to proposing any substitute item, CONTRACTOR shall satisfy itself that the item proposed is: equal or better to that specified; that such item will fit into the space allocated; that such item affords comparable ease of operation, maintenance and service; that the appearance, longevity and suitability for the climate are comparable; that by reason of costs savings, reduced construction time or similar demonstrable benefit, the substitution of such item will be in Department's interest and will in no way detrimentally impact the project schedule. The burden of proof that such an item offered is equal in all respects to that specified shall be CONTRACTOR's.

2. If the CONTRACTOR wishes to provide a substitution item, the CONTRACTOR shall make written application to the ENGINEER on the "Substitution Request Form." A copy of this form is attached to the end of this Specification. Following award of contract, an electronic copy of the Substitution Request Form will be provided to the CONTRACTOR.

3. The CONTRACTOR shall certify by signing the form that the list of paragraphs on the form are correct for the proposed substitution.

4. The ENGINEER will evaluate each proposed substitution within a reasonable period of time, not to exceed 30 days.

5. As applicable, no shop drawing submittals shall be made for a substitution item nor shall any substitution item be ordered, installed, or utilized without the ENGINEER's prior written acceptance of the CONTRACTOR's "Substitution Request Form."

6. The ENGINEER will record the time required by the ENGINEER in evaluating substitutions proposed by the CONTRACTOR and in making changes by the CONTRACTOR in the Contract Documents occasioned thereby.

D. The CONTRACTOR's application shall address the following factors which will be considered by the ENGINEER in evaluating the proposed substitution:

1. Complete data substantiating compliance of proposed substitution with the requirements of the Contract Documents, including:

a. Product identification, including manufacturer's name and address and model number of product

b. Manufacturer's literature, identifying:

1. Product description
2. Reference Standards
3. Performance, testing, and relevant engineering data

c. Samples, if applicable

d. List two similar projects where substitution was utilized. Provide the following information for each project:

1. Contact person name and phone number. Contact should be able to provide information on the use of the product.
2. Location of installation
3. Date of installation
4. Quantity installed
5. Scope and description of project

2. Whether the evaluation and acceptance of the proposed substitution will prejudice the CONTRACTOR's achievement of Substantial Completion on time.

3. Whether acceptance of the substitution for use in the WORK will require a change in any of the Contract Documents to adapt the design to the proposed substitution.

4. Whether incorporation or use of the substitution in connection with the WORK is subject to payment of any license fee or royalty.

5. Whether all variations of the proposed substitution from the items originally specified are identified.

6. Whether available maintenance, repair, and replacement service are indicated. The manufacturer shall have a local service agency (within 50 miles of the site) which maintains properly trained personnel and adequate spare parts and is able to respond and complete repairs within 24-hours.

7. Whether an itemized estimate is included of all additional costs and cost savings that will result directly or indirectly from acceptance of such substitution, including cost of redesign; claims of other contractors affected by the resulting change; and any licensing fee or royalties.

8. Whether the proposed substitute item meets or exceeds the experience and/or equivalency requirements listed in the appropriate technical specifications.

E. In making the formal request for substitution, the CONTRACTOR represents that:

1. The substitution has been investigated and it has been determined that is equal to or superior in all respects to the specified product.

2. The CONTRACTOR will provide the same warranties and bonds for the substitution as the product specified.

3. The substitution will be coordinated into the installation of the WORK and any required changes to complete the WORK in all respects as a result of the

substitution will be made by the CONTRACTOR at no additional cost to the Department.

4. The CONTRACTOR waives claims for additional cost caused by the substitution, which may subsequently become apparent.

5. All cost data provided is complete and accurate.

F. Without any increase in cost to the Department, the CONTRACTOR shall be responsible for and pay all costs in connection with proposed substitutions and of inspections and testing of equipment or materials submitted for review prior to the CONTRACTOR's purchase thereof for incorporation in the WORK, whether or not the ENGINEER accepts the proposed substitution or proposed equipment or material. The CONTRACTOR shall reimburse the Department for the charges of the ENGINEER for evaluating each proposed substitution. In some instances, a credit may be due the Department. Unless specifically authorized by the ENGINEER in writing, no additional contract time will be allowed, and a decrease in time may be appropriate.

PART 2 -- PRODUCTS (NOT USED)

PART 3 -- EXECUTION (NOT USED)

END OF SECTION

Advancement of Construction Technology

SUBSTITUTION REQUEST
(After the Bidding Phase)

Project: _____ Substitution Request Number: _____

_____ From: _____

To: _____ Date: _____

A/E Project Number: _____

Re: _____

Contract For: _____

Specification Title: _____ Description: _____

Section: _____ Page: _____ Article/Paragraph: _____

Proposed Substitution: _____

Manufacturer Address: _____ Phone: _____ _____

Trade Name: _____ Model No.: _____

Installer: _____ Address: _____ Phone _____

History: ☐ New product ☐ 2-5 years old X☐ 5-10 years old ☐ More than 10 years old

Differences between proposed substitution and specified product: _____

_____

_____

X☐ Point-by-point comparative data attached

Reason for not providing specified item: _____

_____

Similar Installation:

Project: _____ Architect: _____

Address: _____ Owner: _____

_____ Date Installed: _____

Proposed substitution affects other parts of Work: X ☐ No ☐ Yes; explain _____

_____

Savings to Owner for accepting substitution: _____ ($ _____).

Proposed substitution changes Contract Time: ☐ No ☐ Yes [Add] [Deduct] _____ days.

Supporting Data Attached: ☐ Drawings ☐ Product Data ☐ Samples ☐ Tests ☐ Reports ☐ _____

SUBSTITUTION REQUEST
(Continued)

The Undersigned certifies:

- Proposed substitution has been fully investigated and determined to be equal or superior in all respects to specified product.
- Same warranty will be furnished for proposed substitution as for specified product.
- Same maintenance service and source of replacement parts, as applicable, is available.
- Proposed substitution will have no adverse effect on other trades and will not affect or delay progress schedule.
- Cost data as stated above is complete. Claims for additional costs related to accepted substitution which may subsequently become apparent are to be waived.
- Proposed substitution does not affect dimensions and functional clearances.
- Payment will be made for changes to building design, including A/E design, detailing, and construction costs caused by the substitution.
- Coordination, installation, and changes in the Work as necessary for accepted substitution will be complete in all respects.

Submitted by: _____

Signed by: _____

Firm: _____

Address: _____

_____

Telephone: _____

Attachments: _____

_____

_____

_____

A/E's REVIEW AND ACTION

☐ Substitution approved - Make submittals in accordance with Specification Section 01330.
☐ Substitution approved as noted - Make submittals in accordance with Specification Section 01330.
☐ Substitution rejected - Use specified materials.
☐ Substitution Request received too late - Use specified materials.

Signed by: Date:

Additional Comments: ☐ Contractor ☐ Subcontractor ☐ Supplier ☐ Manufacturer ☐ A/E ☐ _____

_____

_____

_____

_____

_____

_____

_____

SECTION 01350A

SITE SECURITY

PART 1 -- GENERAL

1.1 SUMMARY

A. After award and prior to commencement of work, the CONTRACTOR shall meet with Department's Security Management to submit required information. Subcontractors are also required to comply with all security requirements and it shall be the responsibility of the CONTRACTOR to ensure a subcontractor is in compliance with all requirements.

B. All construction staff, visitors and material delivery vehicles will utilize the designated entrance and exit point throughout the entire duration of the Project, unless so approved and authorized otherwise by the CONTRACTOR. All vehicles entering into or leaving from a Department facility must stop at the designated entrance and exit points when entering to and exiting the site. All persons entering the site must exit from the same point that they entered.

C. All contractors, subcontractors, visitors, delivery personnel and staff shall comply with all applicable law and Miami-Dade Water and Sewer Department (Department) requirements with respect to safety and security, in particular to the requirements for access to sites and facilities. The CONTRACTOR is responsible for enforcing the prohibition of all items such as weapons, illegal drugs, alcohol, and any other illegal contraband, and the reporting of security breaches to Department Security Staff and Management.

D. All contractors, subcontractors and their staffs, visitors, County Building Inspectors and all delivery personnel, must be aware that access to a Department site is restricted to only those with assigned identification badges or day passes. All contractors, subcontractors, and staff, visitors, building inspectors, and delivery personnel shall be restricted to the area of the plant where their work or delivery is taking place. Work site restrictions shall be coordinated with the CONTRACTOR and Department Security Management prior to construction and strictly followed throughout the entire duration of the Contract.

E. Should any access be required to a location other than the primary access to the construction site, the CONTRACTOR shall be required to provide personnel, suitable to Department Security Management, to ensure that only predetermined authorized personnel are allowed access.

F. Access to chemical areas, control areas, electrical generation areas/switching areas and fuel areas will only be allowed as absolutely necessary and unescorted access to these areas will not be allowed under any circumstances.

G. Anyone requesting to access the Department site outside of regular work hours or anyone without a Department issued identification badge, including delivery personnel and building inspectors, will be treated as a visitor.

1.2 IDENTIFICATION BADGES

A. Department Security will be responsible for providing identification badges and color coded day passes for all individuals entering the facility. Each employee accessing the facility more than five (5) days in any ninety-day period will require an assigned identity badge. This badge will require a background check and be issued at a cost of $60.00 each to the CONTRACTOR. Procedures for obtaining the badge are provided at http://www.miamidade.gov/water/facility-security-procedures.asp for Non-Department Employees. Color coded day passes will be issued at the plant entrance gates for visitors, inspectors and delivery personnel. There will be no cost to the CONTRACTOR for color coded day passes. All contractors, subcontractors and their staff shall be required to obtain a Miami-Dade Water and Sewer Department identification badge or color coded day pass in accordance with Department Security Requirements. Everyone requesting access to the facility for more than five (5) days in any ninety-day period will be required to submit to Department Security a 'Non-Employee ID Card Application', the form can be downloaded from http://www.miamidade.gov/water/facility-security-procedures.asp.

1. Identification badges will be issued for those individuals who will require on-going access (more than 5 days in any 90-day period) to the site or facility.
2. A color-coded Day Pass will be provided for those individuals who only require short term access (one to two days a week to the site and to visitors and delivery personnel).

B. All individuals requesting a Department identification badge or color coded day pass must present two (2) forms of identification, one of which with picture. All persons driving a vehicle within the Plant site must present a valid driver's license. Expired identification documentation or driver's license will not be considered as valid. All individuals requesting a WASD identification badges are subject to providing finger prints in accordance with Implementing Order 7-41.

http://www.miamidade.gov/aopdfdoc/aopdf/pdffiles/IO7-41.pdf

Finger printing is by appointment, requires additional documentation to be completed and provided, and may be performed at a different location than where identification badges are issued.

C. The Department reserves the right to require the use of assigned access identification badges and/or color-coded day passes for anyone requiring access

to the site or facility. Issued identification badges or day passes must be worn and displayed on an outermost garment or hard hat at all times while at a Department site. The CONTRACTOR will be charged on a per person basis for the issuance of Department identification badges and background investigations for access requirements into the facility. The fee for the background investigation is $60.00 per person. Payment for a security background investigation must be in the form of the CONTRACTOR's company check made payable to Miami-Dade Water and Sewer Department. Credit card and cash payment will not be accepted.

D. All Department issued color-coded day passes must be turned in to security at the end of each workday when the bearer exits the site or facility. In the case of delivery personnel and visitors, as the visitor exits the plant site and when the delivery person is exiting the plant site after the last delivery of the day. Day passes are only valid for the day they are issued.

E. Department issued identification badges and color-coded day passes are the property of WASD and must be safeguarded by the CONTRACTOR. All identification badges must be returned to Department Security when they are no longer needed, i.e. the employee that the badge was issued for will not be returning to the plant site, or at the completion of the Contract. In the event of a lost or stolen, unreadable or defaced Department identification badge, the CONTRACTOR or their staff must immediately notify Department Security, indicating the details of the loss and request a replacement badge. The fee for obtaining a replacement badge is $15.00. Payment must be made in the form of the CONTRACTOR's Company check, made payable to Miami-Dade Water and Sewer Department. Credit card payments will not be accepted. Badges that cannot be read by the security badge electronic reading device at the Plant entry gates must be replaced or entry to the plant will be denied.

F. All the CONTRACTOR personnel accessing the facility for more than 5 days in any 90-day period must have a background check and all background checks must be completed prior to issuance of Notice to Proceed. The CONTRACTOR shall coordinate with Department Construction Management to accomplish this in a timely manner and not delay the work. The CONTRACTOR's cost for Department Security to complete a background check is $60.00 for each background investigation (See Paragraph C above). CONTRACTOR will not be given Notice to Proceed until all workers have been processed and approved by the Department.

G. CONTRACTORS and subcontractors are required to comply with the Department mandatory Safety Training Program. All Contractors, Subcontractors employees and onsite staff and any other persons that are to perform labor or services on the site, are required to receive the training prior to being provided with an identification badge or day pass. Department Security will provide the safety training/information.

H. CONTRACTOR shall contact Donna Fries, Department's Safety Supervisor, at

(786) 268-5620 or FRIESD@miamidade.gov, to arrange for mandatory (PSM) Project Safety Management training. Note that this training must be completed prior to mobilization. The CONTRACTOR shall also be responsible for the training of all subcontractors, sub-subcontractors and personnel working on this project on site.

1.3 VISITORS

A. The CONTRACTOR shall provide Department Security with a list of scheduled visitors each day. This list must be received by Security prior to 3:00 PM on the previous day before the visitor is to access to the plant. This list must include the date and time that it was provided to security, bear the CONTRACTOR's Company name and be signed by the CONTRACTOR's Project Manager or his designated representative. In the event that someone should appear at the entry gates that is not on the CONTRACTOR's pre-submitted list, the gate security guard will call the Contractor's field office advising them who is requesting entry. The CONTRACTOR's Project Manager or his designated representative will have to go to the gate, identify the person requesting entry and verbally request a color coded day pass for the individual or individuals. All visitors must provide an acceptable photo identification documentation and be registered with security prior to entry, or provided a day pass, and be announced to the CONTRACTOR requiring their presence. All visitors requesting entry to the site must surrender their driver's license or photo identification card to Security at the gate in order to obtain a day pass. The license or photo identification card will be returned when the visitor exits the site.

B. Anyone requesting to access the project site outside of regular work hours or anyone without a Department-issued identification badge will be treated as a visitor.

1.4 PARKING/VEHICULAR SPEED

A. Department will provide a limited number of designated on-site parking spaces for the CONTRACTOR's and subcontractor's employees and administrative staff. All contractors, subcontractors and visitors must abide by posted parking signs and refrain from parking in non-designated or specifically assigned parking areas. Department Security will monitor and enforce parking regulations within the facility or site. Vehicles parked in a non-designated or restricted parking areas will be removed by Security at the vehicle owner's expense and could be barred from future entry to the site or facility. Parking spaces designated as "Visitor" are reserved for visitors only. Unauthorized vehicles found in visitor designated parking spaces will be treated the same as vehicles found in non-designated parking areas.

B. In the event the designated on-site parking reaches the full capacity level, Department Security will post "Lot Full" signs at the site entrance, directing all incoming arrivals to a secondary off-site parking lot.

C. Department Security will be responsible to open and close the secondary off-site parking lot each day. No overnight parking is allowed. All parking lot gates will be closed and locked by Security at the end of each work day. Vehicles left over night in the secondary offsite parking areas, will be towed at the vehicle owner's expense and could be prohibited from future parking.

D. Parking adjacent to any building structures, fence lines (interior or exterior), or any other non-designated parking areas will not be permitted.

E. Overnight parking of personal vehicles or delivery vehicles will not be allowed within the facility or site or Department off-site parking lots, except as specifically approved by Security. Facility and parking lot gates will be closed and locked at the end of each work day by Security. All vehicles entering the site or its proximity will travel in a safe and slow manner. The max speed allowed is 10 mph within the site or Department off-site parking lots. Violators could be denied driving privileges within the plant site or Department off-site parking lots and could be excluded from entry to the site.

1.5 DELIVERIES

A. The CONTRACTOR shall be required to provide personnel, suitable to Department Security, to verify all material deliveries at the entrance to the site property.

B. All deliveries will be made through the designated Construction Entrance between the designated hours of construction operations. Deliveries will not be accepted prior to or after the designated hours, except as approved by project Security.

C. All CONTRACTOR and subcontractor materials delivered and/or stored on site shall be restricted to locations designated by the ENGINEER or the representative.

1.6 Department SECURITY

A. Department Security will maintain an operational security monitoring and control center within the project site. Security will be responsible for access control, badge or day pass issuance, monitoring of security areas, vehicular traffic and parking, emergency response and notification in the event of emergencies and the safeguarding of County assets. Department Security management and guard staff will be on site 24/7 at designated posts in order to provide the required security levels and assist with the operational controls. The CONTRACTOR shall contact the Security Section of the Miami-Dade Water and Sewer Department at (786) 552-8590 for further information related to security.

B. A primary emergency contact number will be provided and prominently posted at the start of the project. Contractors and subcontractors shall report any emergencies or injuries immediately directly to Department Security who will

initiate the notification process with the reporter via conference call to 911. Direct dialing of 911 should not be done by any individual other than Department Security, in order to maintain proper incident management and control at the site.

1.7 GENERAL SECURITY REQUIREMENTS

A. In the event that an individual worker or subcontracting firm cannot pass the required security check for work in a restricted area of the plant, it shall be the CONTRACTOR's sole responsibility to replace said worker or the subcontracting firm. Such replacement shall be in full conformance with all County requirements, particularly those concerning small business enterprises, and satisfactory to the ENGINEER and all other County agencies having jurisdiction. The CONTRACTOR is advised that all workers or subcontractors carrying out construction operations where the work requires access to: a number of different site areas; chemical areas; control areas; electrical generation and/or switching areas; and fuel areas have a high probability that a special security clearance will be required.

B. The CONTRACTOR shall include in the prices bid, all cost to comply with the security and safety requirements and regulations, as indicated here No additional compensation or Contract time will be allowed the CONTRACTOR because of the requirements of this Section.

C. The Department reserves the right to add reasonable additional security requirements as needed and the Security Chief's decision to do so shall be final. No additional Contract time or compensation will be allowed in such instance.

D. The attention of the Contractor is hereby directed to the Florida Statutes, Section 119.071, that all Miami-Dade County plans and records, including drawings, permit records, microfilm and other depictions of any type of Miami-Dade County facilities is exempt from the public records law. It is the responsibility of a prospective contractor / Contractor, to maintain security controls of any Contract Documents including the Plans, even when providing copies to prospective sub-contractors and vendors. The prospective contractor shall maintain a record of all Contract Documents to be used in the fulfillment of the bidding of or the performance of the Contract. The Contractor shall return the same to the County representative upon completion.

E. All contractors, subcontractors and staff will safeguard against any unauthorized distribution or posting of any and all Department provided infrastructure information to any individual or organization not authorized in advance by Department management and security.

F. Department Security will notify the CONTRACTOR in writing if his/her personnel violate the security requirements. In the case of repeated violations, the Department may stop the CONTRACTOR's work until such time as the CONTRACTOR can show that he/she has taken steps, satisfactory to the Security Chief, to correct the problem.

G. The CONTRACTOR is also advised that during times of increased security levels or drills for such situations, Department Security or law enforcement agencies having jurisdiction over the site/facility may impose a "lockdown" condition which, while in effect will restrict entry and/or exit of personnel and equipment to or from the facility. If in the event such incident should occur, the CONTRACTOR, if so desired, can request a non-compensable time extension. This request must be receive by the ENGINEER within five working days after normal working conditions have been restored. The ENGINEER's decision as to the amount of time lost due to the incident and the impact of the incident on the work, if any, shall be final.

H. The use of camera photography, video or any other type of recording device is prohibited at all times at Department sites. Any request to photograph, video record or any other type or mode of recording on site shall be made in advance to Department Management, through Department Security who will inform Department Security of the authorization. Violators recorded media and/or recording devices will be confiscated by Security and they will be immediately escorted from the facility with future access denied and could face criminal prosecution.

I. The CONTRACTOR is responsible at all times, throughout the entire contract, for security of the storage and lay-down areas, and for securing and protecting all of CONTRACTOR’s materials, equipment, and tools, including Department-furnished equipment and materials and those belonging to subcontractors.

PART 2 -- PRODUCTS (NOT USED)

PART 3 -- EXECUTION (NOT USED)

END OF SECTION

SECTION 01380A

CONSTRUCTION PHOTOGRAPHS

PART 1 -- GENERAL

1.1 SUMMARY

A. The CONTRACTOR shall conduct pre-construction, construction progress, and post construction photographs and videos of the construction project as specified herein.

1.2 SUBMITTALS

A. Videos and photographs shall be submitted to the ENGINEER for its review.

1.3 PRE-CONSTRUCTION PHOTOGRPAHS AND VIDEOS

A. Prior to commencing the WORK, the CONTRACTOR shall provide a continuous color digital audio-video recording (DVD) of the entire area of the project to serve as a record of the site pre-construction conditions. The CONTRACTOR will provide one copy of the pre-construction video to the Department, one copy to the ENGINEER, and maintain one copy free from damage or defect that shall become the property of Department at Project Close Out. The CONTRACTOR shall review the video recordings for clarity and accuracy, and shall make supplemental records of existing conditions if they are not clearly indicated.

B. No construction shall begin prior to review of the pre-construction video of the construction area by the Department, ENGINEER and the CONTRACTOR. The ENGINEER or Department shall have the authority to reject all or any portion of the video not conforming to specifications and order that it be redone at no additional charge to the Department. The CONTRACTOR shall reschedule unacceptable coverage within five (5) calendar days after being notified. The ENGINEER shall designate those areas, if any, to be omitted from or added to audio-video coverage.

C. Video recording shall be made not more than 60 days prior to commencement of construction.

D. The CONTRACTOR shall video the entire project area including the project site, and any other areas which may be affected or impacted by the WORK including staging and storage areas.

E. The CONTRACTOR shall supplement video recordings with photographs. A minimum of twenty (20) pre-construction photographs shall be provided.

1.4 CONSTRUCTION PROGRESS PHOTOGRAPHS

A. A minimum of six (6) photographs shall be taken each week until completion of the Work.

B. The number of photographs required shall be at the sole discretion of the ENGINEER whose decision shall be final. An increase in the number of photographs above the minimum shall not be cause for an increase in cost and no extra compensation will be allowed.

C. For all photograph the CONTRACTOR shall coordinate with the ENGINEER as to the actual number and location of views to be photographed and the day and time of photographing.

D. Progress photographs shall be submitted with monthly Applications for Payment in accordance with the Contract Documents.

1.5 POST-CONSTRUCTION PHOTOGRPAHS AND VIDEO

A. At project closeout, the CONTRACTOR shall provide a continuous color digital audio-video recording (DVD) of the entire area of the project to serve as a record of the post-construction conditions. The completed wet well structural rehabilitation project and adjacent properties shall be captured.

B. The post-construction video recording shall be supplemented with a minimum of forty (40) photographs documenting the completion of the project construction and adjacent properties.

PART 2 – PRODUCTS

2.1. VIDEO MEDIA

A. The video portion of the recording shall produce bright, sharp, and clear pictures with accurate colors and shall be free from distortion, tearing, rolls, and any other form of picture imperfection.

B. All video recordings shall contain coverage of all surface features located within the construction zone of influence. Of particular concern shall be the existence of any faults, fractures, defects, etc. of existing features, particularly those located at private properties and homes immediately adjacent to and across the street from the project site. Panning, zoom-in and zoom-out rates shall be sufficiently controlled to maintain a clear view of the object.

C. All video recordings shall, by electronic means, display continuously and simultaneously, the date and time of recording. The video recording shall be generated with the actual taping date and time as transparent digital information. The date information shall contain the month, day and year.

D. Video media shall be standard Digital Video Disc (DVD) format.

E. Accompanying the video recording shall be a corresponding and simultaneously recorded

audio recording. Each tape shall begin with the recorded date, project name and be followed by the general location, i.e., viewing side and direction of progress. The audio track shall consist of an original live recording. The recording shall contain exclusively the narrative commentary of the electrographer, recorded simultaneously with the fixed elevation video record of the zone of influence of construction. The recording shall assist in viewer orientation and in any needed identification, differentiation, clarification, or objective description of the features being shown in the video portion of the recording, including location relative to construction stations. The audio recording shall be free from any conversations between the camera operator and any other production technicians. The audio portion of the recording shall produce the commentary of the camera operator with proper volume, clarity, and be free from distortion and interruptions.

2.2. VIDEO MEDIA INDEXING

A. Video Identification: All video media shall be permanently labeled and shall be properly identified by number and project name and location.

B. Video Logs: Each video shall have a log of that video's contents. The log shall describe the various segments of coverage contained on the video in terms of the names of the streets or easements, coverage beginning and end, directions of coverage, video unit counter numbers, and date.

C. Video Index: The electrographer shall provide an index listing, in order by video number, each video number and a brief description of coverage contained on that video, including engineering station numbers and/or street address at every building abutting roadway and canal.

2.3. PHOTOGRAPHS

A. Furnish one (1) CD containing all pictures in electronic JPG format.

B. Photographs shall have a minimum clarity of 5 megapixels.

PART 3 – EXECUTION

3.1. GENERAL

A. The ENGINEER and the Department may request to be present during the pre-construction video recording and photographing.

3.2. VISIBILITY

A. All video recordings and photographs shall be performed during times of good visibility: none shall be done during period of significant precipitation, mist, or fog. The video recordings and photographs shall only be done when sufficient sunlight is present to properly illuminate the subject, and to produce bright, sharp replications of those subjects.

B. No video recordings and photographs shall be performed when more than 10% of the area to be taped contains debris or obstructions unless otherwise authorized by the Department.

3.3. COVERAGE

A. The CONTRACTOR shall sufficiently capture the existing pre-construction conditions within the project site, but not limited to: staging areas, WORK areas, roadways, light poles, trees, landscaping, storm drainage structures, walls, and any other areas which may be affected or impacted by the WORK to protect the Department, the ENGINEER, and the CONTRACTOR from unsubstantiated claims. The CONTRACTOR shall capture existing deterioration of landscaping and other fixtures and features in or adjacent to the area of WORK, whether impacted or not.

3.4. CAMERA OPERATION

A. Camera Control: Camera pan, tilt, zoom-in, and zoom-out rates shall be sufficiently controlled such that recorded objects will be clearly viewed during video playback. In addition, all other camera and recording system controls such as lens focus and aperture, video level, pedestal, chroma, white balance, and electrical focus shall be properly controlled or adjusted to maximize picture quality.

B. Viewer Orientation Techniques: The audio and video portions of the recording shall maintain viewer orientation. Visual displays of all visible building addresses shall be utilized. In easements where the proposed construction location will not be readily apparent to the video viewer, the Department shall indicate the proposed centerline of construction.

END OF SECTION

SECTION 01410A

TESTING AND TESTING LABORATORY SERVICES

PART 1 -- GENERAL

1.1 SUMMARY

A. The cost of all testing required by the Contract Documents, shall be the sole responsibility of the CONTRACTOR.

B. The Department may, at any time, elect to have materials tested for conformance with the Contract Documents.

C. Testing laboratory inspection, sampling and testing will be required for, but not limited to, the following:

1. PH testing of concrete
2. Concrete moisture
3. Concrete roughness (CSP Concrete Surface Profile).

1.2 CONTRACTOR'S RESPONSIBILITIES

A. Make available, at no cost to the Department, adequate quantities of representative samples of materials proposed to be used and which require testing.

B. Cooperate with laboratory personnel and provide access to Work to facilitate the execution of its required services. 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.

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

1.3 PAYMENT FOR TESTING

A. CONTRACTOR will pay for all testing services required elsewhere in these Specifications.

B. When initial tests indicate non-compliance with the Project Documents, subsequent retesting occasioned by the non-compliance shall be performed by the same Testing Laboratory, and all costs thereof shall be paid for by the CONTRACTOR.

C. Inspecting and testing, performed exclusively for the CONTRACTOR's convenience, shall be the sole responsibility of and shall be paid for by the CONTRACTOR.

D. The Department shall have the right to test for any parameter on the Project for its own quality assurance at its sole costs, except that, in the case of a non-compliance test related to Project's scope of work, the CONTRACTOR will pay for such tests.

1.4 QUALITY ASSURANCE

A. Upon completion of each test and/or inspection, promptly distribute copies of test or inspection reports to the ENGINEER, CONTRACTOR, to governmental agencies requiring submission of such reports, and to other persons as directed by the ENGINEER.

PART 2 -- PRODUCTS

2.1 TEST METHODS

A. Tests and Inspections will be conducted in accordance with the requirements of these Specifications or, if not herein specified, in accordance with the latest standards of the American Society for Testing and Materials (ASTM), or other approved and recognized authorities as acceptable to the Department.

B. Requirements for testing are described in various Sections of these Specifications.

PART 3 -- EXECUTION (NOT USED)

END OF SECTION

SECTION 01421.3A

ABBREVIATIONS OF INSTITUTIONS

PART 1 -- GENERAL

1.1 SUMMARY

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

1.2 ABBREVIATIONS

AA	Aluminum Association
AAMA	American Architectural Manufacturers Association
AASHTO	American Association of State Highway and Transportation Officials
AATCC	American Association of Textile Chemists and Colorists
ABMA	American Bearing Manufacturer's Association – ABMA
ACGIH	American Conference of Governmental Industrial Hygienists
ACI	American Concrete Institute
AF&PA	American Forest and Paper Association
AGA	American Gas Association
AGMA	American Gear Manufacturers Association
AHA	American Hardboard Association
AHAM	Association of Home Appliance Manufacturers
AI	The Asphalt Institute
AIA	American Institute of Architects
AIHA	American Industrial Hygiene Association
AIIM	Association for Information and Image Management
AISC	American Institute of Steel Construction
AISI	American Iron and Steel Institute
AITC	American Institute of Timber Construction
AMA	Acoustical Material Association
AMCA	Air Movement and Control Association International, Inc
ANS	American Nuclear Society
ANSI	American National Standards Institute, Inc.
APA	The Engineered Wood Association
API	American Petroleum Institute
APWA	American Public Works Association
ARI	Air-Conditioning and Refrigeration Institute
ASA	Acoustical Society of America
ASAE	American Society of Agricultural Engineers
ASCE	American Society of Civil Engineers
ASHRAE	American Society of Heating, Refrigerating, and Air Conditioning Engineers

ASME	American Society of Mechanical Engineers
ASNT	American Society of Nondestructive Testing
ASQ	American Society for Quality
ASSE	American Society of Sanitary Engineers
ASTM	American Society for Testing and Materials
AWCI	American Wire Cloth Institute
AWI	Architectural Woodwork Institute
AWPA	American Wood Preservers Association
AWPI	American Wood Preservers Institute
AWS	American Welding Society
AWWA	American Water Works Association
BBC	Basic Building Code, Building Officials and Code Administrators International
BHMA	Builders Hardware Manufacturer's Association
CABO	Council of American Building Officials
CDA	Copper Development Association
CEMA	Conveyors Equipment Manufacturer's Association
CGA	Compressed Gas Association
CLFMI	Chain Link Fence Manufacturer's Institute
CLPCA	California Lathing and Plastering Contractors Association
CMAA	A division/section of the Material Handling Industry of America
CRSI	Concrete Reinforcing Steel Institute
DCDMA	Diamond Core Drilling Manufacturer's Association
DHI	Door and Hardware Institute
DIPRA	Ductile Iron Pipe Research Association
EI	Energy Institute
EIA	Electronic Industries Alliance
EPA	Environmental Protection Agency
ETL	Electrical Test Laboratories
FCC	Federal Communications Commission
FCI	Fluid Controls Institute
FEMA	Federal Emergency Management Association
FHWA	Federal Highway Administration
FM	Factory Mutual System
FPL	Florida Power and Light
HI	Hydronics Institute, Hydraulic Institute
HSWA	Federal Hazardous and Solid Waste Amendments
IAPMO	International Association of Plumbing and Mechanical Officials
ICBO	International Conference of Building Officials
IBC	International Building Code
ICC	International Code Council
ICEA	Insulated Cable Engineers Association
ICCEC	Electrical Code
ICC-ES	International Code Council Evaluation Service
IEEE	Institute of Electrical and Electronics Engineers
IESNA	Illuminating Engineering Society of North America
IFC	International Fire Code
IFGC	International Fuel Gas Code

IMC	International Mechanical Code
IME	Institute of Makers of Explosives
IPC	International Plumbing Code, Association Connecting Electronic Industries
IRC	International Residential Code
ISA	Instrument Society of America
ISDI	Insulated Steel Door Institute
ISEA	Industrial Safety Equipment Association
ISO	International Organization for Standardization
ITE	Institute of Traffic Engineers
ITU-T	Telecommunications Standardization Sector of the International Telecommunications Union
LPI	Lightning Protection Institute
LRQA	Lloyd's Register Quality Assurance
MBMA	Metal Building Manufacturer's Association
MIL	Military Standards (DoD)
MPTA	Mechanical Power Transmission Association
MSS	Manufacturers Standardization Society
NAAMM	National Association of Architectural Metal Manufacturer's
NACE	National Association of Corrosion Engineers
DASMA	Door and Access Systems Manufacturers Association International
NAPF	National Association of Pipe Fabricators
NBBPVI	National Board of Boiler and Pressure Vessel Inspectors
NCCLS	National Committee for Clinical Laboratory Standards
NCMA	National Concrete Masonry Association
NEC	National Electrical Code
NEMA	National Electrical Manufacturer's Association
NETA	International Electrical Testing Association
NFPA	National Fire Protection Association or National Fluid Power Association
NISO	National Information Standards Organization
NIST	National Institute of Standards and Technology
NLGI	National Lubricating Grease Institute
NRCA	National Roofing Contractors Association
NSF	National Sanitation Foundation
NWWDA	National Wood Window and Door Association
OSHA	Occupational Safety and Health Administration
PCA	Portland Cement Association
PCI	Precast/Prestressed Concrete Institute
PPI	Plastic Pipe Institute
RCRA	Resource Conservation and Recovery Act
RIS	Redwood Inspection Service, a division of the California Redwood Association, CRA
RMA	Rubber Manufacturers Association
RVIA	Recreational Vehicle Industry Association
RWMA	Resistance Welder Manufacturer's Association
SAE	Society of Automotive Engineers
SDI	Steel Door Institute, Steel Deck Institute
SMA	Screen Manufacturers Association
SMACNA	Sheet Metal and Air Conditioning Contractors National Association

SPFA	Steel Plate Fabricator's Association
SPIB	Southern Pine Inspection Bureau
SSBC	Southern Standard Building Code, Southern Building Code Congress
SSPC	Society for Protective Coating
SSPWC	Standard Specifications for Public Works Construction
STLE	Society of Tribologists and Lubricating Engineers
TAPPI	Technical Association of the Worldwide Pulp, Paper, and Converting Industry
TFI	The Fertilizer Institute
TIA	Telecommunications Industries Association
TPI	Truss Plate Institute
UBC	Uniform Building Code
UL	Underwriters Laboratories, Inc.
WCLIB	West Coast Lumber Inspection Bureau
WDMA	National Window and Door Manufacturers Association
WEF	Water Environment Federation
WI	Woodwork Institute
WRI	Wire Reinforcement Institute, Inc.
WWPA	Western Wood Products Association

PART 2 -- PRODUCTS (NOT USED)

PART 3 -- EXECUTION (NOT USED)

END OF SECTION

SECTION 01501A

SAFETY REQUIREMENTS AND PROTECTION OF PROPERTY

PART 1 - GENERAL

1.01 CONTRACTOR'S RESPONSIBILITY FOR SAFETY

Conduct whatever work is necessary for safety and be solely and completely responsible for conditions of the job site, including safety of all persons (including employees) and property during the construction of the project. This requirement shall apply continuously and not be limited to normal working hours.

1.02 FEDERAL, STATE, AND LOCAL SAFETY REQUIREMENTS

A. Safety provisions shall conform to the Federal and State Departments of Labor Occupational Safety and Health Act (OSHA), and all other applicable Federal, State, County, and local laws, ordinances, codes, the requirements set forth herein, and any regulations that may be specified in other parts of these specifications. Where any of these are in conflict, the more stringent requirements shall prevail. Contractor's failure to thoroughly familiarize himself with the aforementioned safety provisions shall not relieve him from compliance with the obligations and penalties set forth therein.

B. All open excavations made in the earth shall be performed in compliance with the State of Florida Trench Safety Act, OSHA 29 CFR 1926.650, Subpart P (Chapter 90-96, Laws of Florida). The Contractor shall appoint a "competent person", in accordance with Subpart P, who shall be present at the jobsite. A "competent person" shall mean one who is capable of identifying existing and predictable hazards in the surroundings, or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them.

C. The Contractor shall familiarize himself with the "Underground Facility Damage Prevention and Safety Act", Florida Statute 556. The Contractor shall contact the Sunshine State One-Call Center, at 1-800-432-4770, forty-eight (48) hours prior to any excavation. Failure to familiarize himself with the aforementioned safety provisions shall not relieve him from compliance with the obligations and penalties set forth therein.

D. Conduct operations in such a manner utilizing warning devices, such as traffic cones, barricades and warning lights that traffic, pedestrian and Department personnel are given adequate warning of hazards of the worksite as may be deemed necessary by the Department, Engineer of Record, governing agency having jurisdiction over the work or political subdivision.

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

The Contractor shall at all times provide proper facilities for safe access to the work by

authorized government officials.

1.04 CONSTRUCTION SAFETY PROGRAM

A. Develop and maintain for the duration of this project, a safety program that will effectively incorporate and implement all required safety provisions. The Contractor shall appoint an employee who is qualified and authorized to supervise and enforce compliance with the safety program.

B. Certain products specified in these specifications contain warnings by the manufacturers that under certain conditions, if instructions for use are not followed, a hazardous condition may exist. It is the Contractor's responsibility to instruct his workmen in the safe use of the product, or any product substitution.

C. The duty of the Engineer of Record to conduct construction review of the Contractor's performance is not intended to include a review or approval of the adequacy of the Contractor's safety supervisor, the safety program, or any safety measures taken in, on, or near the construction site.

1.05 SAFETY EQUIPMENT

A. As part of the safety program, maintain at office or other well-known place at the jobsite, safety equipment applicable to the work as prescribed by the governing safety authorities, all articles necessary for giving first-aid to the injured, and establish the procedure for the immediate relocation to a hospital or a doctor's care of any person who may be injured on the jobsite.

B. Perform all necessary work to protect the general public from hazards, including, but not limited to, surface irregularities or undamped grade changes in pedestrian walkway or sidewalk, and trenches or excavations in roadway. Furnish barricades, lanterns, and proper signs to safeguard the public and work.

C. The performance of all work and all completed construction, particularly with respect to ladders, platforms, structure openings, scaffolding, fall protection devices, shoring, logging, machinery guards and the like, shall be in accordance with the applicable governing safety authorities.

D. During construction, construct and at all times maintain satisfactory and substantial temporary chain link fencing, solid fencing, railings, barricades or steel plates, as applicable, at all openings, obstructions, or other hazards in streets and walkways. All such barriers shall have adequate warning lights as necessary, or required, for safety.

1.06 STORAGE OF HAZARDOUS MATERIALS

A. The Contractor is hereby cautioned that he cannot store any environmentally hazardous materials such as solvents, greases, lubricants or any other type of chemical substances at

the project site. The Contractor shall be allowed to keep such materials at the site which is to be used for immediate use only.

B. The materials shall be stored and handled in a proper and safe manner and upon its use immediately dispose of the containers, cans, rags and remnants of the materials in a manner approved by the Department of Environmental Resources Management (DERM) at the Contractor's own cost. The Contractor cannot store empty containers at the site. In case of any violation, the Department will report such violation to DERM and the Contractor shall be subject to all the penalties and fines as required by State and County regulations.

1.07 NOT USED

1.08 TRAFFIC SAFETY AND ACCESS TO PROPERTY

A. Comply with all rules and regulations of the city, state, and county authorities regarding closing or restricting the use of public streets or highways. No public or private road shall be closed, except by express permission of the Department. Conduct the work so as to assure the least possible obstruction to traffic and normal commercial pursuits. Protect all obstructions within traveled roadways by installing approved barricades, signs, and lights where necessary for the safety of the public. The convenience of the general public and residents and the protection of persons and property are of prime importance and shall be provided for in an adequate and satisfactory manner.

B. Where traffic will pass over backfilled trenches before they are paved, the top of the trench shall be maintained in a condition that will allow normal vehicular traffic to pass over. Temporary access driveways must be provided where required. Cleanup operations shall follow immediately behind backfilling and the worksite shall be kept in an orderly condition at all times.

C. When flagmen and guards are required by regulation or when deemed necessary for safety, they shall be furnished with approved orange wearing apparel and other regulation traffic control devices.

1.09 FIRE PREVENTION AND PROTECTION

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

B. The Contractor shall have a Hot Work Permit Program and shall complete a permit prior to cutting or welding. A Fire Watch shall be designated to help monitor the hot work operation.

1.10 TRAFFIC CONTROL AND USE OF PUBLIC STREETS

A. The Contractor shall be responsible for traffic control as specified hereinafter. Any reference to Miami-Dade County, its departments, or its published regulations, permits and data, shall be synonymous and interchangeable with other recognized governing bodies over particular areas of streets or their departments, published regulations, permits, or data. Abide by all applicable laws, regulations and codes thereof, pertaining to maintenance of public streets, detour of traffic, traffic control and other provisions as may be required for this project.

B. The Contractor shall be fully responsible for the maintenance of public streets, detour of traffic (including furnishing and maintaining regulatory and informative signs along the detour route), traffic control and other provisions, throughout the project as required by the Miami-Dade County Department of Public Works, Traffic Engineering Division (Traffic Division). Traffic shall be maintained according to corresponding typical traffic control details as outlined in the Miami-Dade County Public Works Manual. No street shall be completely blocked nor blocked more than one-half at any time, keeping the other half open for traffic without specific approval.

C. If required by the Traffic Division, employ the required number of uniformed off-duty policemen to maintain and regulate the flow of traffic through the construction area. The number of men required and the number of hours on duty necessary for the maintenance and regulation of the traffic flow shall be subject to their approval. If required for traffic control permits or agencies, the Contractor shall work odd or night hours, as required for traffic control reasons, and the cost of such work shall be considered as incidental to construction.

D. The Contractor shall provide all barricades and/or flashing warning lights necessary to warn motorist of the construction throughout the project.

E. Excavated or other material stored adjacent to or partially upon a roadway pavement shall be adequately marked for traffic safety at all times. Provide necessary access to all adjacent property during construction.

F. The contractor shall be responsible for the provision, installation and maintenance of all traffic control and safety devices, in accordance with specifications outlined in the Miami-Dade County Public Works Manual. In addition, provide for the resetting of all traffic control and information signing removed during the construction period.

G. Where excavations are to be made in the vicinity of signalized intersections, attention is directed to the fact that vehicle loop detectors may have been embedded in the pavement. Verify these locations by inspecting the site of the work and by contacting the Sunshine State One-Call Center at 1-800-432-4770. Any loop detector which is damaged, whether shown on the Plans or not, shall be repaired or replaced to the satisfaction of the Traffic Division.

H. Notify the Traffic Division 24 hours in advance of the construction date, and 48 hours in

advance of construction within any signalized intersection.

I. Temporary pavement will be required over all cuts in pavement areas, and also where traffic is to be routed over swale or median areas. When the temporary pavement for routing traffic is no longer necessary, it shall be removed and the swale or median area restored to their previous condition.

1.11 CONTRACTOR'S RESPONSIBILITY FOR UTILITY PROPERTIES AND SERVICE

A. Where the Contractor's operation could cause damage or inconvenience to railway, telephone, fiber optic, television, electrical power, oil, gas, water, sewer, or irrigation systems, the Contractor shall make all arrangements necessary for the protection of these utilities and services or any other known utilities.

B. Notify all utility companies that are affected by the construction operation at least 48 hours in advance. Under no circumstance expose any utility without first obtaining permission from the appropriate agency. Once permission has been granted, locate, expose, and provide temporary support for all existing underground utilities and utility poles where necessary.

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

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

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

F. In the event water service lines that interfere with trenching are encountered, the Contractor may, by obtaining prior approval of the water utility, cut the service, dig through, and restore the service with similar and equal materials at the Contractor’s expense and as approved by the Department.

G. Drainage culverts that are at or near right angles to a pipeline and are removed by the Contractor shall be replaced in kind at the expense of the Contractor unless otherwise noted.

H. Replace, with material approved by the Department, at Contractor's expense, any and all other laterals, existing utilities or structures removed or damaged during

construction, unless otherwise provided for in these specifications and as approved by the Department.

1.12 HURRICANE PREPAREDNESS

A. General

During such periods of time as are designated by the National Weather Service as being a hurricane alert, the Contractor shall perform all precautions as necessary to safeguard the work and property, including the removal of all small equipment and materials from the site, lashing all other equipment and materials to each other and to rigid construction, and any other safety measures as may be directed by the Engineer.

B. Upon Notification of a Hurricane Watch

The Contractor should prepare or have in place a Plan of Action for the specific actions to be taken on their particular projects.

C. Upon Notification of a Hurricane Warning

1) The Contractor shall implement their Plan of Action to protect the project and the public.

2) For construction projects within the public right-of-ways, the Contractor shall suspend his construction operations, backfill all open trenches, remove all construction equipment and materials from the right-of-way, remove unnecessary traffic barricades and signs and secure remaining barricades by "half burial" or "double sand bags".

1.13 WORKING IN CONFINED SPACES

Where a Contractor needs to work in a confined space, the Contractor must comply with the General Industry, OSHA Confined Space Standard, CFR 1910.146 or the equivalent Confined Space Standard in DFR 1926, Construction Standards.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

SECTION 01570A

TEMPORARY ENVIRONMENTAL CONTROLS

PART 1 -- GENERAL

1.1 DUST ABATEMENT

A. The CONTRACTOR shall prevent its operation from producing dust in amounts damaging to property, or causing a nuisance to persons occupying buildings in the vicinity of the Project Site. The CONTRACTOR shall be responsible for any damage resulting from dust originating from its operations. Dust abatement measures shall be continued until the CONTRACTOR is relieved of further responsibility by the ENGINEER.

B. Storage Piles: Enclose, cover, water (as needed), or apply non-toxic soil binders according to manufacturer's specifications on material piles (i.e. gravel, sand, dirt) with a silt content of 5 percent or greater.

C. Active Areas of Site: Water active construction areas and unpaved roads as needed and as requested by ENGINEER to prevent the propagation of dust.

D. Inactive Areas of Site: Apply non-toxic soil stabilizers according to manufacturer's specifications to inactive construction areas, or water as needed to maintain adequate dust control.

E. Vehicle Loads: Cover or maintain at least 2 feet of freeboard vertical distance between the top of the load and the top of the trailer sides on trucks hauling dirt, sand, soil, or other loose materials off of the Site.

F. Roads: When there is visible track-out onto a paved public road, install wheel washers where the vehicles exit and enter onto the paved roads and wash the undercarriage of trucks and any equipment leaving the Site on each trip. Sweep the paved street at the end of each shift with a Mobil Athey or similar water spray pick-up broom-type street sweeper as necessary or as directed.

G. Vehicle Speeds: If watering of unpaved roads is not sufficient to control dust, reduce vehicle speeds to 10 mph or less on such roads.

1.2 SEDIMENTATION ABATEMENT

A. The CONTRACTOR shall be responsible for collecting, storing, hauling, and disposing of spoil, silt, and waste materials in compliance with applicable federal, state, and local rules and regulations and the Contract Documents.

B. Install and maintain erosion and sediment control measures, such as swales, grade stabilization structures, berms, dikes, waterways, filter fabric fences, and sediment basins.

C. Filter fabric barrier systems, if used, shall be installed in such a manner that surface runoff will percolate through the system in sheet flow fashion and allow sediment to be retained and accumulated.

D. Remove and dispose of sediment deposits at the designated spoil area. If a spoil area is not indicated, dispose of sediment off-Site at a location not in or adjacent to a stream or floodplain. Sediment to be placed at the spoil area should be spread evenly, compacted, and stabilized. Sediment shall not be allowed to flush into a stream or drainage way.

E. Maintain erosion and sediment control measures until final acceptance or until requested by the ENGINEER to remove it.

1.3 STORMWATER POLLUTION PREVENTION

A. CONTRACTOR shall minimize stormwater pollution from the Site.

1.4 RUBBISH CONTROL

A. During the progress of the WORK, the CONTRACTOR shall keep the Site and other areas for which it is responsible in a neat and clean condition and free from any accumulation of rubbish. The CONTRACTOR shall dispose of rubbish and waste materials of any nature and shall establish regular intervals of collection and disposal of such materials and waste. The CONTRACTOR shall also keep its haul roads free from dirt, rubbish, and unnecessary obstructions resulting from its operations. Disposal of rubbish and surplus materials shall be off the Site in accordance with local codes and ordinances governing locations and methods of disposal and in conformance with applicable safety laws and the particular requirements of Part 1926 of the OSHA Safety and Health Standards for Construction.

1.5 SANITATION

A. Toilet Facilities: Fixed or portable chemical toilets shall be provided wherever needed for the use of employees. Toilets shall conform to the requirements of Part 1926 of the OSHA Standards for Construction.

B. Sanitary and Other Organic Wastes: The CONTRACTOR shall establish a regular daily collection of sanitary and organic wastes. Wastes and refuse from sanitary facilities provided by the CONTRACTOR or organic material wastes from any other source related to the CONTRACTOR's operations shall be disposed of away from the Site in a manner satisfactory to the ENGINEER and in accordance with Laws and Regulations pertaining thereto.

1.6 CHEMICALS

A. Chemicals used on the WORK or furnished for facility operation, whether defoliant, soil sterilant, herbicide, pesticide, disinfectant, polymer, reactant, or of other classification, shall show approval of either the U.S. Environmental Protection Agency or the U.S. Department of Agriculture. Use of such chemicals and disposal of residues shall be in strict accordance with the printed instructions of the manufacturer.

PART 2 -- PRODUCTS (NOT USED)

PART 3 -- EXECUTION (NOT USED)

END OF SECTION

SECTION 01600A

MATERIAL AND EQUIPMENT SHIPMENT, HANDLING, STORAGE AND PROTECTION

PART 1 - GENERAL

1.1 THE SUMMARY

A. This shall include both Department furnished material and equipment (Department furnished equipment (DFE) and CONTRACTOR furnished material and equipment.

B. The CONTRACTOR is to inform all subcontractors, suppliers, and manufacturers of the requirements herein specified, and shall include expenses for the following services in his costs for compliance with the requirements hereinafter specified.

1.2 PREPARATION FOR SHIPMENT

A. When practical, equipment shall be factory-assembled. The equipment parts and assemblies that are shipped unassembled shall be furnished with an assembly plan and instructions. The separate parts and assemblies shall be factory match-marked or tagged in a manner to facilitate assembly. All assemblies are to be made by the CONTRACTOR at no additional cost to Department.

B. Machined and unpainted parts subject to damage by the elements shall be protected with an application of a strippable protective coating, or other protective method approved by the ENGINEER.

C. Equipment shall be packaged or crated in a manner that will provide protection from damage during shipping, handling, and storage.

D. The outside of the package or crate shall be adequately marked or tagged to indicate its contents by name and equipment number, if applicable; approximate weight; state any special precautions for handling; and indicate the recommended requirements for storage prior to installation.

1.3 PACKING AND DELIVERY OF SPARE PARTS AND SPECIAL TOOLS

A. Properly mark to identify the associated equipment by name, equipment, and part number. Parts shall be packaged in a manner for protection against damage from the elements during shipping, handling, and storage. Ship in boxes that are marked to indicate the contents. Delivery of spare parts and special tools shall be made prior to the time associated equipment is scheduled for the initial test run.

1.4 SHIPMENT

A. All equipment and material shall be shipped with freight and shipping paid FOB jobsite.

B. The CONTRACTOR shall request a 7-day advance Notice of Shipment from manufacturers, and, upon receipt of such notice, provide the ENGINEER with a copy of the current delivery information concerning all equipment and other items and materials of critical importance to the project schedule.

C. Schedule delivery to reduce long term on-site storage 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 the ENGINEER.

D. Coordinate delivery with installation to ensure minimum holding time for items that are hazardous, flammable, easily damaged or sensitive to deterioration.

1.5 RECEIVING

A. The CONTRACTOR shall unload and record the receipt of all equipment and materials at the jobsite.

B. All costs for receiving, inspection, handling, storage, insurance, inventory control, and equipment maintenance for both the CONTRACTOR-supplied and Department-supplied materials and equipment, shall be included in the bid price and no extra compensation will be allowed.

1.6 INSPECTION

A. Immediately upon receipt of equipment and materials at the jobsite, the CONTRACTOR shall inspect for completeness and any evidence of damage during shipment. Department's supplied equipment and material shall be inspected and inventoried together with a Department's inspector. Should there appear to be any shortage or damage, the ENGINEER shall be immediately notified; and the CONTRACTOR shall be fully responsible for informing the manufacturers and the transportation company of the extent of the shortage and/or damage. If the item or items require replacing or supplying missing parts, the CONTRACTOR shall take the necessary measures to expedite the replacement or supply of the missing parts.

1.7 HANDLING

A. Equipment and materials received for installation on this Project shall be handled in accordance with the manufacturer's recommendations, and in a manner that will prevent damage.

B. Pipe and fittings shall at all times be handled with great care to avoid damage. In loading and unloading, they shall be lifted with cranes or hoists or slid or rolled on skidways in such a manner as to avoid shock. Under no circumstances shall this material be dropped or allowed to roll or slide against obstructions. No cables, lifting arms, hooks or other devices shall be inserted into the pipe or fitting. All lifting, pulling or pushing mechanisms shall be applied to the exterior of the pipe or fitting. Pipe and other material shall be distributed along areas near vehicular traffic in advance of installation, only to the extent approved by the ENGINEER. Pipe shall be stored on blocking or timber. It shall not be

stored on rocks, boulders, or other supports which in the opinion of the ENGINEER are unsuitable. Such materials shall be so placed as to keep obstruction to all traffic to a minimum.

1.8 STORAGE AND PROTECTION

A. Equipment and materials shall be stored prior to installation as recommended by the manufacturer. Generally, materials such as pipe shall be stored off the ground in approved storage yards or along the line of the proposed installation, as approved by the ENGINEER. Items subject to the damage by the elements, vandalism, or theft shall be stored in secure buildings. Items requiring environmental control for protection shall be provided with the necessary environmentally controlled storage facilities at no cost to the Department.

B. Store and protect products in accordance with the manufacturer's instructions, with seals and labels intact and legible. Storage instructions shall be studied by the CONTRACTOR and he shall review them with the ENGINEER. Instructions shall be carefully followed and a written record of this kept by the CONTRACTOR. Arrange storage to permit access for inspection.

C. Store loose granular materials on solid flat surfaces in a well-drained area. Prevent mixing with foreign matter.

D. Cement and lime shall be stored under a roof and off the ground and shall be kept completely dry at all times. All structural, miscellaneous 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 in a vertical position. Precast concrete 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, cracking and spalling to a minimum.

E. All mechanical, electrical and other equipment, instruments and other items subject to damage if stored outdoors (even though covered by canvas) shall be stored in a weather tight building to prevent damage. The building, even if temporary, must be satisfactory to the ENGINEER. Building shall be provided with adequate ventilation to prevent condensation. Maintain temperature and humidity within range required by manufacturer.

1. All equipment shall be stored fully lubricated with oil, grease and other lubricants unless otherwise instructed by the manufacturer.

2. 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, the 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.

3. Lubricants shall be changed upon completion of installation and as frequently as

required thereafter during the period between installation and acceptance. New lubricants shall be put into the equipment at the time of final acceptance.

4. Prior to final acceptance of the equipment, the 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 the CONTRACTOR's expense.

F. All bolts, nuts, gaskets and other joint materials for use in pipes shall be stored under cover.

G. Gaskets shall be stored in their original packing bags or containers, and care shall be exercised to keep them away from heat, light, oil gasoline or other petroleum products. Gaskets shall be kept clean at all times and not handled with greasy or dirty hands.

H. Plastic pipe and other elastomeric products shall be stored under cover to preclude damage by ultraviolet radiation even if the product has UV inhibitors in its compound.

I. Valves and other equipment having heating elements to eliminate moisture accumulation shall be supplied with electrical power of the required characteristics.

1.9 INSURANCE

A. The CONTRACTOR's insurance shall adequately cover the value of materials delivered but not yet incorporated into the work. The CONTRACTOR and Department shall be named as co-insured insofar as their respective interests may appear. Proof of this coverage must be submitted to the ENGINEER at the time request for progress or partial payments.

1.10 INVENTORY CONTROL

A. Equipment and materials shall be stored in a manner to provide easy access for inspection and inventory control. The CONTRACTOR shall keep a running account of all materials in storage to facilitate inspection and to estimate progress payments for materials delivered but not installed in the work.

1.11 EQUIPMENT MAINTENANCE PRIOR TO DEPARTMENT'S ACCEPTANCE

A. Provide the required or manufacturer's recommended maintenance during storage, during the installation, and until such time as Department accepts the equipment for full-time operation.

1.12 SALVABLE EQUIPMENT

A. Any salvable pipe, fitting, or other miscellaneous material or equipment removed during construction, and not reused in the WORK, shall be cleaned, hauled, and stored by the CONTRACTOR at his own expense, where directed by the ENGINEER, and shall remain the property of Department. All other material shall be disposed of by the CONTRACTOR at his own expense.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

SECTION 01660A

SITE ACCESS AND STORAGE

PART 1 -- GENERAL

1.1 EXISTING JOB SITE

A. The work of this project is to be performed at a facility owned by Department and identified elsewhere in these documents.

1.2 EXISTING UTILITIES

A. Protection of, and relocation of existing utilities, structures and other facilities shall be in accordance with Section 01011A SITE CONDITIONS AND PROTECTION OF EXISTING FACILITIES.

B. The relocation of existing utilities, as noted on the Plans, or for the convenience of the CONTRACTOR, shall be the responsibility of the CONTRACTOR. This work shall be completed by either the forces of the existing utility or the CONTRACTOR's forces at the discretion of the responsible utility. If the work is to be performed by the CONTRACTOR, all work shall be done in accordance with the utility company's requirements. The CONTRACTOR shall also be responsible for the coordination of all existing utility relocations with the appropriate utilities. Where temporary supports or protective encasements are required during the construction, the CONTRACTOR shall be responsible for this work at no additional cost. Under no circumstances shall the CONTRACTOR be authorized extra payment for this work, and all cost for the relocation shall be the responsibility of the CONTRACTOR.

C. Any conflicts between the field investigation and the information shown on the Plans shall be brought to the immediate attention of the ENGINEER.

1.3 SITE ACCESS AND STORAGE

A. The DEPARTMENT reserves the right to enter upon, and to use, any and all portions of the WORK performed hereunder (or under its other Contracts), whether completed or not, as may be required.

B. **Highway Limitations:** The CONTRACTOR shall make its own investigation of the condition of available public and private roads and of clearances, restrictions, bridge load limits, and other limitations affecting transportation and ingress and egress to the site of the WORK. It shall be the CONTRACTOR's responsibility to construct and maintain any haul roads required for its construction operations.

C. **Temporary Crossings:** Continuous, unobstructed, safe, and adequate pedestrian and vehicular access shall be provided to fire hydrants, parking lots, Vehicular access to all production facilities shall be maintained except when necessary construction precludes such access for reasonable periods of time.

D. **Street Use:** Nothing herein shall be construed to entitle the CONTRACTOR to the exclusive use of any public street, alleyway, or parking area during the performance of the WORK hereunder and it shall conduct its operations to not interfere unnecessarily with the DEPARTMENT or any other authorized work of utility companies or other agencies in such streets, alleyways, or parking areas. No street shall be closed plant operations without first obtaining permission of the ENGINEER and the DEPARTMENT. Where excavation is being performed in any streets, one lane shall be kept open to traffic at all times, unless otherwise indicated. Toe boards shall be provided to retain excavated material if required by the ENGINEER or the DEPARTMENT. Fire hydrants on or adjacent to the WORK shall be kept accessible to fire-fighting equipment. Temporary provisions shall be made by the CONTRACTOR to assure the use of sidewalks and the proper functioning of gutters, storm drain inlets, and other drainage facilities.

1.4 CONTRACTOR'S WORK AND STORAGE AREA

A. The CONTRACTOR shall limit his operations, temporary facilities and storage of equipment and materials to the project site. Should the CONTRACTOR require additional area, outside the project site, for its operations or storage, the CONTRACTOR shall make its own arrangements for any necessary additional lands or facilities necessary for the proper execution of the WORK and for locating the field offices as required.

1. The CONTRACTOR may utilize private warehouse and/or office space for his storage area and/or construction field offices.

B. The CONTRACTOR shall submit to the ENGINEER for approval, a proposed plan and layout for all field offices, temporary facilities, and parking both for on the project site and on any additional lands obtained by the CONTRACTOR for its use during construction of the project. Prior to commencing any preparation remove, relocate and protect where necessary all existing underground and above ground facilities, pipelines, sprinkler systems, sod and all other existing installations. All these installations shall be restored to their initial conditions.

C. The CONTRACTOR shall construct and use a separate storage area for hazardous materials used in constructing the WORK.

1. For the purpose of this paragraph, hazardous materials to be stored in the separate area are products labeled with any of the following terms: Warning, Caution, Poisonous, Toxic, Flammable, Corrosive, Reactive, or Explosive. In addition, whether or not so labeled, the following materials shall be stored in the separate area: diesel fuel, gasoline, new and used motor oil, hydraulic fluid, cement, paints and paint thinners, 2-part epoxy coatings, sealants, asphaltic products, glues, solvents, wood preservatives, sand blast materials, and spill absorbent.

2. Hazardous materials shall be stored in groupings according to the Material Safety Data Sheets.

3. The CONTRACTOR shall develop and submit to the ENGINEER a plan for storing and disposing of the materials above.

4. The CONTRACTOR shall obtain and submit to the ENGINEER a single EPA number for wastes generated at the Site.

5. The separate storage area shall meet the requirements of authorities having jurisdiction over the storage of hazardous materials.

6. Hazardous materials that are delivered in containers shall be stored in the original containers until use. Hazardous materials delivered in bulk shall be stored in containers which meet the requirements of authorities having jurisdiction.

1.5 PARKING

A. Parking inside at any County Facility will be allocated by DEPARTMENT near the vicinity of the project site and in accordance with safety regulations. The CONTRACTOR shall be responsible for making its own arrangements for parking of its direct employees, subcontractors, vendors, etc. as may be necessary either on site or offsite.

B. The CONTRACTOR shall be responsible for providing the following minimum temporary parking spaces:

1. At the project site:

a. One (1) space for the DEPARTMENT

b. One (1) space for the ENGINEER

2. At the field office location:

a. One (1) space for the DEPARTMENT

b. Two (2) spaces for the ENGINEER

c. As required by regulatory agencies and permits

3. Traffic and parking areas shall be maintained in a sound condition, free of excavated material, construction equipment, mud, and construction materials. The CONTRACTOR shall repair breaks, potholes, low areas which collect standing water, and other deficiencies.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 01700A

CONTRACT CLOSEOUT

PART 1 – GENERAL

1.1 SUMMARY

A. Work Included: This section outlines the procedure to be followed in closing all contracts.

1.2 RELATED WORK

A. Section 01720A - PROJECT RECORD DOCUMENTS.

1.3 FINAL CLEANUP

The CONTRACTOR shall promptly remove from the vicinity of the completed WORK, all rubbish, unused materials, concrete forms, construction equipment, and temporary structures and facilities used during construction. Final acceptance of the WORK by the DEPARTMENT will be withheld until the CONTRACTOR has satisfactorily performed the final cleanup of the Site.

1.4 FINAL INSPECTIONS

A. The DEPARTMENT will not issue preliminary punchlist. After final cleaning and upon written notice from the CONTRACTOR that he has inspected the work and it is substantially completed, the ENGINEER will make a preliminary inspection with the DEPARTMENT and the CONTRACTOR present. Upon completion of this preliminary inspection, if the ENGINEER a) concurs that the Project is substantially completed, then the ENGINEER shall submit to the CONTRACTOR a written notice confirming that Substantial Completion has been achieved and shall issue in writing a final punchlist of any particulars which this inspection reveals as defective or incomplete work, or b) does not concur that the Project is substantially completed, then the ENGINEER shall submit to the CONTRACTOR a written letter indicating the items that need to be completed in order to achieve Substantial Completion. In this last case then a) CONTRACTOR shall work diligently to address the uncompleted items to achieve Substantial Completion and b) CONTRACTOR shall have no additional time to achieve Substantial Completion within the deadline stablished in the Contract Documents.

B. Upon receiving written notice from the ENGINEER that Substantial Completion has been achieved, the CONTRACTOR shall immediately undertake the punchlist work required to remedy the defects and complete the work to the satisfaction of the DEPARTMENT.

C. Each item in the punchlist shall have a time duration agreed upon by both parties which shall not exceed 10 calendar days. Punchlist items may be eliminated individually from the list when approved by the ENGINEER.

D. When the CONTRACTOR has corrected or completed the items as listed in the ENGINEER's written punchlist, inform the ENGINEER, in writing, that the required work has been completed. Upon receipt of this notice, the ENGINEER, in the presence of the CONTRACTOR, shall make the final inspection of the Project.

E. If the CONTRACTOR fails to complete any item of work within a time period equal to 100% of the agreed upon duration of time for all individual items, the ENGINEER will notify the CONTRACTOR in writing specifying the conditions pertaining thereto and directing the CONTRACTOR to comply with his directive. If the CONTRACTOR has not corrected such condition within 5 days of such notice, it shall be sufficient grounds for the ENGINEER to order the subject items discontinued and have them completely remedied in a timely manner at the expense of the CONTRACTOR.

F. No final estimate shall be issued by the ENGINEER until the ENGINEER has assured himself that the punchlist has been 100% completely finished and all other related documents are submitted.

1.5 FINAL SUBMITTALS

A. No Contract will be finalized until all of the following have been submitted and approved in conformance with Section 01720A - PROJECT RECORD DOCUMENTS.

1. Record Drawings.
2. Manufacturers' Certificates of Proper Installation.
3. Material Tests and Certifications.
4. All Test Reports.

1.6 GUARANTEES, BONDS, AND AFFIDAVITS

A. No Contract will be finalized until all guarantees, bonds, certificates, licenses, roofing warranty, C.O. and affidavits required for work or equipment as specified are satisfactorily filed with the ENGINEER.

1.7 RELEASE OF LIENS OR CLAIMS

A. No Contract will be finalized until satisfactory evidence of affidavit and release of claims have been submitted to the DEPARTMENT.

1.8 FINAL COMPLETION

Conditions precedent to achieving Final Completion:

a) Substantial Completion has been achieved and confirmed in writing by the ENGINEER.

b) The punchlist activities have been completed to the satisfaction of the ENGINEER.

c) The Final Inspection has been done and the ENGINEER has found all work satisfactory.

d) Final Submittals have been submitted to the satisfaction of the ENGINEER.

e) All guarantees, bonds and affidavits have been satisfactorily filed with the ENGINEER.

f) Satisfactory evidence of affidavit and release have been submitted to the DEPARTMENT.

Once all these conditions have been met, the ENGINEER shall issue a certificate of Final Completion and the CONTRACTOR will be allowed to make application for final payment in accordance with the provisions of the General Covenants and Conditions

PART 2 -- PRODUCTS (NOT USED)

PART 3 -- EXECUTION (NOT USED)

END OF SECTION

SECTION 01710A

CLEANING

PART 1 -- GENERAL

1.1 SUMMARY

A. This Section specifies the maintenance of the WORK site in a clean, orderly, hazard-free condition.

1.2 QUALITY ASSURANCE

A. Conduct cleaning and disposal operations in accordance with local ordinances and anti-pollution laws. Rubbish, volatile wastes, and other construction wastes shall be neither burned nor buried on the work site, and shall not be disposed of into storm drains, sanitary drains, streams or other waterways.

B. Final cleaning shall be accomplished either by workmen experienced in cleaning operations or by professional cleaners.

PART 2 -- PRODUCTS

2.1 ON-SITE WASTE CONTAINERS

A. Provide on-site waste containers for collection of waste materials, debris and rubbish.

2.2 CLEANING MATERIALS

A. Cleaning materials shall be as recommended by the manufacturer of the surface to be cleaned.

PART 3 -- EXECUTION

3.1 SAFETY REQUIREMENTS

A. Maintain work site in accordance with local ordinances and anti-pollution laws applicable to work site cleanliness and in a neat, orderly and hazard-free condition until final acceptance of the work. Catwalks, accessible underground structures, work site sidewalks and walkways adjacent to the work site shall be kept free from hazards caused by construction activities.

B. Store volatile wastes including rags in covered metal containers, and remove from work site daily.

C. Prevent accumulations of waste which create hazardous conditions.

D. Artificially ventilate spaces which are not naturally ventilated when volatile or noxious substances are present in those spaces.

3.2 INTERIM CLEANING

A. Perform cleaning every workday for duration of the Work. Structures, grounds, and areas of the work site and public and private properties shall be maintained free from accumulations of waste materials and rubbish caused by construction operations on the work site. Place waste materials and rubbish in on-site containers.

B. Remove or secure loose material on open decks and on other exposed surfaces at the end of each day's work or more often to maintain work site in hazard-free condition. Prevent dislodgement of materials due to wind and other forces.

C. Wet down dry materials and rubbish to lay dust and prevent blowing dust.

D. Empty on-site waste containers whenever necessary so that trash overflow does not occur. Legally dispose of contents at either public or private dumping areas.

E. Control the handling of materials, debris and rubbish; do not drop or throw from heights.

F. Immediately remove spillages of fuels or oil or of construction-related materials from hauling routes or the site.

G. Perform cleaning operations so dust and other contaminants resulting from cleaning processes will not fall on wet, newly painted surfaces.

3.3 FINAL CLEANING

A. In addition to the cleaning performed above, in preparation for final inspection, remove grease, dust, dirt, rust stain from surfaces. Remove labels, fingerprints and other foreign materials from exposed exterior finished surfaces. Flush down all manhole covers and frames, valve boxes, and areas leaving such surfaces clean of all sand, laitance, etc.

B. The CONTRACTOR shall at all times during the execution of this Contract keep the work site free and clear of all rubbish and debris. As soon as the work is completed, the accumulated rubbish or surplus materials shall be promptly removed. The CONTRACTOR shall also restore in an acceptable manner all property, both public and private, which has been displaced or damaged during the prosecution of the work, and shall leave the site and vicinity unobstructed and in a neat and presentable condition.

C. In the event of delay exceeding two days after written notice is given to the CONTRACTOR by the ENGINEER to remove such rubbish or materials or to restore displaced or damaged property, the ENGINEER may employ such labor and equipment as he may deem necessary for the purpose, and the cost of such work, together with the cost of supervision, shall be charged to the CONTRACTOR and shall be deducted from any monies due him.

D. The project shall not be considered as having been completed until all rubbish and surplus materials have been removed and disposed of properly.

- **END OF SECTION** -

SECTION 01720A

PROJECT RECORD DOCUMENTS

PART 1 -- GENERAL

1.1 SUMMARY

A. The CONTRACTOR shall maintain at the site one record copy of the following:

1. Record Drawings. Record Drawings as used herein shall mean a drawing that reflects construction or design changes.

2. Record Specifications.

3. Addenda.

4. Change Orders and other modifications of the Contract.

5. ENGINEER's written orders or instructions.

7. Field test records.

8. Construction photographs.

B. The records listed above are to be made available for the ENGINEER's review at all times for all projects.

1.2 MAINTENANCE OF DOCUMENTS AND SAMPLES

A. Maintain documents in a clean, dry, legible condition and in good order. Do not use record documents for construction purposes.

1.3 RECORDS

A. Label each document "PROJECT RECORD" in neat large printed letters.

1. Do not conceal any work until as-built information is recorded by the CONTRACTOR's and, if so required, by the Department.

1.4 DRAWINGS

A. During the life of the Contract, maintain records of all deviations from the Plans and Specifications and prepare therefrom As-Built Record Drawings showing correctly and accurately all changes and deviations made during construction to reflect the work as it was actually constructed. It is the responsibility of the CONTRACTOR to check the As-Built Record Drawings for errors and omissions prior to submittal to the Department and certify in writing that the As-Built Record Drawings are correct and accurate. Since the drawings for these tanks are not electronically available, we will substitute this requirement

for a set of redline drawings and a final written report indicating the areas repaired, methods and location.

B. Certification: The CONTRACTOR shall certify on as-built record drawings all other actual constructed details and information as may be required by the Department.

PART 2 -- PRODUCTS (NOT USED)

PART 3 -- EXECUTION (NOT USED)

END OF SECTION

SECTION 03200

CONCRETE REINFORCEMENT

PART 1 - GENERAL

1.1 QUALITY ASSURANCE

A. Codes and Standards: Comply with the latest edition of the following codes, specifications, and standards, except where more stringent requirements are shown or specified:

1. ACI 117 Tolerances for Concrete Construction and Materials.
2. ACI 301 Specifications for Structural Concrete for Buildings.
3. ACI 315 Details and Detailing of Concrete Reinforcement.
4. ACI 318 Building Code requirements for Reinforced Concrete.
5. ACI 439.3R Mechanical Connection of Reinforcing Bars.
6. AWS Dl.4 Structural Welding Code Reinforcing Steel.
7. CRSI, Manual of Standard Practice.
8. CRSI, Placing Reinforcing Bars.
9. Wire Reinforcement Institute, Manual Standard Practice.

1.2 REFERENCES

A. American Society for Testing and Materials (ASTM), latest edition:

1. A82 Specification for Steel Wire, Plain, for Concrete Reinforcement.
2. A184 Specification for Fabricated Deformed Steel Bar Mats for Concrete Reinforcement.
3. A185 Specification for Steel Welded Wire Fabric, Plain, for Concrete Reinforcement.
4. A496 Specification for Steel Wire, Deformed, for Concrete Reinforcement.
5. A497 Specification for Steel Welded Wire Fabric, Deformed, for Concrete Reinforcement.
6. A615 Specification for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement.
7. A775 Specification for Epoxy-Coated Reinforcing Steel Bars.
8. C1116 Specification for Fiber-reinforced Concrete and Shotcrete.

1.3 SUBMITTALS

A. General:

1. Submit shop drawings for fabrication, bending, and placement of concrete reinforcement.

a. Comply with ACI 315 showing bar schedules, stirrup spacing, diagrams of bent bars, arrangement of concrete reinforcement and accessories.

b. Include special reinforcement required at openings through concrete structures.

2. Shop drawings made from sepias (or other reproductive methods) of the structural drawings will not be accepted and shall be cause for resubmittal.

B. Selection of splices: Splices shall be full tension, unless noted otherwise.

1. Splices noted on the drawings to be compression splices shall be furnished by one of the following:

   a. Compression lap splices according to ACI 315.
   b. Mechanical compression only connectors according to ACI 439-3R, staggered 1/2 Class "C" lap length and maintaining not less than 1/4 the total tensile capacity of any column face.
   c. Full penetration welds staggered not less than 18 diameters.

2. Splices shown on the drawings as either Class "A" or Class "B" may be one of the following:

   a. Class "B" lap splices.
   b. Class "A" (but not less than compression lap) lap splices staggered not less than one Class "B" lap length.

      1) Exception: This shall not be allowed when shown as class "B" in a location, which by design, has already accounted for other continuing bars or staggered splices.

   c. Appropriate mechanical connectors according to ACI 439-3R staggered not less than 24 diameters.
   d. Full penetration welds staggered not less than 24 diameters.

3. Unless otherwise noted in the drawings, reinforcing shall be spliced to develop the full strength of the bar in either tension or compression. Those splices shall be furnished by one of the following:

   a. Class "B" lap splices where only 1/2 of the total rebars are spliced at any one floor.
   b. Full penetration welds staggered not less than 36 diameters.
   c. Appropriate mechanical connectors according to ACI 439-3R staggered not less than 36 diameters.

4. Total steel at lap splices shall not exceed 8 percent for columns or shear wall cores containing the spliced bars.

   a. All bars may be lapped at one section for up to 4 percent steel.
   b. 1/2 of the bars may be lapped for up to 5.3 percent steel.
   c. 1/3 of the bars may be lapped for up to 6 percent steel.

d. Above 6 percent steel, other splice choices shall be used.

5. Where staggered lap splices are used, provide a mixture of bar sizes as appropriate where vertical bar size changes on the drawings.
6. Where different size bars are lap spliced, the length of splice may be based on the smaller bar size. If there is a larger quantity of the smaller bar size, the splice length shall be based on the larger bar.
7. It shall be the responsibility of the reinforcing detailer to determine the concrete strength at the point of a lap splice, the bar position (top or other), bar spacing, confinement condition based on ties or stirrups or edge condition to select the proper lap length.
8. Increase laps for bundled bars according to ACI 318, with number based on total bars in group including lapped bars.

C. Detailing of Splices: Placing shop drawings shall specifically show splice lap lengths where they occur. Bar diameter lap tables and references to other charts are not acceptable.

D. Staggered Laps Required: Provide staggered laps in any member as necessary to keep space between bars within splice zone at least 1 inch or 1 bar diameter clear.

E. Detailing of Bar Placement: For any bar other than those placed at an edge condition, between edge condition or openings, or any other location where the bar cannot be shifted longitudinally, a dimension shall be shown from an identifiable building grid, wall, or edge to at least one end of the bar.

F. Congested Areas of Placement: For any conditions resulting in bar spacing less than 2 diameters clear or where the placement of bars in one member requires critical templating to allow bar placement in an intersecting member, furnish details of sufficient scale to show clearances, spacing, and arrangements for properly placing those bars.

G. Accessories: Show accessories, supports, chairs, bolsters, and spacers necessary to complete the installation. Where supports are beyond the scope of CRSI detailing standards and custom designed supports are required, provide engineering calculations demonstrating the capacity of the system.

H. Flat Plates: Provide not less than 3 separate drawings of each plate separately showing bottom bars, top bars, and accessories.

I. Welding Submittals:

1. If welding of reinforcing bars is to be included as part of the work, submit the following:

a. A complete welding procedure specification according to AWS DI.4.
b. A certified chemical analysis of the steel to be welded.
c. Carbon equivalence calculations according to AWS DI.4.
d. Qualification papers for welders who will be employed on the project. Welders shall have passed a qualification test within a 12 month period before the work or

furnish a statement from a testing agency acceptable to A/E that they have observed or tested that welder's work under similar requirements within the past 6 months.

1.4 SUBSTITUTIONS

A. Reinforcing Splicing:

1. Splices shown in the drawings shall be considered mandatory for base bid purposes.
2. Alternative methods of providing for splices are available within the constraints of this specification and ACI 318.
3. If alternative splices are desired, the shop drawing submitted shall clearly indicate the change and include authorization by any other subcontractors involved in the change.

PART 2 - PRODUCTS

2.1 REINFORCING MATERIALS

A. Comply with Chapter 5 of ACI 301.

B. Reinforcing Steel:

1. Bars #3 through #11 shall be deformed bars according to ASTM A615 Grade 60 and according to the additional requirements of Paragraph 5.2.2.1 of ACI 301.
2. Bars #2 in size shall be plain round meeting A615/A-96a Grade 40.
3. Welded wire fabric shall be of plain wire. Welded wire fabric shall be galvanized at exterior exposed concrete.
4. Unless indicated otherwise the minimum concrete protective cover specified in Paragraph 5.7.1 of ACI 301 is the specified cover for this project unless indicated otherwise.

C. Epoxy-Coated Reinforcing Bars: ASTM A775.

D. Form-Saving Splice Connectors: Flanged devices to allow insertion of threaded reinforcing bars into a previously formed face. Available products include, but are not limited to:

1. Form Saver by Lenton.
2. DB-SAE Splices System by Dayton Superior.
3. Rebar Flange Coupler by Williams Form Engineering Corp.

E. Mechanical Connectors and Splice Devices: Proprietary products suitable for the use intended and listed in ACI 439-3R-83.

F. Steel Wire: ASTM A82, plain, cold-drawn, steel.

G. Fabricated Deformed Steel Bar Mats: ASTM A184.

H. Welded Steel Wire Fabric: ASTM A185.

I. Deformed Steel Wire: ASTM A496.

J. Welded Deformed Steel Wire Fabric: ASTM A497.

K. Supports for Reinforcement: Provide supports for reinforcement including bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded wire fabric in place. Use wire bar type supports complying with CRSI Class C or Class A as required acceptable.

1. For slabs-on-grade, use supports with sand plates or horizontal runners where base material will not support chair legs.
2. For exposed-to-view concrete surfaces and with legs of supports in contact with forms, provide supports with legs, either plastic protected according to CRSI, Class 1 or stainless steel protected according to CRSI, Class 2.
3. Provide custom supports as required to support top layer of mats and other special conditions not provided for within CRSI standards.

L. Fiber Reinforcement:

1. Manufacturers:

a. Fibermesh by Protex
b. Forta-Ferro by Forta Corporation, Grove City, PA.

2. Comply for use in plain concrete as defined in ACI 318.1 and the following:

a. Fibers shall not be used as a replacement for any reinforcement required for structural purposes.
b. Blend fibers into the concrete mix according to manufacturer's written instructions.
c. Provide control joints according to Section 5.2 of ACI 318.1.
d. Fibers shall comply with ASTM C1116-95.

PART 3 - EXECUTION

3.1 PLACING REINFORCEMENT

A. Comply with Concrete Reinforcing Steel Institute's recommended practice for "Placing Reinforcing Bars", for details and methods of reinforcement placement and supports, and as specified.

B. Clean reinforcement of loose rust and mill scale, dirt, and other materials that reduce or destroy bond with concrete.

C. Accurately position, support, and secure reinforcement against displacement by formwork, construction, or concrete placement operations. Locate and support reinforcing by metal chairs, runners, bolsters, spacers, and hangers as required.

D. When any reinforcing bar is placed projecting either horizontally or vertically from a given element to subsequently lap with other reinforcing bar, verify the detailed lap length will be achieved.

1. Report any deviation to the A/E for correction before placing concrete in the first element.
2. Bar projections resulting in laps shorter than the detailed laps shall be considered rejected, and corrective measures shall be taken at the direction of the A/E with no additional cost to the Board.

E. Place reinforcement to obtain at least minimum coverages for concrete protection.

1. Arrange, space, and securely tie bars and bar supports to hold reinforcement in position during concrete placement operations.
2. Set wire ties so ends are directed into concrete, not toward exposed concrete surfaces.

F. Install welded wire fabric in as long lengths as practicable.

1. Lap adjoining pieces at least one full mesh plus 2 inches and wire splices.
2. Offset end laps in adjacent widths to prevent continuous laps in either direction.

G. Provide the A/E with not less than 48 hours' notice before starting any welding of reinforcing bars.

1. Welding of reinforcing bars shall only be allowed under the direct supervision of the A/E.
2. Welding of crossing reinforcing bars is not allowed.
3. Any bars with unauthorized or unacceptable welds shall be replaced at no additional cost to the Board.

END OF SECTION

SECTION 03710

REMOVING EFFLORESCENCE FROM CONCRETE

PART 1 - GENERAL

1.01 SUMMARY

A. This specification provides guidance on removing efflorescence from concrete using chemical solvents.

B. Efflorescence is a condition wherein white deposits form on the surface of the concrete. These deposits often contain calcium, sodium and potassium hydroxides or carbonates, bicarbonates, chlorides and sulfates of calcium and magnesium.

C. The surface deposits may originate as soluble compounds within the concrete or in the soil. These compounds combine with water and gradually migrate in solution to the wall surface, where they remain when the water evaporates. Surface deposits may also result from acid etching with hydrochloric acid, which is sometimes applied to roughen the concrete surface.

D. Surface deposits originating from within the concrete are usually soluble and may be removed by scrubbing with water alone or washing with water under high pressure.

E. Surface deposits composed mainly of calcium acid carbonate and magnesium acid carbonate from the soil or of calcium hydroxide should be washed off with water as soon as possible. These deposits are water-soluble for only a brief period of time after reaching the atmosphere, after which the carbon dioxide converts them to water-insoluble calcium carbonate and magnesium carbonate, which are impossible to remove without the use of acids.

F. Safety Precautions:

1. DO NOT save unused portions of stain-removal materials.
2. DO NOT store any chemicals in unmarked containers.
3. NOTE: EXCELLENT VENTILATION MUST BE PROVIDED WHEREVER ANY SOLVENT IS USED. USE RESPIRATORS WITH SOLVENT FILTERS.
4. No use of organic solvents indoors should be allowed without substantial air movement. Use only spark-proof fans near operations involving flammable liquids.
5. Provide adequate clothing and protective gear where the chemicals are indicated to be dangerous.
6. Have antidote and accident treatment chemicals readily available where noted.

PART 2 - PRODUCTS

2.01 MATERIALS

NOTE: Chemical products are sometimes sold under a common name. This usually means that the substance is not as pure as the same chemical sold under its chemical name. The grade of purity of common name substances, however, is usually adequate for stain removal work, and these products should be purchased when available, as they tend to be less expensive. Common names are indicated below by an asterisk (*).

A. Use one of the following solvents (see Section 3.02 A. below for mixing proportions):

B. Acetic Acid ($C_2H_4O_2$):

1. A colorless pungent liquid acid that is the chief acid of vinegar and that is used especially in synthesis (as of plastics).
2. Other chemical or common names include Vinegar acid*. (Vinegar itself, which contains about 4% acetic acid, may be suitable for some purposes requiring acetic acid.)
3. Potential hazards: CAUSTIC TO FLESH; CORROSIVE TO CONCRETE, STEEL, WOOD AND GLASS.
4. Available from chemical supply house (both commercial and scientific), drugstore or pharmaceutical supply distributor, grocery store or supermarket, or hardware store.

-OR-

Hydrochloric Acid (30-35%):

1. A strong corrosive irritating acid.
2. Other chemical or common names include Chlorhydric acid; Hydrogen chloride; Muriatic acid* (generally available in 18 degree and 20 degree Baume solutions); Marine acid*; Spirit of salt*; Spirit of sea salt*.
3. Potential Hazards: TOXIC, CAUSTIC TO FLESH; CORROSIVE TO CONCRETE, STEEL, WOOD AND GLASS; FLAMMABLE.
4. Available from chemical supply house, drugstore or pharmaceutical supply distributor, or hardware store.

OR-

Phosphoric Acid (H_3PO_4):

1. A syrupy or deliquescent tribasic acid used especially in preparing phosphates (as for fertilizers), in rust-proofing metals, and as a flavoring in soft drinks.
2. Other chemical or common names include Orthophosphoric acid.

3. Potential Hazards: CAUSTIC TO FLESH; CORROSIVE TO CONCRETE, STEEL, WOOD AND GLASS.
4. Available from chemical supply house or hardware store.

B. Calcium Hydroxide:

1. Other chemical or common names include Calcium hydrate*; Hydrated lime*; Lime hydrate*; Slaked lime*.
2. Potential Hazards: SKIN IRRITANT; AVOID INHALATION OF THE DRY POWDER.
3. Available from chemical supply house, construction materials yard, construction specialties distributor, garden and lawn supply center, or hardware store.

C. Filler material such as paper pulp.

D. Mineral water.

E. Plastic sheeting.

F. Clean dry towels for blotting the area after treatment.

G. Masking tape.

H. Accessible source of water, soap and towels for washing and rinsing in case of emergencies associated with the use of chemicals.

2.02 EQUIPMENT

A. Glass or ceramic container for mixing the poultice solution.

B. Rubber of plastic pale for mixing the acid and water solution.

C. Wooden utensil for stirring the ingredients.

D. Wood or plastic spatula.

PART 3 - EXECUTION

3.01 PREPARATION

Protection:

A. Provide adequate wash solutions (i.e. water, soap and towels) before starting the job.

B. Whenever acid is used, the surface should be thoroughly rinsed with water as soon as its action has been adequate. Otherwise it will continue etching the concrete even though the stain is gone.

3.02 ERECTION, INSTALLATION, APPLICATION

NOTE: DO NOT TRY MORE THAN ONE TREATMENT ON A GIVEN AREA UNLESS THE CHEMICALS USED FROM PRIOR TREATMENT HAVE BEEN WASHED AWAY.

A. Mix in a glass or ceramic bowl one of the following combinations:
    1. 1 part hydrochloric acid in 19 parts water, OR
    2. 1 part phosphoric acid in 9 parts water, OR
    3. 1 part phosphoric acid plus 1 part acetic acid in 19 parts water.

CAUTION: ALWAYS ADD ACID TO WATER RATHER THAN VICE-VERSA. ADDING WATER TO CONCENTRATED ACID CAN CAUSE THE WATER TO BECOME SUPER-HEATED AND TURN TO STEAM, WHICH CAN RESULT IN ACID SPLASHING ON THE USER.

B. Saturate the concrete with clean, clear water.
C. Begin by using the first mixture listed above and apply to the affected concrete surface with a stiff, non-metallic bristle brush.
D. Thoroughly rinse the area with clean, clear water and allow to dry.
E. If the first mixture is unsuccessful in adequately removing the efflorescence, repeat the treatment using the other mixtures listed in the order displayed until successful results are achieved.
F. For concrete heavily laden with potential efflorescence:
    1. Remove all visible surface salts, following Steps A-E directly above.
    2. Follow by applying a poultice of paper pulp saturated in water and allow to dry.
    3. Remove the dried poultice using a wood or plastic spatula.
    4. Thoroughly rinse the surface with clean, clear water and allow to dry.
    5. Repeat as necessary to achieve the desired level of cleanliness.

3.03 ADJUSTING/CLEANING

If there is a supply of dilute acid to be disposed of when work is complete, neutralize it by stirring in 3 pounds of powdered calcium hydroxide for every gallon of the dilute (1-3) acid. The resulting solution is a harmless mixture of calcium hydroxide and calcium fluoride. Check the resulting pH and adjust if necessary before disposing the excess cleaning solution.

END OF SECTION

SECTION 03721

PREPARATION FOR RESURFACING CONCRETE

PART 1 - GENERAL

1.01 SECTION INCLUDES

i. Preparation of concrete surfaces to be rehabilitated.

ii. Work in this Section includes Water Pressure cleaning, abrasive blast cleaning, concrete removal and testing for pH, moisture content, and soundness of concrete.

1.02 RELATED SECTIONS

A. Section 01010A - Summary of the Work.

B. Section 01410A - Testing and Testing Laboratory Services

C. Section 03732 - Concrete Repair: Rehabilitation or Restoration of concrete after preparation for resurfacing.

1.03 SCHEDULING

A. Perform abrasive blast cleaning and water pressure cleaning of work between the hours of 7 am to 5 pm.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Blasting Abrasive Material: Clean abrasive blasting material free of impurities passing through 200 sieve.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Verify that surfaces are ready to receive work.

3.02 PREPARATION

A. Prepare and protect adjacent work from damage.

3.03 REHABILITATION CLEANING

A. Prior to any rehabilitation work, the concrete surface shall be thoroughly cleaned to produce a clean interior surface free of all coatings, sand, rock, roots, sludge or other deleterious materials.

B. During all cleaning and preparation operations all necessary precautions shall be taken to protect the concrete surface from damage). During these operations, precautions shall also be taken to insure that no damage is caused to public or private property adjacent to or served by these structures.

C. All sludge, dirt, sand, rock, grease, roots and other solid or semi-solid materials resulting from cleaning or surface preparation operations shall be removed from the immediate work site where it was removed.

D. All waste materials and debris removed during these operations shall be legally disposed by the Contractor at its sole cost and expense. All cost for such removal and disposal, shall be paid by the Contractor, it shall be included in the price proposal and no other compensation will be provided. Under no circumstances shall sludge or other debris removed during these operations be dumped or spilled into the streets, ditches, storm drains or other sanitary sewers.

E. The Contractor is advised that he shall not dispose of this material by illegal dumping on private or public property, by sale to others, or any means other than those given above.

F. Any load of material, or any portion thereof, disposed of in a non-permitted fashion will result in a charge to the Contractor in the amount of $500.00 per load, or any portion thereof, which sum will be deducted by the Department from any monies due the Contractor. This charge is in addition to any other damages specified elsewhere.

G. The Contractor shall keep his haul route and work area(s) neat and clean and reasonably free of odor, and shall bear all responsibility for the clean-up of any spill which occurs during the transport of cleaning/surface preparation by-products and the clean-up of any such material which is authorized by or pursuant to this Contract and in accord with applicable laws and regulations. The Contractor shall immediately cleanup any such spill, or waste. If the Contractor fails to cleanup such spill or waste immediately, the County shall have the right to cleanup or arrange for its cleanup and may charge to the Contractor all costs, including administrative cost and overhead, incurred by the County in

connection with such cleanup. The County may also charge the Contractor any cost incurred or penalties imposed on the County as a result of any spill, dump or discard. Under no circumstances is this material is to be discharged into the waterways or any place other than where authorized to do so by the appropriate authority. The term "Contractor" as used in this section shall include the Contractor's subcontractors and other Contractors.

H. The general requirements for vehicles hauling such waste materials are as follows: Transport vehicles must be of type(s) approved for this application by Dade County, HRS, and the State of Florida FDOT. General requirements are that the vehicles have watertight bodies, that they be properly equipped and fitted with seals and covers to prohibit material spillage or drainage, and that they be cleaned as often as is necessary to prevent deposit of material on roadways. Vehicles must be loaded within all legal weight limits and operated safely within all traffic and speed regulations.

I. The routes used by the Contractor for the conveyance of this material on a regular basis shall be subject to approval by the governing authority having jurisdiction over such routes.

3.04 PREPARATION AND INSPECTION OF CONCRETE SURFACES

A. Preparation of Concrete Surfaces

1. Pressure Cleaning: The Contractor shall remove grease, grime, sludge, loose and deteriorated concrete loose coatings and contaminants in the areas that are to be lined by Pressure Cleaning. The cleaning operation shall conform to:

   a. Pressure Cleaning shall be used to provide a clean, contamination-free, roughened and sound surface.

   b. Equipment shall sustain water pressures between 4,000 – 5,000 psi at the nozzle.

   c. Use the equipment in accordance with the manufacturer's instructions. Organize the work to thoroughly cover the area specified for repair.

   d. Particulate waste created by pressure cleaning shall be removed and disposed of in accordance with this Section. All of the waste or debris created shall be reclaimed and not allowed to move on downstream.

   e. The pressure cleaning operation shall conform to all local, state and federal air quality standards and regulations.

2. SSPC-SP13 / NACE No.6 Surface Preparation of Concrete: The Contractor shall remove loose and deteriorated concrete and all existing

coatings and contaminants by Abrasive Blast Cleaning, High/Ultra High Pressure Jetting (Min. 25,000psi), and/or Mechanical Cleaning in accordance with SSPC-SP13 / NACE No.6 the Surface Preparation of Concrete.

a. Prior to preparing the surface, care shall be taken to prevent damage to structures and equipment. Conveyors, pumps and valves shall be shielded, covered, or otherwise protected to prevent the entrance of abrasive material (if abrasive blast cleaning is used) or other cleaning material.

b. Determine type of nozzle, nozzle pressure and cleaning techniques required for the Abrasive Blast Cleaning, High/Ultra High Pressure Jetting and/or Mechanical Cleaning, in order to expose fine aggregate with occasional exposure of coarse aggregate with a maximum 1/16-inch reveal.

c. It is intended that the surface preparation of concrete will alter the profile of the concrete to achieve a minimum ICRI-CSP5 or greater on all walls, columns, ceiling and overhead concrete, and an ICRI-CSP3 or greater on the floor.

d. After the surface preparation of concrete is completed, cracks, voids, dust and spent abrasive material (if abrasive blast cleaning is used) shall be removed from the surfaces by pressure cleaning.

e. The surface preparation of concrete operation shall conform to all local, state and federal air quality standards and regulations

3.05 REMOVAL OF DETERIORATED CONCRETE

A. Removing Deteriorated Concrete: After pressure cleaning and surface preparation of concrete, damaged concrete substrates shall have all contaminated concrete removed by scabbling, chipping, grinding, brushing, blasting or other methods to a depth where all the white calcium sulfate is removed and only hard grey concrete with a surface pH at 7.0 to 11.0, or as specified by the coating product manufacturer.

B. Any reinforcing steel exposed by removing deteriorated concrete shall be thoroughly cleaned by sandblasting to remove all contaminated concrete and rust particles.

C. Immediately after the cleaned reinforcing steel is inspected and accepted by the Engineer, the Contractor shall place a protective coating on the exposed reinforcing steel per Specification Section 03732.

D. When the deteriorated concrete is removed, the Contractor shall thoroughly

clean the surface to remove all fines and deleterious materials that will adversely affect the bond of the proposed repair material.

3.06 INSPECTION OF SURFACES

A. Inspection of Concrete Surfaces: All surfaces where deteriorated concrete has been removed will require inspection by the Engineer and repair product manufacturer's representative. The repair product manufacturer's representative shall approve in writing that the concrete surface is sound prior to commencement of the repair operation. The surfaces will be tested for roughness, acidity and moisture. Roughness shall be in accordance with the manufacturer's product specifications. Moisture readings for the surface of the concrete will be performed to verify the specification requirements of the manufacturer of the repair and coating materials.

3.07 REPAIR AND ACCEPTANCE OF CONCRETE SURFACE

A. Repair Concrete after waterblasting and sandblasting through methods specified in Section 03732.

B. Acceptance: The Contractor and/or Manufacturer's Representative shall measure the surface pH, moisture content and temperature of the prepared concrete surface prior to beginning the coating operation. The acceptable ranges, as recommended by the coating manufacturer, shall be used to determine whether coating application may proceed and shall determine the choice of primer to be applied. The Contractor shall also check the concrete surfaces for residual laitance by visual inspection with magnification if necessary and by primer application on suspect areas. If the primer does not penetrate the concrete surface by turning the surface dark and the laitance area can be visually detected; the Contractor shall not accept the surface and shall have the area sandblasted and/or water blasted again for laitance removal.

C. Prior to the application of the coating product, the Engineer and coating manufacturer's representative shall inspect the different surfaces and test results. The coating manufacturer's representative must approve in writing that the surfaces are sound prior to the application of the coating.

3.08 FIELD QUALITY CONTROL

A. Field inspection and testing will be performed by the Engineer and coating manufacturer's representative and per coating manufacturer's published written instructions so as not to void any warranties provided.

B. Final Surface Inspection: Check surface pH and moisture content of the concrete to comply with the requirements of the coating manufacturer for pH and

moisture content.

C. Test concrete for calcium chloride and moisture content during the execution of the Work.

END OF SECTION

SECTION 03732

CONCRETE REPAIR

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Preparation of concrete and application of repair materials.

B. Rehabilitation and restoration of concrete surfaces.

C. Repair of concrete internal reinforcement.

1.02 RELATED SECTIONS

A. Section 03200 - Concrete Reinforcement.

B. Section 03710 - Removing Efflorescence from Concrete.

C. Section 03721 - Preparation for Resurfacing Concrete.

1.03 REFERENCES

A. ANSI/ASTM A82 - Cold Drawn Steel Wire for Concrete Reinforcement.

B. ANSI/AWS D1.4 - Structural Welding Code for Reinforcing Steel.

C. ASTM A615 - Deformed and Plain Billet-Steel Bars for Concrete Reinforcement.

D. ASTM C33 - Specifications for Concrete Aggregates.

E. ASTM C150 - Portland Cement.

F. ASTM C404 - Aggregates for Masonry Grouts.

G. ASTM C882 - Bond Strength of Epoxy Resin Systems Used with Concrete.

H. ASTM D638 - Test Method for Tensile Properties of Plastics.

I. ASTM D695 - Compressive Properties of Rigid Plastics.

J. ASTM D790 - Flexural Properties of Plastics and Electrical Insulating Materials.

1.04 SUBMITTALS

A. Product Data: Indicate product standards, physical and chemical characteristics, technical specifications, limitations, maintenance instructions, and general recommendations regarding each material.

B. Manufacturer's Certificate: Certify that specified products meet or exceed specified requirements.

1.05 PROJECT RECORD DOCUMENTS

A. Accurately record actual locations of structural reinforcement repairs, type of repair, and extent.

1.06 QUALITY ASSURANCE

A. Perform welding work in accordance with ANSI/AWS D1.4.

1.07 QUALIFICATIONS

A. Materials Manufacturer: Company specializing in manufacturing the products specified in this Section with minimum three years documented experience.

B. Applicator: Company specializing in concrete repair approved by manufacturer.

C. Design reinforcement splices under direct supervision of a Professional Structural Engineer experienced in design of this Work and licensed in the State of Florida.

1.08 DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, protect and handle products to site under provisions of Section 01600A and 01660A.

B. Comply with instructions for storage, shelf life limitations, and handling.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. Tnemec, Sika, Epoxytec, Thiokol or approved equal

2.02 PATCHING MATERIALS

B. Concrete Patching Material; cementitious mortar: Tnemec Series 217 MortarCrete, SikaTop 123 Plus, Epoxytec CPP or approved equal.

C. Compressive Strength: ASTM C579 – No less than 8,950psi @ 24 hours.

D. Initial Set – 60 minutes.

E. Final Set – 90 minutes.

F. To Topcoat – 12 hours.

G. Bonding Agent: Not required.

H. Color: Gray

I. Water: Clean and potable.

2.03 REINFORCEMENT MATERIALS

A. Reinforcing Steel: ASTM A615, 60 ksi yield grade billet-steel deformed bars, epoxy finish.

B. Stirrup Steel: ANSI/ASTM A82.

C. Splicing Sleeves: Bar Grip or equal for the size of bar been spliced.

2.04 CONCRETE RESURFACING. EPOXY MORTARS

A. Tnemec Series 218 Mortarclad, or approved equal.

B. Mix mortars in accordance with manufacturer's instructions for purpose intended.

C. Mix components in clean equipment or containers. Conform to pot life and workability limits.

2.05 JOINT SEALANT

A. Thiokol 2235M HP High Performance Joint Sealant System or approved equal.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Verify that surfaces are ready to receive work.

B. Beginning of installation means acceptance of substrate.

3.02 PREPARATION

A. Clean all concrete surfaces following the procedures specified on Section 03721.

B. Flush out cracks and voids with water and/or airblast to remove laitance and dirt.

C. On deep cracks, provide temporary entry ports spaced to accomplish movement of fluids between ports; no deeper than the depth of the crack to be filled or port size diameter no greater than the thickness of the crack. Provide temporary seal at concrete surface to prevent leakage of adhesive.

D. For areas to be patched with cementitious or epoxy mortar, remove any broken, unsound or deteriorated substrate until solid concrete is found. The sound substrate must be clean with the appropriate surface profile for the specified material installation. Remove corrosion from steel. Clean surfaces mechanically; wash and rinse with water.

E. Sandblast clean the exposed reinforcement steel surfaces. Mechanically cut away damaged portions of bar.

3.03 CONCRETE REPAIR WORK

A. Type I - Repair of Concrete Surfaces (less than 3/4”):

1. Concrete surfaces which are to receive a protective coating system and which have deteriorated to the point where they are not suitable for coating shall be repaired with a cement patching compound.

2. All concrete surfaces that are repaired and which are to receive a protective lining system shall have a controlled patter sweep of sandblast or waterblast to remove all laitance from the repaired areas. The blast pattern shall be by systematic removal from a defined rectangular area. The blasting operation shall be followed by a thorough cleanup operation including air drying and vacuuming to provide a clean dry surface for the protective lining system.

3. For patching honeycomb, isolate the affected area by removing layers of honeycombing until suitable solid concrete is exposed. Thoroughly clean the area to be repaired and remove all dirt and loose aggregate. Remove all rust from steel. Provide the proper surface profile for the specified material installation. Trowel mortar onto surface filling all pores and voids. The thickness of each lift shall not be less than ¼ inch and more than 4 inches. Bring surface flush with surrounding area. Finish trowel surface to match surrounding area.

4. Cementitious Patching Compound: Tnemec Series 217 MortarCrete, SikaTop 123 Plus, Epoxytec CPP or approved equal, shall be used to repair the deteriorated concrete surfaces (spalling and scaling concrete). The patching compound must be accepted by the protective lining manufacturer and the Engineer as to compatibility with the protective lining. The Contractor shall follow the instructions and recommendations of the patching compound manufacturer as to application, giving special attention to their time requirements, depth of repair, surface preparation procedures and curing time.

B. Type II and III Concrete Repair (Concrete Spalling and Scaling):

1. Concrete repair shall be used to repair deteriorated concrete surfaces with fill depths less than 1-1/2 inches that have no exposed reinforcing rebar and at areas as may be required by the Engineer. The areas shall be repaired using Tnemec Series 217 MortarCrete, SikaTop 123 Plus, Epoxytec CPP or approved equal, placed as specified above.

2. All surfaces where structural concrete repair materials will bond with existing concrete shall be a minimum ICRI-CSP6 and include a minimum ¼ inch termination point.

3. Tnemec Series 217 MortarCrete shall not be feathered. Trowel apply mortar mix to thickness recommended by manufacturer. Tamp into place filling voids at spalled areas.

4. For patching honeycomb, trowel mortar onto surface, work mortar into honeycomb to bring surface flush with surrounding area. Finish trowel surface to match surrounding area.

C. Repair of Exposed Reinforcing Bars:

1. Repair all existing rebar in accordance with ICRI Guidelines 310.1R.

2. Remove deteriorated concrete surround the steel reinforcement bars, including ¾” around the entire circumference of rebar.

3. To all exposed rebar, abrasive blast clean to an SSPC-SP10 / NACE No.2 Near-white blast cleaning or SSPC-SP11 Power Tool Cleaning to Bare Metal.

4. After cleaning, coat existing and new rebar work with 5.0 to 7.0 mils DFT of Tnemec Series 20HS Pota-Pox, or approved equal. Protect surrounding concrete to prevent coating of concrete during coating of rebar.

5. Where damaged rebars are found, cut and replace with the same diameter rebars spliced not less than 18", for #5 or smaller, and 24" for #6 and larger. If most of the reinforcement in the wall is damaged, all rebar’s shall

be cut, and a new reinforcing mat shall be placed on the whole wall area attached to the existing concrete with ½ inch diameter studs @ 24" o.c. each way; or

6. Where damaged rebars are found, cut and replace with the same diameter rebars attached to the existing reinforcement with bar-grip sleeve splices. Fit the press around the coupler and bar, and hydraulically push the inner die toward the outer die in order to deform a segment of the coupler onto the rebar along the length of the coupler."

7. Reinforcing steel shall at all times be protected from conditions conducive to corrosion until concrete is placed around it.

8. The surfaces of all reinforcing steel and other metalwork to be in contact with concrete shall be thoroughly cleaned of all dirt, grease, loose scale and rust, grout, mortar and other foreign substances immediately before the concrete is placed. Where there is delay in depositing concrete, reinforcing shall be re-inspected and, if necessary re-cleaned.

9. Rebuild substrate using Tnemec Series 217 MortarCrete, SikaTop 123 Plus, Epoxytec CPP or approved equal, and flush to concrete plane.

D. Finish of Repaired Surfaces:

1. General: The repaired concrete surface shall in general have a finish that will match the uncorroded surface.

2. Surface Finish: "Ordinary Surface Finish" shall approximate the required finish for the protective lining system.

3. Procedure for Finishing: The final finish shall be flat and smooth by wood float or steel troweling. The concrete repair material manufacturer's requirements as to finishing shall be strictly adhered to, as particularly as to time and moisture requirements

E. Curing: Curing of repaired concrete with a cement patching compound shall be in accordance with manufacturer's instructions. Tnemec Series 217 MortarCrete must be kept damp for at least 2 hours after the application to minimize hydration cracks. Concrete curing compounds are not allowed. The Contractor shall protect the newly repaired concrete from scarring or other damage. Once cured for a minimum 12 hours, laitance must be removed and the surface profile must be achieved in accordance with SSPC-SP13 / NACE No.6 the Surface Preparation of Concrete.

F. Cleanup:

1. The Contractor shall provide a continuous cleanup operation for the concrete repair work. Sand, concrete debris, and other materials shall be removed

daily from areas of the work area.

2. At completion of the concrete repair work, remove all construction equipment, surplus material, debris and sand; wash down and sweep the area clean, prior to beginning the protective lining application. The Contractor is also required to provide a collection system to prevent materials, debris and other materials from entering the flow of any part of the sewer system.

3.04 CRACK INJECTION - EPOXY RESIN ADHESIVE

A. Surface Preparation:

Surface must be clean and sound. It may be dry or damp, but free of standing water. Remove dust, laitance, grease, curing compounds, impregnations, waxes, foreign particles and disintegrated materials.

Concrete - Blast clean, shot blast or use other approved mechanical means to provide an open roughened texture. Gravity feed cracks should be cut to form a vee form along the crack.

Steel - Should be cleaned and prepared thoroughly by blast cleaning.

B. Application:

To gravity feed cracks:

- Blow vee-notched crack clean with oil-free compressed air.
- Pour product into vee-notched crack. Continue placement until completely filled. Seal underside of slab prior to filling if cracks reflect through
- Remove temporary seal and excess adhesive.
- Clean surfaces adjacent to repair and blend finish.

To pressure-inject cracks

- Use automated injection equipment or manual method.
- Set appropriate injection ports based on system used. Seal ports and crack.
- Inject with steady pressure; begin injection at lower entry port and continue until adhesive appears in adjacent entry port. Continue from port to port until entire crack is filled.
- Do not inject cracks greater than 1/4 in.
- Remove temporary seal and excess adhesive.

- Clean surfaces adjacent to repair and blend finish.

Product: Sikadur 35 Hi-Mod LV by Sika, Masterinject 1500 by BASF or approved equal.

3.05 APPLICATION OF JOINT SEALANT

A. Considerations & Limitations

1. Do not thin with solvents unless advised to do so by manufacturer.
2. Confirm product performance in specific chemical environment prior to use.
3. Always use protective clothing, gloves and goggles consistent with OSHA regulations during use.

B. Concrete Joint Preparation.

1. Apply only to clean, dry and sound concrete substrates that are free of all coatings, sealers, curing compounds, oils, greases or any other contaminants.
2. Concrete that has been contaminated with chemicals or other foreign matter must be neutralized or removed.
3. Remove any laitance or weak surface layers.
4. Surface profile shall be CSP-3 to CSP-5 meeting ICRI (International Concrete Repair Institute) standard guideline #03732 for coating concrete, producing a profile equal to 60-grit sandpaper or coarser. Prepare surface by adequate means to achieve this desired profile.

C. Installation Steps.

BASE SYSTEM: Thiokol 2235M HP High Performance Joint Sealant System or approved equal.

1. Prime surface with Thiokol 5050 Primer as per manufacturer’s instructions.
2. Install a backer rod into the joint; the backer rod should be compressed 25%. The joint depth should be one half the joint width.
3. Apply Thiokol 2235M, or approved equal, as indicated by the manufacturer.
4. Provide a concave finish.

3.06 EPOXY MORTAR RESURFACING.

A. All concrete surfaces which are to receive a protective coating system (including walls, columns, ceiling underslab, floor and interior of pipes) shall be resurfaced up to ¼" thickness, using an epoxy mortar such as Tnemec Series 218 MortarClad, or approved equal, to fill voids and bugholes while creating a monolithic surface to be coated and alleviate outgassing.

B. The Contractor shall rebuild the concrete surfaces to their original lines and shapes, including where damaged concrete has been removed and repaired as stated above.

C. The epoxy mortar resurfacing coat shall have a minimum thickness of 1/16".

3.07 ACCEPTANCE OF CONCRETE SURFACE

The Contractor shall measure the surface pH, moisture content and temperature of the prepared concrete surface prior to beginning the coating operation. The acceptable ranges, as recommended by the coating manufacturer, shall be used to determine the choice of primer to be applied. The Contractor shall also check the concrete surfaces for residual laitance by visual inspection with magnification if necessary and by primer application on suspect areas. If the primer does not penetrate the concrete surface by turning the surface dark and the laitance area can be visually detected; the Contractor shall not accept the surface and shall have the area sandblasted or water blasted again for laitance removal.

Prior to application of the coating product, the Engineer and a repair product manufacturer's representative shall inspect the surface with the Contractor. The product manufacturer's representative shall approve in writing that the surface is acceptable prior to the lining application.

3.08 FIELD QUALITY CONTROL

A. All field inspection and testing required by the Contract Documents will be performed by the Contractor.

B. Test concrete for calcium chloride content during the execution of the Work.

END OF SECTION

SECTION 09660

HIGH PERFORMANCE PROTECTIVE COATING

PART 1 - GENERAL

1.01 WORK INCLUDED

A. Scope: The work to be performed shall include furnishing of all labor, materials, tools, equipment, removals and disposal required for coating all concrete surfaces within the interior of the tank by a monolithic application of high-build, solvent-free 100% solids epoxy coating system; including all walls, floor, columns, wafer walls, pipe interiors and ceiling underslab. Procedures for surface preparation, cleaning, application and testing are described herein and in Section 03721 Preparation for Resurfacing Concrete**.**

B. Summary: This specification covers the minimum requirements for installing an epoxy coating system that is formulated to provide corrosion protection, chemical and erosion resistance, abrasion resistance, impact resistance, and normal cleaning.

C. Related Documents: General provisions of the contract, including General and Supplementary Conditions, apply to this section.

1.02 REFERENCES

A. American Standards for Testing Materials (ASTM)

1. ASTM D-4263, Test Method of Indicating Moisture in Concrete by the “Plastic Sheet Method”.
2. ASTM D-4541, Test Method for Pull-off Strength of Coatings Using Portable Adhesion Testers.
3. ASTM D-4258, Standard Practice for Surface Cleaning Concrete for Coating.

B. Steel Structures Painting Council (SSPC)

1. SSPC-SP7 Brush Off Blast Cleaning.
2. SSPC-SP10 Near White Blast Cleaning.
3. SSPC-SP13/NACE No.6 Surface Preparation of Concrete.

C. International Concrete Repair Institute, (ICRI)

1. CSP-3 and CSP-5 Standard Guidelines.
2. ICRI 320.1R - Exposed Reinforcing bar (Rebar) Repair

1.03 SUBMITTALS

A. Submit manufacturer's technical data and product literature indicating that the products comply with specified requirements.

B. Submit the Test Reports with the results of all testing performed prior and after the application of the coating product.

C. Submit the Rehabilitation Plan which should outline the plan detailing locations, methods, materials and procedures for the concrete rehabilitation.

1.04 QUALITY ASSURANCE

A. Qualifications: A qualified contractor is defined as one with:

1. A minimum of five years of experience in installing similar systems.
2. Demonstrated financial stability in warranting work.
3. Approved by the manufacturer.

B. There will be a pre-job meeting attended by all personnel including Department, Contractor/Sub-contractor, Safety Engineer, Inspector and Coating Manufacturer Representative.

C. All inspections of the installation shall be recorded and shall include the following information: Time of day.

1. Weather conditions, (air and surface, humidity).
2. Description of surface preparation.
3. Thickness per coat.
4. Visual inspection of workmanship.

D. Report in writing to Engineer, with copy to manufacturer, of deficiencies that could impair work. Surfaces must be approved in writing the Coating Manufacturer Representative prior to application of coating.

1.05 DELIVERY, STORAGE AND HANDLING

A. All materials shall be delivered to the jobsite in their original, unopened containers with the proper, fully legible labels with product identification, printed instructions, lot numbers and shelf life expiration date for each component.

B. Materials should be stored in their tightly sealed original containers in a dry place at temperatures between 65 and 80 degrees F, out of direct sunlight, heat or other hazards.

1.06 WARRANTY

A. Manufacturer shall warrant that its products are free from defects. Manufacturer shall provide a materials warranty to the owner for a period of THREE (3) years from the date of manufacture. Liability, if any, is limited to product replacement.

B. The manufacturer and the contractor shall also provide a joint warranty for the product installation for a period of THREE (3) years from date of installation. The contract shall specifically stipulate what constitutes a failure of the coating system and the operating conditions for the coating system. Liability, if any, for the manufacturer is limited to product replacement and, for the contractor, re-installation costs. This warranty specifically excludes liabilities for consequential or incidental damages.

C. Contractor shall, within a reasonable time after receipt of written notice thereof, repair defects in materials or workmanship which may develop during the warranty period, and any damage to other work caused by such defects or the repairing of same, at his own expense and without any additional cost to the Department.

PART 2 - PRODUCTS

2.01 EXISTING PRODUCTS AND SPECIAL CIRCUMSTANCES:

A. Specified concrete surfaces shall be thoroughly inspected.

B. Previous coating shall be removed by the method described in Section 03721 of these Specifications.

2.02 REPAIR MATERIALS:

A. Repair concrete surfaces in accordance with Section 03732 of these Specifications. Repair materials must be compatible with the specified hybrid epoxy coating and shall be approved by the hybrid epoxy coating manufacturer.

2.03 COATINGS:

A. Primer Coat:

1. The purpose of a primer coat is to ensure the coating hangs properly and achieves acceptable edge retention.
2. The primer shall be a solvent-based epoxy primer.
3. The primer must possess a recoat window not to exceed 2 weeks.

4. The primer shall be compatible with the top coat system and pre-approved by the manufacturer, if submitted as approved equal.
5. Minimum Performance Requirements for Prime Coat:

   Salt Spray: ASTM B117 - No blistering, cracking, rusting or delamination of the film and no creepage at the scribe after 5000 hours

   Cyclic Salt Fog/UV Exposure: ASTM 5894 - No blistering, cracking, rusting or delamination of the film after 10,000 hours.

6. Specified materials are: Tnemec Series 20HS Pota-Pox, Wol-Coat 410 or approved equal.

B. Epoxy Topcoat:

1. The coating system shall be used on all concrete surfaces (see section 1.01 A).
2. The epoxy coating system must be have the following properties:
   a. Epoxy coating system must be 100% solid, no VOCs.
   b. Epoxy coating system shall adhere to concrete surfaces with adhesion testing results in PSI to a minimum of 400.
   c. Epoxy coating system shall withstand freeze-thaw and wet-dry cycles without causing adverse changes to the cure and performance properties.
   d. Epoxy coating system shall be able to be applied by brush, roller and spray.
   e. Epoxy coating system shall have high impact resistance in order to meet the requirement set forth in the warranty.
   f. Epoxy coating system shall be high gloss and self-leveling with vertical and overhead thickness capability of 30 mils in one pass without sag.
   g. Epoxy coating system shall be able to tie back into itself, overcoat or repair itself indefinitely with proper preparation, but not involving abrasion.
   h. Epoxy coating system shall have a recoat window up to 72 hours without preparation.
   i. Epoxy coating system shall be capable of curing properly within the specified environment within 18 hours.
   j. Epoxy coating system shall be resistant to all forms of chemical or bacteriological attack found in municipal sanitary water systems, including severe hydrogen sulfide, chlorine, and other treatment chemicals.
   k. The coating system shall be an epoxy coating system. It shall exhibit a tensile strength (ASTM D-638) of 7,000 psi, a bond strength (ASTM D-4541) of 400 psi at 100% concrete failure, and a compressive strength (ASTM D-695) of 10,000 to

12,000 psi.

I. Minimum Performance Requirements for Topcoat:

Product must be able to be applied in coats of a minimum 16.0 mils dry film thickness each.

VOC Content: 0.10 lbs/gallon (12 grams/litre)

Immersion: ASTM 870 – No blistering, cracking, rusting or delamination of film after 2,000 hours continuous immersion in deionized water at 140°F (60°C), average of three tests.

Salt Spray: ASTM B117 - No blistering, cracking, rusting or delamination of the film and no creepage at the scribe after 10,000 hours.

Cyclic Salt Fog/UV Exposure: ASTM D5894 – No blistering, cracking, rusting or delamination of film and no more than 1/32" rust creepage at scribe after 10,000 hours exposure.

Humidity: ASTM D4585 – No blistering, cracking, rusting, or delamination of film after 2,000 hours exposure.

3. Specified materials are: Tnemec Series 22 Epoxoline, Wol-Coat 310 or approved equal.

PART 3 - EXECUTION

3.01 SURFACE PREPARATION

A. All the preparation and application steps in this specification shall be in accordance with the manufacturer's instructions as well as the job site conditions and applicable Federal, State, and Local rules and regulations.

B. All cleaning shall be as outlined in the Society for Protective Coatings (SSPC) Surface Preparation Specification, National Association of Corrosion Engineers (NACE), and the International Concrete Repair Institute (ICRI) unless otherwise noted.

C. Prepare surfaces in accordance with manufacturer's instructions and Section 03721 of these Specifications.

D. Concrete surface must be clean, dry and sound prior to application.

E. Remove concrete laitance, curing agents, form oils, or any other adhesion barriers to attain a sandpaper-like finish.

F. Any areas exposed to acid spillage shall be neutralized prior to coating.

G. Remove all sand and dust by means of vacuuming, from the area to be lined or coated.

H. If surfaces are subject to contamination, other than mill scale or normal atmospheric rusting, the surfaces shall be checked for chloride contamination, pressure washed, and acid or caustic pH residues neutralized, in addition to the specified surface preparation.

I. Oil, grease, soil, dust, etc., deposited on the surface preparation that has been completed shall be removed prior to painting according to SSPC-SP1 Solvent Cleaning under this Specification.

J. In the event that an existing coating's max recoat window has been exceeded, all surfaces to be overcoated must be thoroughly and uniformly de-glossed and scarified before the application of additional coatings.

K. All surfaces must be clean and dry prior to the application of any coatings.

L. Protect drains from being filled with self-leveling epoxies.

3.02 SAFETY WARNING

A. Precautions should be taken when working with these materials:

1. Use materials only in adequately ventilated areas.
2. Keep away from open flames.
3. Store in dry covered areas.
4. Epoxy products may cause skin irritation in certain individuals.
5. Workers should always wear protective clothing, gloves and eyewear when working with these products.

3.03 SURFACE INSPECTION

A. Contractor shall inspect surfaces with Engineer and Coating Manufacturer's Representative for acceptability of levelness, moisture content, pitch to drains and other critical factors at time of installation.

B. Report in writing to Engineer, with copy to manufacturer, of deficiencies that could impair work. Surfaces must be approved in writing by the Coating Manufacturer's Representative prior to application of coating.

C. Coating thickness shall be determined by the use of a properly calibrated "Nordson-Mikrotest" or "Positest" Coating Thickness Gauge (or equal) for ferrous metal. Please note that a "Tooke" gauge may be used on cementitious surfaces,

and that use of the "Tooke" gauge is classified as a destructive test.

3.04 CURING TIME

A. Coating shall be allowed to cure for at least 5 days at 75 degrees F, prior to placing into service.

3.05 PROJECT CONDITIONS

A. Maintain a minimum concrete surface temperature of 40 degrees F for a minimum of 24 hours before, during and after installation, until cured.

B. Concrete must be free of hydrostatic, capillary or moisture vapor pressure. Substrates in contact with ground must have a properly installed, effective vapor barrier to help prevent potential problems resulting from hydrostatic, capillary or moisture vapor pressure.

C. Concrete to receive Coating should have been designed and installed as approved by the engineer to minimize cracking, curling, slab deflections and shall contain well designed control and isolation joints as approved by the engineer.

D. Concrete containing lightweight aggregates is not a recommended substrate.

E. Provide ventilation, lighting, commercial exhaust fans or air movers, other safety equipment as required by current OSHA standards, and clean, drinkable water supply.

F. Protect adjacent surfaces from damage resulting from work of this trade. If necessary, mask and/or cover adjacent surfaces, fixtures, equipment, etc. by suitable means.

3.06 TEST FOR CONCRETE PROPERTIES

A. Concrete shall be cured for a minimum of 28 days prior to coating application.

B. The tensile strength of the concrete shall be tested using a portable adhesion gauge as outlined in ASTM D-4541. The concrete shall have a minimum tensile strength of 300 psi as verified by an elcometer test.

C. Check for excessive moisture content in concrete by using the Plastic Sheet Method described in ASTM D-4263 or the calcium chloride test method. Tests shall be performed in random areas on both horizontal and vertical surfaces. Moisture vapor transmission should be 3 lbs. or less.

3.07 PROTECTION OF SURFACES

A. Puddles of corrosive liquids must not be allowed to remain on the concrete substrate for prolonged periods. These areas should be flushed with clean water.

B. Drips from piping and valves must be eliminated whenever possible, because impinging droplets accelerate failure by erosion as well as chemical attack.

C. Areas where physical damage has occurred should be repaired before corrosive solutions can attack.

D. Periodic cleaning, (housekeeping) is required to ensure the appearance of the coating is maintained. Dust, dirt and debris can cause scratching and discoloration.

3.08 PRETREATMENTS

A. When specified, the surface shall be pretreated in accordance with the specified pretreatment prior to application of the prime coat of paint.

3.09 STORAGE

A. Materials shall be delivered to the job site in the original packages with seals unbroken and with legible unmutilated labels attached. Packages shall be available for inspection by the Owner. All coating materials shall be stored in accordance with the Manufacturer’s latest written recommendations. The Contractor is responsible for following the Manufacturer’s suggested storage temperatures and conditions. The Contractor shall be solely responsible for the protection of the materials stored by himself at the job site. Empty coating cans shall be neatly stacked in an area designated by the Owner and removed from the job site on a schedule determined by the Contractor. Owner may request a statement from Contractor and/or Manufacturer detailing all materials used on the Project.

3.10 PREPARATION OF MATERIALS

A. Mechanical mixers, capable of thoroughly mixing the pigment and vehicle together, shall mix the paint prior to use where required by manufacturer's instructions; thorough hand mixing will be allowed for small amounts up to one gallon. Pressure pots shall be equipped with mechanical mixers to keep the pigment in suspension, when required by manufacturer's instructions. Otherwise, intermittent hand mixing shall be done to assure that no separation occurs. All mixing shall be done in accordance with SSPC Vol. 1, Chapter 4, "Practical Aspects, Use and Application of Paints" and/or with manufacturer's recommendations.

B. Thinners shall be as recommended by the manufacturer and shall be added or discarded strictly in accordance with the manufacturer's instruction. Partial kits

may only be used when components are accurately measured and mixed per the Manufacturer's latest written recommendations.

3.11 APPLICATION

A. Paint shall be applied only on thoroughly dry surfaces and during periods of favorable weather, unless otherwise allowed by the paint manufacturer. Except as provided below, painting shall not be permitted when the atmospheric temperature is outside the limit of the manufacturer's latest written recommendations, or when freshly painted surfaces may be damaged by rain, fog, dust, or condensation, and/or when it can be anticipated that these conditions will prevail during the drying period.

B. No coatings shall be applied unless surface temperature is a minimum of 5°F above dew point; temperature must be maintained during curing.

C. No coating shall be applied unless the relative humidity is below 85%.

D. Suitable enclosures to permit painting during inclement weather may be used if provisions are made to control atmospheric conditions artificially inside the enclosure, within limits suitable for painting throughout the painting operations.

E. Field painting in the immediate vicinity of, or on, energized electrical and rotating equipment, and equipment and/or pipes in service shall not be performed without the approval of the Owner.

F. Extreme care shall be exercised in the painting of all operable equipment, such as valves, electric motors, etc., so that the proper functioning of the equipment will not be affected.

G. The Contractor's scaffolding shall be erected, maintained and dismantled without damage to structures, machinery, equipment or pipe. Drop cloths shall be used where required to protect buildings and equipment. All surfaces required to be clear for visual observation shall be cleaned immediately after paint application.

H. For ferrous metals, the prime coat shall be applied immediately following surface preparation and in no case later than the same working day. All paint shall be applied by brushing, paint mitt and roller, conventional spraying, or airless spraying, using equipment approved by the paint manufacturer.

I. Surfaces that will be inaccessible after assembly shall receive either the full specified paint system or three shop coats of the specified primer before assembly.

J. Unless otherwise specified, each full coat within a coating system shall be of a different or alternating color.

K. Finish colors shall be approved by the Owner and shall be factory mixed (i.e., there

shall be no tinting by the Contractor, unless authorized by the Owner).

L. All edges and weld seams in immersion service shall receive a "stripe coat" (applied by brush) of the 2nd coat prior to application of the full 2nd coat.

M. Painting shall be performed by experienced painters in accordance with the recommendations of the paint manufacturer. All paint shall be uniformly applied without sags, runs, spots, or other blemishes. Work which shows carelessness, lack of skill, or is defective in the opinion of the Owner, shall be corrected at the expense of the Contractor.

3.12 APPLICATION OF PAINT

A. By Brush and/or Rollers

1. Top quality, properly styled brushes and rollers shall be used. Rollers with a baked phenol core shall be utilized.
2. The brushing or rolling shall be done so that a smooth coat as nearly uniform in thickness as possible is obtained. Brush or roller strokes shall be made to smooth the film without leaving deep or detrimental marks.
3. Surfaces not accessible to brushes or rollers may be painted by spray, by dauber or sheepskins, and paint mitt.
4. It may require two coats to achieve the specified dry film thickness if application is by brush and roller.

B. Air, Airless or Hot Spray

1. The equipment used shall be suitable for the intended purpose, shall be capable of properly atomizing the paint to be applied and shall be equipped with suitable pressure regulators and gauges.
2. Paint shall be applied in a uniform layer, with a 50% overlap pattern. All runs and sags should be brushed out immediately or the paint shall be removed and the surface resprayed.
3. High build coatings should be applied by a cross-hatch method of spray application to ensure proper film thickness of the coating.
4. Areas inaccessible to spray shall be brushed; if also inaccessible to brush, daubs or sheepskins shall be used, as authorized by the manufacturer.
5. Thinners shall be as recommended by the manufacturer and shall be added or discarded strictly in accordance with the manufacturer's instruction.
6. Nozzles, tips, etc., shall be of sizes and designs as recommended by the

manufacturer of the paint being sprayed.

7. The first coat on concrete surfaces in immersion service should be sprayed and back rolled.

C. Tnemec Series 22 Epoxoline is to be spray applied only.

3.13 PROTECTION AND CLEANUP

A. It shall be the responsibility of the Contractor to protect at all times, in areas where painting is being done, floors, materials of other crafts, equipment, vehicles, fixtures, and finished surfaces adjacent to paint work. Cover all electric plates, surface hardware, nameplates, gauge glasses, etc., before start of painting work.

B. At the option of the Owner during the course of this project, the Contractor will contain all spent abrasives, old paint chips, paint overspray and debris by means suitable to the Owner, including, but not limited to, full shrouding of the area.

C. If shrouding is required, the Contractor must provide a complete design of the intended shroud or cover. Care must be taken not to modify or damage the structure during the use of the shroud. If damage should occur, the Contractor is held responsible for all repairs.

D. At completion of the work, remove all paint where spilled, splashed, spattered, sprayed or smeared on all surfaces, including glass, light fixtures, hardware, equipment, painted and unpainted surfaces.

E. After completion of all painting, the Contractor shall remove from job site all painting equipment, surplus materials and debris resulting from this work.

F. The Contractor is responsible for the removal and proper disposal of all hazardous materials from the job site in accordance with Local, State and Federal requirements as outlined by the Environmental Protection Agency.

3.14 TOUCH-UP and TOUCH-UP MATERIALS

A. All areas which require field touch-up after erection, such as welds, burnbacks, and mechanically damaged areas, shall be prepared per the Manufacturer’s latest written recommendations.

B. Strict adherence to manufacturer's complete touch-up recommendations shall be followed. Any questions relative to compatibility of products shall be brought to the Owner and Manufacturer's attention. Otherwise, Contractor assumes full responsibility.

C. The Contractor shall provide, at the end of the Project, at least one (1) gallon of each generic topcoat in each color as specified by the Owner for future touch-up.

Two gallons may by required for (2) component materials.

3.15 FILM THICKNESS

A. Primer: One coat of 6.0 – 8.0 mils

B. Epoxy Topcoat: Two coats of 16.0 - 20.0 mils each at a total DFT of 32.0 – 40.0 mils.

END OF SECTION

SECTION 15060

PIPING AND FITTINGS

PART 1 - GENERAL

1.01 SCOPE:

A. This section describes materials, testing, and installation of ductile-iron pipe and fittings for water and sewer mains, small diameter Poly Vinyl Chloride Pipe (PVC) with threaded, flanged and solvent cemented joints; Copper Pipe and Fittings, and High Density Polyethylene Pipe for water services. The work included in this section consists of furnishing all material, equipment, craft labor and performing all operations necessary for the supply, installation, and commissioning of all piping, fittings and accessories within the limits of work, as shown on the drawings and specified herein.

B. Where references are made to other standards or codes, unless specific date references are indicated the latest edition of said standard or code shall govern.

1.02 WORK NOT INCLUDED UNDER THIS SECTION:

Piping installation for various types of piping systems is specified other sections herein that constitute MDWASD's Design Standards and Construction Details. Installations specified in this section are supplementary to those sections and in the case of conflict the more stringent condition shall prevail. For type PSM SDR-35, 26 PVC and AWWA C900 PVC sewer pipe and fittings see Section UC-250, "Gravity Sewer Systems".

1.03 NOT USED

1.04 PIPING LAYOUT AND DESIGN CRITERIA:

A. Field verify dimensions prior to preparation of layout and shop drawings. Obtain the following information from the drawings and specifications:

1. Elevation of the pipe centerline and of the completed ground.
2. Alignment of the pipeline.
3. Field test hydraulic gradient elevation (HGL).
4. Nominal internal diameter, ID.
5. Design internal pressure class or HGL
6. Joint types.

B. Obtain shop drawing approval prior to fabrication of piping. All items not specifically mentioned in the Specifications or noted on the approved Plans, but which are reasonably necessary to for a complete, functional, and satisfactory installation shall be included.

1.05 SUBMITTALS

A. Submit shop drawings in accordance with the General Provisions.

B. Provide an affidavit of compliance with standards referenced in this specification, e.g., AWWA C151, AWWA C153, etc.

C. Submit drainage piping layout profile drawings showing location and dimensions of PVC pipe, drains and fittings.

D. Submit copy of manufacturer's quality control check of pipe material and production.

1.06 DELIVERY, STORAGE, AND HANDLING

A. During shipping, delivery and installation of pipe and accessories, handle in a manner that is in compliance with the manufacturer’s recommendations, and employ procedures that ensure delivery of an undamaged operable product

B. Exercise particular care not to damage coatings by limiting exposure or physical contact with other materials, objects, or the environment.

1.07 INSPECTION

The Engineer will inspect materials, production, and testing of pipes, fittings, and special pieces at manufacturer's plant.

1.08 QUALITY ASSURANCE

All pipe, fittings and other materials supplied under this contract shall be subject to inspection while still on the delivery truck. It is the sole responsibility of the vendor and supplier to make prior contact with the Storekeeper or the Construction Management section and provide a minimum of 48-hours prior notice of delivery. When so notified, the Department will make arrangements for inspection of the material upon arrival or within a reasonable time thereafter. Material shall not be unloaded without inspections taking place either prior to or, if necessary for examination, during the unloading procedure. The Department will not be responsible for any delays or additional costs created by noncompliance with the requirement for prior notification or the requirement for thorough inspection.

Materials shall be delivered in complete compliance with the AWWA Standards as modified herein, without damage, and shall match or exceed the quality of any samples supplied. The Department absolutely reserves the right to require samples of any material supplied and to perform whatever tests considered by the Engineer, whose decision shall be final, to be in the Department’s best interest on said samples. Where such tests are of a destructive nature, the sample, if it passes the test will be paid for (at cost as shown by invoice) by the Department. Samples failing will be immediately replaced with suitable material at the contractor’s expense.

Samples required prior to order as a condition for purchase or as a materials submittal for approval will be at the supplier's/contractor's expense but, if approved and not used for destructive tests, may be used in the work with permission from the Engineer.

Materials found to be defective, not in strict compliance with the quality standards of samples supplied or these specifications shall be immediately returned to the vendor at his expense. If defects are discovered at a later time, the vendor shall be required to remove said items and shall bare all costs for so doing together with any replacement costs. Rejection of items may subject the vendor to liquidated and/or actual damages as specified elsewhere herein.

Flaws which provide cause for rejection include;

1. Not in complete compliance with all applicable AWWA Standards as modified herein and/or these specifications;

2. Not in compliance with NSF;

3. Not in compliance with approved shop drawings;

4. Out of roundness in excess of AWWA requirements;

5. Dimensional differences in excess of AWWA requirements;

6. Chipped, cracked, scratched or otherwise damaged interior or exterior coatings or linings;

7. Lack or non-submittal of all required certifications;

8. Non-timely submission of certifications; incorrect/incomplete certifications or certifications lacking the signature, date and seal of a professional engineer when so required;

9. The above listed items together with all other flaws or defects which in the opinion of the Engineer, whose decision shall be final, adversely affect the assembly and/or function of the piping system as intended.

PART 2 - PRODUCTS

2.01 NOT USED

2.02 PIPE AND FITTINGS: POLY VINYL CHLORIDE (PVC)

A. Poly Vinyl Chloride (PVC) pipe and fittings specified herein are small diameter PVC with threaded, flanged and solvent cemented joints.

B. All poly (vinyl chloride) (PVC) pipe and fittings shall be made from high impact, rigid poly (vinyl chloride) compounds. Pipe and fittings shall be marked indicating size, type and schedule, ASTM Designation, manufacturer or trade mark, and shall bear the NSF (National Sanitation Foundation) seal of approval. Wherever the abbreviation PVC is used in these Specifications in relation to pipe and fittings, it shall mean poly (vinyl chloride) plastic pipe and fittings as specified herein.

C. PVC pipe shall be Schedule 40 unless another pipe is called for on the Plans or by the Engineer, Type I, Grade I, or Class 12454B with socket ends, and shall comply with ASTM Standard D1785, "Poly (Vinyl Chloride) (PVC) Plastic Pipe, Schedules 40, 80 and 120.Products intended for contact with potable water shall be evaluated, tested, and certified for conformance with ANSI/NSF Standard No. 61 or the health effects portion of NSF Standard No. 14 by an acceptable certifying organization when required by the regulatory authority having jurisdiction.

D. Schedule 40 Socket-type fittings shall comply with ASTM Standard D2467, "Socket-Type Poly (Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 40 and D2464 "Specification for Threaded Poly Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 40, for threaded fittings.

E. Joining cement for PVC pipe and fittings shall comply with ASTM Standard D2564, "Solvent Cements for Poly (Vinyl Chloride) (PVC) Plastic Pipe and Fittings". Cemented joints shall be made in accordance with ASTM Standard D-2855, "Recommended Practice for Making Solvent-Cemented Joints with Poly (Vinyl Chloride) (PVC) Pipe and Fittings".

F. Flanges: One piece molded hub type flat face flanges, 125 pound standard as specified under fittings hereinbefore.

G. Gaskets: Full faced, 1/8-inch thick, Neoprene/EPDM (for sewer) or SBR (for water).

H. AISI Type 316 stainless steel, ASTM A193, Grade B8M hex bolts and ASTM A 194 Grade E8 hex head nuts. Bolts shall be fabricated in accordance with ANSI B 1812 and provided with washers of the same materials as the bolts.

2.03 NOT USED

2.04 NOT USED

2.05 NOT USED

2.06 WALL SLEEVES, PIPES AND CASTINGS

A. Wall Sleeves: NOT USED.

B. Interior: PVC pipe patched with non-shrink grout shall be installed for piping passing through the interior wall and the ceiling slab connection to the sump drain, as noted on the Drawings.

C. Wall Sleeve Seals: NOT USED.

D. Exterior: Connection piping passing through the exterior north wall shall be provided with a flexible coupling patched with non-shrink grout.

2.07 HANGING FRAMING SYSTEM. STRUTS, STRAPS AND HANGERS.

A. Struts: Channel struts attached to the ceiling shall be of glass-reinforced vinyl ester, sized based on the pipe and weight to be hold, with a minimum 3:1 safety factor. The struts shall be heavy duty channel, as manufactured by Aickinstrut or approved equal. Stainless steel 316 (UNS S31600, ASTM A276) expansion anchors shall be used to attach the struts to the concrete ceiling or walls.

B. Straps and Clamps: Pipe clamps or straps shall be of glass-reinforced polyurethane, sized based on the pipe and weight to be hold, with a minimum 3:1 safety factor. The pipe straps or clamps shall be heavy duty type as manufactured by Aickinstrut or approved equal.

C. Hangers: Stainless Steel 316 (UNS S31600, ASTM A276) threaded rod shall be used for the hangers when necessary.

PART 3 - EXECUTION

3.01 General:

A. Furnish and maintain all barricades and flashing warning lights necessary to warn of the construction throughout the Project.

B. Pipe and fittings shall at all times be handled with great care to avoid damage. Exercise particular care not to injure pipe coatings. In loading and unloading, they shall be lifted with cranes or hoists or slid or rolled on skidways in such manner as to avoid shock. Under no circumstances shall this material be dropped or allowed to roll or slide against obstructions.

C. All work shall be performed by skilled workmen experienced in pipeline construction.

D. All pipe and fittings shall be adequately supported by clamps, brackets, straps, concrete supports, rollers or other devices as shown and/or specified. Supports or hangers shall be spaced so that maximum deflection between supports or hangers shall not exceed 0.050 inch for pipe filled with liquid, but shall not be further than 6 feet apart, whichever is closer, unless otherwise shown. All pipe supports shall be secured to structures by approved inserts or expansion shields and bolts.

E. All pipe shall be thoroughly cleaned internally before being installed. All pipes, except oxygen service, air and gas, shall be flushed with water and swabbed to assure removal of all foreign

matter before installation. Air and gas piping shall be tapped with a hammer to loosen scale or other foreign matter that might be within the pipe, and then thoroughly blown with a high pressure air hose. Furnish and maintain suitable air compressor.

F. Whenever possible, the pipe shall be installed with minimum 48-inches of cover. Deviations shall not be installed without written approval by the Owner.

G. Joints may only be opened to adjust alignment by half of the AWWA or manufacturer's recommended opening (which is smaller).

H. Wall Casings: Wall casings shall be provided at the locations called for on the Drawings and specified herein. These units shall be of PVC as detailed on the Drawings and specified herein.

I. Tie Rods: Unless otherwise indicated on the Drawings, the size and number of tie rods for a joint or installation shall be as recommended by the manufacturer's design chart for a working pressure of 150 psi. Tie rods shall be installed as recommended by the manufacturer.

3.02 NOT USED

3.03 INSTALLATION OF PIPE, FITTINGS AND VALVES

A. General:

1. The design Drawings are in some cases diagrammatic. They may not show every bend, off-set, elbow or other fitting which may be required in the piping for installation in the space allotted. Install gravity lines at uniform grade to low point after field verification of low point invert.

2. The centerline of the pipe shall not vary by more than 2 inches from the location shown on the Plans and the top of the pipe shall not vary by more than 2 inches from the established grade, except at points where this tolerance must be changed to clear obstructions, or make connections.

3. Limit onsite pipe storage to a maximum of one week. Use unloading and installation procedures that avoid cracking of the lining. If necessary, use plastic sheet bulkheads to close pipe ends and keep cement-mortar lining moist. Deliver the pipe alongside the pipe laying access road over which the pipe trailer-tractors can travel under their own power. Place the pipe in the order in which it is to be installed and secure it from rolling. Sandbags may be used to support the pipe in the ditch but no pipe shall be laid on blocks, except by the written permission of the Engineer of Record. Do not move pipe by inserting any devices or pieces of equipment into the pipe barrel. Field repair linings damaged by unloading or installation procedures. Flanged joints, mechanical joints and push-on joints in cast iron pipe and fittings may be made under water.

B. NOT USED

C. Installation of PVC Pipe:

1. In the installation of glue joint PVC pipe, the pipe shall first be cut square and smooth. Wipe all surfaces to be connected with a cloth moistened with an appropriate solvent and remove any foreign matter from socket of fitting. Using an ordinary paint brush of width about equal to the nominal pipe size, apply a generous coat of cement to inside and shoulder of socket, flowing on but not brushing out. A similar coat shall then be applied to the end of the pipe for at least the same distance on the pipe as the depth of socket, and to the cut end. Pipe and fittings shall then be pressed firmly together and the pipe turned a quarter to a half turn to evenly distribute the cement. The cementing and joining operation must not exceed one minute. Allow 24 hours set-up time before applying pressure. Sand shall be used as backfill material around pipe installed underground.

2. Thread Sealant: Teflon tape.

3. All rigid PVC pipe shall be cut, made up, and installed in accordance with the pipe manufacturer's recommendations. Plastic pipe shall be laid by snaking the pipe from one side of the trench to the other. Offset shall be as recommended by the manufacturer for the maximum temperature variation between time of solvent welding and during operation.

4. Schedule 40 pipe shall not be threaded. Use Schedule 40 threaded nipple where necessary to connect to threaded valve or fitting.

5. Only strap wrenches shall be used for tightening threaded plastic joints, and care shall be taken not to over tighten these fittings.

6. Provide adequate ventilation when working with pipe joint solvent cement.

7. Testing: All lines shall be hydrostatically tested at the pressures specified elsewhere herein or at the design pressures.

8. Supports and Hangers: See Section 2.07.

D. NOT USED

E. NOT USED

F. NOT USED

G. NOT USED

H. Cleaning and Testing: All of the piping installed under this project shall be tested as follows and as directed by the Engineer.

1. Unless otherwise specified elsewhere herein, all PVC pressure system bushings and galvanized steel piping shall be tested at 100 psig. No leakage will be permitted.

I. Installation of Aboveground and Exposed Piping

1. Aboveground and exposed pipe fittings, valves and accessories shall be installed as shown or indicated on the Drawings.

2. Piping shall be cut accurately to measurements established at the job site and shall be worked into place without springing or forcing, properly clearing all equipment access areas and openings. Changes in sizes shall be made with appropriate reducing fittings rather than bushings. Pipe connections shall be made in accordance with the details shown and manufacturer's recommendations. Open ends of pipe lines shall be properly capped or plugged during installation to keep dirt and other foreign material out of the system. Pipe supports and hangers shall be provided where indicated and as required to insure adequate support of the piping.

3. Flanged joints shall be made up by installing the gasket between the flanges. The threads of the bolts and the faces of the gaskets shall be coated with a suitable lubricant immediately before installation.

3.04 FIELD QUALITY CONTROL

A. All water mains shall be flushed to remove all sand, debris, rock and other foreign matter. Dispose of the flushing water without causing a nuisance or property damage.

B. Pressure and Leakage Testing: Hydrostatically test all pressure pipe. Do not test against closed valves. All pumps, piping and gauges shall be furnished, installed and operated by the Contractor and all such equipment and devices and their installation shall be approved by the Engineer. Pump shall be of a non-pulsating type suitable for this application and gauge accuracy certification may be required at the Engineer of Record's discretion. All pressure and leakage testing shall be done in the presence of a representative of the Department as a condition precedent to the approval and acceptance of the system.

C Disinfection:

Not needed

D. Tests for Drain and Gravity Sewer Lines:

1. Drain and gravity sewer lines shall be tested for infiltration and exfiltration.

2. The allowable limits of infiltration or exfiltration or leakage for the drain or sewer lines, or any portion thereof shall not exceed a rate of 100 gallons per inch of internal pipe diameter per mile of pipe per 24 hours with no allowance for laterals or manholes. Duration of test shall be a minimum of two hours.

3. Any part or all of the system may be tested for infiltration or exfiltration, as directed by the Engineer. Prior to testing for infiltration, the system shall be pumped out so that normal infiltration conditions exist at the time of testing. The amounts of infiltration or exfiltration shall be determined by pumping into or out of calibrated drums, or by other approved methods.

4. The exfiltration test will be conducted by filling the portion of the system being tested with water to a level which will provide a minimum head of 2-feet in a lateral connected to the test portion, or, in the event there are no laterals in the test portion, a minimum difference in elevation of 5-feet between the crown of the highest portion of the drain or sewer and the test level.

5. Where infiltration or exfiltration exceeds the allowable limits specified herein, the defective pipe, joints, or other faulty construction shall be located and repaired by the Contractor.

6. Furnish all labor, equipment and materials and shall conduct all testing required, under the direction of the Engineer of Record. No separate payment will be made for this work and the cost for this work shall be included in the prices quoted in the Proposal.

7. Locate and repair all leaks until the leakage is reduced to the limits specified. Any observed leaks or obviously defective joints or pipes shall be repaired or replaced as directed by the Engineer of Record, even though the total leakage is below that specified above.

END OF SECTION

APPENDIX "A"

ENVIRONMENTAL RESOURCE MANAGEMENT
DADE COUNTY - NOTICE TO ALL CONTRACTORS

(1 Page)

Miami Dade County, Florida
Regulatory and Economic Resources
701 NW 1st Court, Suite 600
Miami, Florida 33136
(305) 372-6681

NOTICE TO ALL CONTRACTORS INVOLVED IN ANY CONSTRUCTION ACTIVITY WHICH REQUIRED DEWATERING WITH ULTIMATE DISCHARGE INTO A CANAL, LAKE, DITCH, OR STORM SEWER WHICH DISCHARGES INTO AN OPEN BODY OF WATER OR BISCAYNE BAY.

Please be aware that if you are involved in any construction activity as above described, you are required to provide all necessary measures in order to maintain turbidity in the receiving body of water within acceptable limits as established by the Florida Building Code. You must present a separate plan to be included with your building plans indicating your propose measures or apply for a permit from the Regulatory and Economic Resources Department before your construction plans will receive final approval, as required by Miami Dade County Code of Ordinance Chapter 24 Section 48.1 (1)(e). For additional information, please contact Ms. Maria Molina, P.E., Chief Water Control Section of the RER Division of Environmental Resources Management.

APPENDIX "B"

STANDARD DETAILS

(NOT USED)

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APPENDIX "C"

WASD ID CARD SECURITY PROCEDURES
NON-WASD EMPLOYEES

(29 Pages)

MIAMI-DADE WATER AND SEWER DEPARTMENT

3071 SW 38 Av, Miami, Fl 33146

WASD ID CARD SECURITY PROCEDURES NON-WASD EMPLOYEES 070109

ENCLOSED:

1. WASD Security Phone Numbers
2. Security Home Page
3. Memorandum Director for Non WASD Employees
4. Required Documents to Obtain WASD ID Card
5. Request for Release/Company History Form
6. Company Signature Authorization Letter
7. Employee Request for WASD ID Card
8. Non-WASD ID Card Application
9. FEES for WASD ID Card
10. Cover Sheet – Miami-Dade Ordinance 02-68 Chap 32
11. Article IX Security at Miami-Dade Water and Sewer Department

MIAMI-DADE WATER AND SEWER DEPARTMENT

3071 SW 38 Av, Miami, Fl 33146

WASD Security Phone Numbers

Security Chief:	**Aubrey Johnson**	**786-552-8458**
Security Section Secretary:	**Mercy Merejildo**	**786-552-8711**
Security Admin Officer	**Lilian Caban**	**786-552-8585**
ID Room Coordinator	**Jack Speers**	**786-552-8271**

Security
Home Page
ID Badge
Advisory Notices
Forms

Welcome To The Security Home Page!

The ID Office is located at 3071 SW 38th Ave., Suite 152, Miami, FL 33146 (Douglas Road Administration building). The phone number is 786-552-8271, Fax is 786-552-8778.

Hours of Operations are by appointment:

- 9:00 AM - 12:00 PM and 1:00 PM - 4:00 PM on Monday, Tuesday, Thursday, Friday.
- Wednesday 9 AM - 12:00 PM and 1:00 PM - 4:00 PM Walk in day.

Pursuant to Ordinance No. 02-68 (Article IX, Chapter 32 of the Miami-Dade County Code) all persons entering a Miami-Dade Water and Sewer facility are subject to established security restrictions.

Water and Sewer Department Employees

1. All persons permanently employed with the Miami-Dade Water and Sewer Department (WASD) are required to obtain a WASD issued picture ID badge.
2. As per County Ordinance No. 02-68 (Article IX, Chapter 32 of the Miami-Dade County Code) any applicant for a WASD ID badge who, within the last five (5) years has had a felony conviction or against whom a finding of guilty has been entered on a felony charge will not be issued an ID badge for a restricted area except in those cases governed by Article IX, Chapter 32, Section 32-174.4 (g) of the Miami-Dade County Code.
3. An annual fingerprint-based criminal history check will be conducted upon renewal of the ID badge for those employees with access to designated restricted areas.
4. ID badges must be displayed at all times when accessing or working within WASD designated facilities. ID Badges must be worn conspicuously on the outer garment of the bearer, in plain view above the waist at all times.
5. All lost or stolen ID cards must be reported immediately WASD Security. Police report must be sumitted within 10 business days.
6. Badges must be returned to WASD Security upon termination of employment.

Non WASD Employees

1. Access to all Miami-Dade Water and Sewer Department sites is controlled access. All Non WASD employees required to enter a WASD facility more than 5 days in a 90 day period will be required to obtain a WASD issued ID badge.
2. All Non WASD personnel are subjected to a Criminal History Back Ground Check.
3. After award and prior to commencement of work, the Contractor , Vendor, Consultant etc. shall meet with the Plant Superintendent and MDWASD Security Management to submit required information and review security parameters related to the project.
4. All Contractors, Vendor, Consultants etc. awarded MDWASD contracts must comply with Miami-Dade County Ordinance 02-68 dated 4-23-02, Article IX, of Chapter 32 of the Miami-Dade County Code of Ordinances. The applicability of Article IX of Chapter 32 provisions follows:

   Any permission granted to a person, corporation, partnership, or other legal entity by the Board, County Manager or Director, directly or indirectly, expressly or by implication, to enter upon a WASD facility or restricted area, is conditioned upon compliance with this Article and operational directives and the payment of any and all fees and charges established and payable to the County; such fees and charges shall include any and all fees or charges established or approved by the Board or the County Manager and entry on WASD property by any person shall be deemed to constitute an agreement by such person to comply with such rules and regulations and to pay any such fees and charges.

   It shall be unlawful for any person to do or commit any act forbidden by or to fail to perform any act required by these rules and regulations or to fail to pay any fees established and payable pursuant to this Article.

   The Department, through its Directors, may from time to time cause to be issued operational directives applicable to WASD property. If any such operational directive contains a requirement

that fees and charges shall be paid for any operation or use of a WASD facility or property as defined in the operational directive, such fees and charges shall be established in accordance with the provisions of this Article.

Visitors

1. All visitors to Miami-Dade Water and Sewer facilities must be invited guests of the Miami-Dade Water and Sewer Department.
2. All persons to whom a Miami-Dade Water and Sewer ID badge has not been issued will be issued a visitor's badge.
3. All visitor badges are valid for the day of issuance only. Visitor badges are intended to be recovered and must be returned by the visitor upon existing.
4. Visitors shall only be authorized access to those areas specific to their business. Unauthorized roaming through other areas of a plant or facility is prohibited.
5. All visitors to a WASD designated restricted access area must be issued an appropriate badge and escorted by an individual with access to that specific restricted access area. They must remain accompanied by the escort at all times. There will be no exceptions to this requirement.
6. ID Badges must be worn conspicuously on the outer garment of the bearer, in plain view above the waist at all times. The contracted security guard force staff will enforce this requirement.
7. All visitors required to enter a restricted access area more than five days in any given 90 day period will be required to obtain WASD-issued ID badge.
8. Visitor vehicles must park in designated areas.
9. Special rules apply to Day Laborers.

Contractors/Day Laborers

1. Temporary labor badges are issued at the facility checkpoint.
2. Temporary badges are issued for single day and for specific areas of access only.
3. ID Badges must be worn conspicuously on the outer garment of the bearer, in plain view above the waist at all times. The contracted security guard force staff will enforce this requirement.
4. Day Laborers must park in designated parking areas.

Vehicles

1. Vehicles will enter only through the facility security checkpoints.
2. Vehicles will be parked in designated areas within the facility.

Memorandum

MIAMI-DADE COUNTY

Date: June 1, 2009

To: Vendors, Contractors, Consultants and non Water and Sewer Department employees

From: John W. Renfrow, P.E., Director, Water and Sewer Department

Subject: Water and Sewer Department Identification Card Application and Renewal Process

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Effective Monday, June 01, 2009, all vendors, contractors, consultants and non Water and Sewer Department (WASD) employees will be required to renew their identification cards annually. This requirement is mandated by the Code of Miami-Dade County, Chapter 32. In keeping with the Code, the identification cards will expire annually specifically, on the last day of the birth month of the identification cardholder or the end of the WASD contract date, whichever comes first. Current cardholders with birthdays in August and which have 2009 or 2010 expirations date on the card are now required to renew their identification cards in June 2009. If your card is set to expire in August 2009-2010, you must begin the renewal process in June 2009. All WASD identification cards must be renewed 90 days before the expiration date.

In order to get a new or renew your WASD identification card, please go to Miami-Dade County's website, www.miamidade.gov/wasd, and link to the Security page. You will find all the necessary forms and policy as it relates to WASD identification cards. Below is the list of forms and/or documents that are required for the issuance of a WASD identification card.

- Authorization Letter (on your company letterhead). A sample letter with the suggested language is on the website. Please submit your authorization letter to: Miami-Dade County Water and Sewer Department, ID Room Coordinator, 3071 SW 38th Avenue, Suite 152, Miami, FL 33146. The original letter must be on file in the identification office in order to issue cards to employees.

- Request for Release of Plans/Company Background History Check. Complete and submit for each employee requesting a WASD identification card.

- WASD Safety Briefing. Some WASD facilities require a WASD Safety Briefing prior to the issuance of a WASD identification card. To determine if your employee requires a WASD Safety Briefing, please contact one of the WASD Safety Specialist at 786-552-8582, regarding compliance with this section.

- Non-WASD Employee Identification Card Application. Complete an identification card application for each employee.

Please note that applications with missing, incomplete or incorrect information will be returned and not processed until all errors are corrected.

When an identification card applicant arrives at the WASD identification room, they will be required to sign and date the application in the presence of WASD staff. Applicants must provide a valid U.S. driver's license, social security card or other approved government issued identification at the time the application is signed and witnessed by WASD staff. Miami-Dade County Ordinance 02-68 specifically states that WASD staff must make copies of all original documents. Copies are not acceptable. Applicants are required to pay all applicable fees associated with the issuance of the WASD identification card.

Thank you for your cooperation in this matter. Should you have any additional questions, please contact the Water and Sewer Security Unit at 786-552-8271.

MIAMI-DADE COUNTY

Miami-Dade Water and Sewer Department
3071 SW 38 Av, Miami, Fl 33146

REQUIRED DOCUMENTS TO OBTAIN A MIAMI-DADE WATER AND SEWER DEPARTMENT (WASD) IDENTIFICATION BADGE

In order to facilitate the identification badge issuance process, please ensure that you have the necessary documents required to obtain an identification badge.

New / Renewal Applicants:

All new applicants requesting a Water and Sewer Department identification badge must present the following documents listed below:

1. **NON-Miami-Dade Water and Sewer Department employees.**

   - Request for Release of Plans / Company Background History Check
   - Company Officer authorized signature letter for ID badge request.
   - Request for Miami-Dade Water and Sewer Department identification badge. (one for each applicant ID request)
   - **Non-WASD Employee Application** completed (with every ID badge issued) (with original signatures).
   - Applicable Non WASD application payments included.
   - **Social Security Card or letter from Social Security Administration (no copies)**
   - Proof of Legal Status and Employment Eligibility in the United States
   - **State Drivers License (valid) or other acceptable documents listed below in # 3. (must be original documents)**
   - **All WASD FEES must be paid for at time of application.**

2. **Miami-Dade Water and Sewer Department employees.**

   - WASD **Employee Application** completed (with every ID badge issued) (with original signatures).
   - WASD ID badge Request FORM: Request for Restricted/Limited Restricted Access/Lost/Stolen etc. (if applicable) (with applicable sections filled in) signed by employees WASD Division Chief properly filled out.
   - WASD ID badge Request Form for Student Inter (if applicable) (with applicable sections filled in) signed by employees WASD Division Chief or designated party.
   - **NO** application cost to WASD employees. (if applicable)
   - **Social Security Card or letter from Social Security Administration (no copies)**
   - Proof of Legal Status and Employment Eligibility in the United States
   - **State Drivers License (valid) or other acceptable documents listed below in #3. (must be original documents)**

- **All WASD FEES must be paid at time of application (if applicable)**

Note: ALL AREAS OF THE WASD APPICATION AND SUPPORTING DOCUMENTS BE COMPLETED, TYPED OR PRINTED IN INK (Blue/Black). THE MIAMI-DADE WATER AND SEWER DEPARTMENT WILL NOT ACCEPT ANY FORM IF IT IS ALTERED (No correction fluid), TORN, FOLDED, BENT OR OTHERWISE DEFACED. THE APPLICATION AND SUPPORTING DOCUMENTS FILLED OUT FOR THE IDENTIFICATION BADGE MUST BE ORIGINAL AND PROCESSED WITHIN 30 DAYS OF THE DATE THEY SIGNED BY THE APPLICANT AND AUTHORIZED COMPANY REPRESENTATIVE (S)

3. A list of acceptable documents follows: (No copies)

- U.S. Passport (unexpired or expired)
- Certificate of U.S. Citizenship (USCIS Form N-560 or N-561)
- Certificate of Naturalization (USCIS Form N-550 or N-570)
- Permanent Resident Card or Alien Registration Receipt Card with photograph (USCIS Form I-151 or I-551)
- Unexpired Temporary Resident Card (USCIS Form I-688)
- Unexpired Employment Authorization Card (USCIS Form I-688A)
- Unexpired Reentry Permit (USCIS Form I-327)
- Unexpired Refugee Travel Document (USIS Form I-571)
- Unexpired Employment Authorization Document Issued by USCIS that contains a photograph (USCIS Form-I688B)
- Original or certified copy of Birth Abroad issued by the Department of State (Form FS-545 or Form DS-1350)
- Unexpired foreign passport with I-551 stamp or attached Form I-94 indicating unexpired employment authorization
- Original or certified copy of a birth certificate issued by a state, county, municipal authority or outlying possession of the United States bearing an official seal
- Native American tribal document
- U.S. Citizen ID Card (USCIS Form I-197)
- ID Card for use of Resident Citizen in the United States.

Identification Badge Renewal:

4. Non-Miami-Dade Water and Sewer Department employees.

- Same procedures outlined in # 1 above after submitting required documentation.
- **$55.00** cash, cashier's check, money order or company check, credit card (exact amount only) for renewal.

5. Miami-Dade Water and Sewer Department employees.

- Same procedures outlined in # 2 above after submitting required documentation at **NO COST**.

Lost / WASD Identification Badge:

6. Non-Miami-Dade Water and Sewer Department employees.

- Same procedures outline in # 1 above after submitting required information.
- $15.00 cash, cashier's check, money order or company check, credit card (exact amount only) for replacement cost of Identification badge.

7. Miami-Dade Water and Sewer Department employees.

- Same procedures outline in # 2 above after submitting required information.
- **$15.00** cash, cashier's check, money order or company check, credit card (exact amount only) for replacement cost of Identification badge.

Stolen / WASD Identification
NON Miami-Dade Water and Sewer employees.
Miami-Dade Water and Sewer employees.

- **Replacement FEE waived with Police Report for stolen WASD ID badge.** (The Identification Section will re-issue the identification badge with a case number pending a copy of the police report.) (Not required for Lost ID badge) Within two weeks (10 business days). To avoid a replacement charge, the employee must provide a copy of the police report to the Identification section. Failure to do so may result in the deactivation of the identification badge until the Police Report is furnished by the employee or the replacement FEE is paid. Once the replacement FEE is paid there are NO refunds.

Note: A lost or stolen identification badge **MUST BE** immediately reported to the Identification Section. This will prevent someone else from gaining access to WASD facilities using your identification badge.

MIAMI-DADE COUNTY

Request for Release of Plans / Company Background History

To ensure the timely release of information with public records exemption, including plans for county facilities, please complete the following form and submit, along with the written request of the interested party, to Miami-Dade County Police Detective Gisel C Arias by fax at 305-470-3895 or e-mail at IOC@MDPD.COM

Project:
Contract Number:
Dates of Contract: **From:** (mm/dd/yyyy) **To:** (mm/dd/yyyy)
Project Manager: **Phone:** **Fax:**

Property & Location:

Requestor:
(Company name as filed, address. Include telephone number & fax)
E:mail address:

Name(s) & Date(s) of Birth of all Corporate Agent(s), Officer(s) & Director(s)

Justification
(types of plans & use by request)

Department: WASD

Dept. Contact Person:
WASD Security Department
(include telephone number & fax)
Aubrey Johnson 786.552.8458 Fax 786-552.8778
Jack Speers 786.552.8271 Fax 786.552.8778
E:mail: wasdid@miamidade.gov

The requesting department concurs with this request and hereby seeks authorization to issue the requested documents.

Department Director (name & signature) Date

Reviewed/No Concerns:

Michael Ronczkowski, Major Date
Miami-Dade Police Department 050109

USING YOUR OWN COMPANY'S LETTERHEAD PLEASE FOLLOW THE FORMAT BELOW

AUTHORIZATION LETTER - SUGGESTED LANGUAGE

Date
ID Room Coordinator
Miami-Dade Water and Sewer Department
3071 SW 38th Ave. Suite 152
Miami, Florida 33146

Dear Sir/Madam:

The names signed below are authorized signatures for Miami-Dade Water and Sewer Department (WASD) identification card requests. No other signatures are to be honored. The authorized company representatives listed below will notify you immediately of any changes. The authorized company representatives acknowledge that in signing a WASD identification card request, the authorized party is certifying that the applicant is employed by _____ and that the applicant is being submitted for a WASD identification card in accordance with Ordinance 02-68, and Article IX, Chapter 32 of the Code of Miami-Dade County. Additionally, we certify that we are knowledgeable of the requirements as set forth in the above Ordinance related to Criminal History Records Checks rules and agree to comply with all provisions of these rules prior to requesting an identification card for our employees. We also agree that this applicant will use the WASD identification card only to conduct official business for this company. Finally, _____authorized representatives agree to return all WASD identification cards immediately upon expiration or termination of the employee or contract. The authorized company representatives understand that failure to comply with the above may result in the suspension of WASD identification card privileges to our company.

Sincerely,

Signature of Company Representative

Print Name & Title

Note: A maximum of two Authorized Signatures are allowed and must be properly listed below. Any additional signatures will cause this document to be invalid

1. Name: _____ 2. Name_____

Signature _____ Signature_____
Title _____ Title _____

COMPANY LETTERHEAD

Date
ID Room Coordinator
Miami-Dade Water and Sewer Department
3071 SW 38th Ave. Suite 152
Miami, Florida 33146

Re: Request for a Miami-Dade Water and Sewer Department (WASD) Identification Card

Dear Sir/Madam:

Company name here
_____acknowledges that in signing this letter for the request for a WASD ID Card, the authorized party is employed by this company. Additionally, it is agreed that this applicant will use his/her WASD ID Card only to conduct business for this company. Finally, it is agreed that Name of Employee will return the WASD ID Card immediately, upon expiration of the card or termination of employment or the contract. It is understood that failure to comply with the above may result in the suspension of WASD ID Card privileges to our company.

1. Employee Information:

Last Name	First Name	Full Middle Name
Date of Birth	Driver's License # Exp. Date	State of Issuance
WASD Contract #	Start Date: (mm/dd/yyyy)	End Date: (mm/dd/yyyy)

2. Reason to request a WASD ID Card:

☐ New ☐ Renewal ☐ Change Company

☐ Damage/mutilated ☐ Name Change ☐ WASD Safety Class Required
Date Completed: _____

☐ Lost/Stolen Police Report # _____ **WASD Safety Officer:** _____

3. Type of WASD ID Card Requested: ☐ **RFID** Access Card

☐ Non-restricted access ☐ Restricted Access ☐ Specify Reason For Restricted Access

Sincerely,

_____
Authorized Signature of Company Representative

_____
Printed Authorized Company Representative Name

_____
Title Phone Number

SS# Last 4_____

Miami-Dade Water & Sewer Department
NON-Employee ID Card Application

MIAMI-DADE COUNTY

SECTION I- APPLICANT INFORMATION

APPLICATION DATE:			
LAST NAME:	FIRST NAME:		
MIDDLE NAME:	ALIAS OR NICKNAME: ☐ NONE		
HOME PHONE #:	WORK PHONE #:	CELL PHONE #:	
DATE OF BIRTH:	PLACE OF BIRTH: City/State (IF NOT U.S. BORN, PROVIDE PROOF OF WORK ELIGIBILITY)		
HEIGHT:	WEIGHT:	RACE: WHITE-BLACK-OTHER (WRITE IN)	
HAIR COLOR:	EYE COLOR:	GENDER: FEMALE ☐ MALE ☐	
SOCIAL SECURITY:	CITIZEN OF WHAT COUNTRY:		
DRIVER'S LICENSE #:	STATE	ISSUED DATE	EXPIRE DATE
E-MAIL ADDRESS: ☐ NONE			

NOTE: ALL AREAS MUST BE COMPLETED, TYPED OR PRINTED IN INK (BLUE/BLACK). THE MIAMI-DADE WATER & SEWER DEPARTMENT WILL NOT ACCEPT THIS FORM IF IT IS ALTERED (NO CORRECTION FLUID), TORN, FOLDED, BENT OR OTHER WISE DEFACED. THE APPLICATION MUST BE PROCESSED WITHIN 30 DAYS OF THE DATE IT IS SIGNED BY THE AUTHORIZED COMPANY REPRESENTIVE (S).

EMAIL: wasdid@miamidade.gov **Phone: 786-552-8271 Fax: 786-552-8778**

FOR OFFICIAL USE ONLY 050109

ACCEPTED ORIGINAL DOCUMENTS:

- ☐ **U.S. PASSPORT/U.S.BIRTH CERTIFICATE NATURALIZATION CERTIFICATE**
- ☐ **VALID U.S. STATE DRIVER'S LICENSE**
- ☐ **VALID U.S. STATE ID CARD**
- ☐ **WORK AUTHORIZATION EXP. DATE**
- ☐ **OTHER**
- ☐ **SOCIAL SECURITY CARD**
- ☐ **ALIEN REG.#** _____

PAYMENTS:

- ☐ **$60.00 NEW ID / EXPIRED ID**
- ☐ **$55.00 RENEWAL**
- ☐ **$25.00 CHANGE OF COMPANY**
- ☐ **$15.00 LOST/STOLEN**
- ☐ **REQUIRES POLICE REPORT WITHIN 10 DAYS**
- ☐ **DAMAGE/REPLACEMENT (NO CHARGE)**
- ☐ **RECEIPT#** _____
- ☐ **CASH** ☐ **PRE-PAID** ☐ **COMPANY CHECK**
- ☐ **MONEY ORDER**

HAVE YOU LIVED AT YOUR CURRENT ADDRESS FOR MORE THAN 5 YEARS?

☐ **YES** ☐ **NO**

PLEASE PROVIDE RESIDENTIAL HISTORY FOR THE PAST FIVE (5) YEARS, STARTING WITH CURRENT ADDRESS BELOW:

☐ **FINGERPRINT TAKEN PICTURE TAKEN** ☐

☐ **ACCEPTED ID CARD APPLICATION**

☐ **REJECTED ID CARD APPLICATION**

PROCESSED BY:_____

Date:_____

APPLICANT RESIDENTIAL HISTORY (MM/DD/YYYY)

FROM DATE:	**END DATE:**	
HOME ADDRESS:		
CITY:	**STATE:**	**ZIP CODE:**
FROM DATE:	**END DATE:**	
HOME ADDRESS:		
CITY:	**STATE:**	**ZIP CODE:**
FROM DATE:	**END DATE:**	
HOME ADDRESS:		
CITY:	**STATE:**	**ZIP CODE:**

SS# Last 4_____

Miami-Dade Water & Sewer Department
NON-Employee ID Card Application

MIAMI-DADE COUNTY

SECTION II- APPLICANT CURRENT EMPLOYMENT INFORMATION

EMPLOYER NAME:	**FOR OFFICIAL USE ONLY**
EMPLOYER ADDRESS:	**CARD TYPE:** ☐ YELLOW ☐ YELLOW/RED – RESTRICTED ☐ RESTRICTED ACCESS AREA: (ALL FACILITIES) ☐ RFID ☐ I ☐ II ☐ III POST:
CITY: / STATE: / ZIP CODE:	
EMPLOYER'S PHONE #: / EMPLOYER FAX #:	
APPLICANT'S POSITION: / APPLICANT'S SUPERVISOR:	
WASD CONTRACT #: / COMPANY EMAIL ADDRESS:	
CONTRACT START DATE : (MM/DD/YYYY) / CONTRACT END DATE: (MM/DD/YYYY)	

WASD PROJECT MANAGER APPROVING CARD TYPE:
NAME: SIGNATURE: DATE:

LIST YOUR EMPLOYMENT HISTORY FOR THE PAST 5-YEARS STARTING WITH THE FIRST PRIOR EMPLOYMENT

START DATE (MM/DD/YYYY):	**END DATE (MM/DD/YYYY):**	**TITLE OF POSITION:**		
COMPANY NAME;	**COMPANY ADDRESS:**	**CITY:**	**STATE:**	**ZIP CODE:**
COMPANY PHONE NUMBER:	**SUPERVISOR NAME:**	**SUPERVISOR TITLE:**		
START DATE (MM/DD/YYYY):	**END DATE (MM/DD/YYYY):**	**TITLE OF POSITION:**		
COMPANY NAME:	**COMPANY ADDRESS:**	**CITY:**	**STATE:**	**ZIP CODE:**
COMPANY PHONE NUMBER:	**SUPERVISOR NAME:**	**SUPERVISOR TITLE:**		
START DATE (MM/DD/YYYY):	**END DATE (MM/DD/YYYY):**	**TITLE OF POSITION:**		
COMPANY NAME:	**COMPANY ADDRESS:**	**CITY:**	**STATE:**	**ZIP CODE:**
COMPANY PHONE NUMBER:	**SUPERVISOR NAME:**	**SUPERVISOR TITLE:**		
START DATE (MM/DD/YYYY):	**END DATE (MM/DD/YYYY):**	**TITLE OF POSITION:**		
COMPANY NAME:	**COMPANY ADDRESS:**	**CITY:**	**STATE:**	**ZIP CODE:**
COMPANY PHONE NUMBER:	**SUPERVISOR NAME:**	**SUPERVISOR TITLE:**		
START DATE (MM/DD/YYYY):	**END DATE (MM/DD/YYYY):**	**TITLE OF POSITION:**		
COMPANY NAME:	**COMPANY ADDRESS:**	**CITY:**	**STATE:**	**ZIP CODE:**
COMPANYPHONE NUMBER:	**SUPERVISOR NAME:**	**SUPERVISOR TITLE:**		

SS# Last 4___________

SECTION III - APPLICANT CRIMINAL BACKGROUND HISTORY DISCLOSURE

Persons seeking unescorted access to Miami-Dade County Water and Sewer Department Restricted Areas are subject to the requirements of Article IX of Chapter 32 of the Code of Miami-Dade County (Ord. No. 02-68, § 1, 4-23-02). I further understand that compliance with Article IX of Chapter 32 of the Code of Miami-Dade County is part of the Miami-Dade County Water and Sewer Department's Security Program and that Article IX of Chapter 32 of the Code of Miami-Dade County includes access control provisions requiring criminal background checks for individuals seeking access to Miami-Dade County Water and Sewer Department Restricted Areas. I further understand that the Department Director may deny my application for access.

INITIALS_____

I hereby authorize any representative from the Miami-Dade County Water and Sewer Department Identification Office to obtain any records or information pertaining to my arrest record or criminal history, and I direct any representative of any law enforcement or criminal justice agency to release such information upon request of the bearer.

I AGREE ☐ **I DECLINE** ☐ **INITIALS**_____

The undersigned applicant acknowledges and consents to Miami-Dade County Water and Sewer Department Identification Office providing the information contained in this application including the applicant's social security number to the U.S. Department of Homeland Security (DHS), Federal Bureau of Investigation, U.S. Customs and Border Protection, Florida Department of Law Enforcement, and U.S. Immigration and Customs Enforcement pursuant to applicable federal, laws, rules or regulations as they may be amended. The information will be disclosed to DHS personnel and contractors or other agents who need information to assist in activities related to security threat assessments. Applicants who elect to decline authorization for the Miami-Dade County Water and Sewer Department Identification Office to transmit their social security number to DHS shall check the "I decline" box below with the understanding that such action may result in delays or make it impossible to complete the assessment.

I AGREE ☐ **I DECLINE** ☐ **INITIALS**_____

☐ **I HAVE OR** ☐ **HAVE NOT** used illegal drugs within three (3) years immediately preceding the date of this statement. Florida Statute 311.12 (3)(e). **INITIALS**_____

SS# Last 4_____

Have you been at any time incarcerated, convicted, or had adjudication withheld of any crime listed below: **NO** ☐ **YES** ☐ If yes, provide date: / / Probation/Supervision/Parole end date: / /

Indicate below if you have been convicted regardless of whether or not adjudication was withheld, for any of the following offenses within the past five (5) years: Conviction will not necessarily disqualify an applicant for employment.		
Theft	**YES** ☐	**NO** ☐
Smuggling	☐	☐
The possession with intent to sell or distribute, sale, or trafficking of narcotics or any other controlled substance.	☐	☐
Fraud, misrepresentation, or other crime involving dishonesty.	☐	☐
Felony theft under Chapter 812, Florida Statutes, or its federal counterpart.	☐	☐
Any violent crime committed with a weapon.	☐	☐
Any crime directly related to the Grandfathered Applicant's position of employment, shall not be issued an identification card for access to any restricted area. If a conviction or a finding of guilty on one of the above.	☐	☐

Please Indicate that you have read and understand each statement by providing your **INITIALS** in the left box.	
	Whoever, without being fully authorized, licensed or invited, willfully enters or remains on a WASD facility or property, or a portion thereof, or having been authorized, licensed or invited to a WASD facility or property, or portion thereof, is warned or ordered by authorized Department personnel or a law enforcement officer to depart, and refuses to do so, commits the offense of trespass.
	No person shall have entry to any restricted area unless such person possesses a current WASD issued identification card authorizing such access or whose access is otherwise expressly authorized under this Article. Identification cards shall be worn conspicuously on the outer garment of the bearer, in plain view above the waist.
	The WASD Director reserves the right to revoke authorization to possess an ID card.

SS# Last 4_____

	The making of a false statement in the application for an identification card under this section shall be grounds for refusal to issue the card and also shall be a violation of Article IX of Chapter 32 of the Code of Miami-Dade County.
	Identification cards issued by the Department shall at all times remain the property of the County. As such, the Department shall at all times have the right to confiscate or demand return of the identification card of any person who violates the provision of Article IX of Chapter32 of the Code of Miami-Dade County and demand the return of the identification card of all persons employed by a company violating this Article or whose lease, contract, permit or license agreement with the County allowing use of a WASD facility has expired or has been canceled or is terminated. .
	The identification card shall be valid for one (1) year from the date of issuance, unless sooner canceled or surrendered.
	The Director or his designee may suspend or revoke the use of the card based on any felony arrest, conviction, finding of guilt or other just cause, and may reinstate the use of the card when, in his/her discretion, circumstances warrant, provided, however, that such power to suspend, revoke or reinstate may not be exercised in conflict with a decision of the appeals committee.
	Any holder of a personal identification card shall report in writing to the Director (i) immediately any felony arrests, convictions, or findings of guilt, and (ii) within ten (10) days of the change any other change of data in an application for a personal identification card. Failure to report such changes within the time provided or the making of a false statement in any change in information submitted shall constitute grounds for suspending the use of the card; false statements or material omissions in the change information shall be a violation of Article IX of Chapter 32 of the Code of Miami-Dade County.
	An application for an identification card to enter into any restricted area shall be denied by the Director if the applicant refuses to answer or falsely answers any questions listed in Article IX, Section 32-172 of Chapter 32 of the Code of Miami-Dade County or refuses to produce documents to verify statements made on the application.
	An identification card for a person shall not be transferable at any time for any purpose.
	No person shall retain or have in his or her possession and shall promptly return to the Director or his or her designee, any card, permit, pass, badge or other means of identification issued by the Director after it has expired or when such person is no longer employed at the WASD facility or upon request by the Director or his or her designee that it be returned or when otherwise required by ordinance. Such retention shall constitute a violation of Article IX, of Chapter 32 of the Code of Miami-Dade County.

SS# Last 4_____

Miami-Dade Water & Sewer Department
NON-Employee ID Card Application

	No person shall forge, counterfeit, alter, erase, obliterate or transfer any identification card, permit, pass, lease, record, form, badge or other instrument or document issued or maintained by the County Manager or WASD Director, pursuant to Article IX of Chapter 32 of the Code of Miami-Dade County. No person shall have in his/her possession any forged, counterfeited, altered, erased, or obliterated or transferred identification card, permit, pass, lease, record, form, badge or other instrument or document issued or maintained by the County Manager or WASD Director pursuant to this Article. No person shall have in their possession the identification card of another individual. No person shall have more than one (1) WASD active card issued at a time.
	Failure to produce identification cards by all persons required to possess identification cards pursuant to Article IX of Chapter 32, Code of Miami-Dade County within a WASD facility shall be cause for immediate removal from the WASD facility and shall be grounds for such further actions as may be authorized by law.

CERTIFICATION OF THE APPLICANT WITH RESPECT TO THIS APPLICATION PROCESS REQUIRING FULL DISCLOSURE OF INFORMATION

I have read and agree to abide by the responsibilities set forth in this identification card request. I understand that a knowing and willful false statement on this application can be punished by fine or imprisonment of both. I understand that knowingly providing false information on this application or any portion of the ID application process may subject me to criminal prosecution and will minimally result in the permanent denial or revocation of my WASD ID card. I understand that upon termination of my official employment at WASD, in any capacity where I am required to have the issued WASD ID card, I will immediately return my ID card to my former employer or directly to WASD ID Credentials Section and that failure to do so will Constitute a violation of Miami-Dade County Ordinance 02-68.

Applicant Full Name:----------	
Applicant Title:----------	
Applicant Signature: MUST BE WITNEESED BY ID ROOM CLERK	
Date:---------- MUST BE WITNESSED BY ID ROOM CLERK	

FOR OFFICIAL USE ONLY

Applicant Verified By:

Date:

Signature: _____

Comments:

SS# Last 4 _____

Miami-Dade Water and Sewer Department

3071 SW 38 Ave, Miami, Fl 33146

NON- WASD EMPLOYEE ID CARD FEES

(PER APPLICANT)

$ 60.00	NEW WASD ID CARD / EXPIRED ID CARD
$ 55.00	RENEWAL OF WASD ID CARD
$ 25.00	CHANGE OF COMPANY
$ 15.00	LOST OR STOLEN

Note: All NON-WASD Employee ID Cards EXPIRE ANNUALLY on applicants BIRTH month or CONTRACT END DATE whichever occurs first.

CODE
of
MIAMI-DADE COUNTY, FLORIDA

Codified through
Ordinance No. 09-27, enacted April 7, 2009.
(Supplement No. 61)

Preliminaries

CODE OF METROPOLITAN DADE COUNTY

This publication is up to date as indicated by the banner above. No additional ordinances have been submitted for interim display via our NOW service (New Ordinances On the Web). For more information about this service, please visit:
http://www.municode.com/services/now.asp

ARTICLE IX. SECURITY AT MIAMI-DADE WATER AND SEWER DEPARTMENT

Sec. 32-170. Legislative intent.

The intent of the County Commission in enacting this Article is to accomplish the following goals and purposes at the Miami-Dade Water and Sewer Department.

(1) Improve security.

(2) Retain certain of the present identification procedures, and adopt certain new procedures providing greater security protection.

(3) Establish rules and regulations governing security at Miami-Dade Water and Sewer Department facilities.

(4) Protect the public health, safety and welfare by preventing crime, detecting, arresting and prosecuting violators of Article IX of Chapter 32 of the Code of Miami-Dade County.

(Ord. No. 02-68, § 1, 4-23-02)

Sec. 32-171. Definitions; applicability of Article provisions; disclaimer of liability; right of access of public officers and employees; offenses and penalties.

The following definitions shall apply in this Article:

(1) *Authorized* shall mean acting under or pursuant to a written contract, license, permit, instruction or other evidence of right issued by the Board or the Manager or his designee.

(2) *Board* shall mean the Board of County Commissioners of Miami-Dade County, Florida.

(3) *County* shall mean the County of Miami-Dade in the State of Florida.

(4) *Department* shall mean the Miami-Dade Water and Sewer Department.

(5) *Director* shall mean the administrative head of the Miami-Dade Water and Sewer Department, the assistant or acting Director, appointed by the County Manager.

(6) *Law Enforcement Officer* shall mean any person employed and vested with the police power of arrest under federal, State or County authority.

(7) *Operational directives* shall refer to instructions, directives, rules and regulations pertaining to the operation of the Miami-Dade Water and Sewer Department prepared and promulgated from time to time by the Director. When approved by the Board of County Commissioners, these operational directives shall have the same force and effect as County ordinances.

(8) *Person* shall be as defined in Section 1.01(3), Florida Statutes, and shall include municipal, governmental and public bodies and their agents, when such bodies or agents are using the water and sewer facilities.

(9) *Restricted area* shall mean any sensitive area operated, maintained or occupied by WASD that is deemed to have critical security or public safety status by the Director.

(10) *WASD* shall mean the Miami-Dade Water and Sewer Department.

(11) *WASD* Facility shall include, but not be limited to, water treatment and supply plants, wastewater treatment plants, office buildings, wellfields, pump stations, and any other facility operated, maintained or occupied by WASD.

32-171.1*Applicability of Article IX of Chapter 32 provisions.*

(a) Any permission granted to a person, corporation, partnership, or other legal entity by the Board, County Manager or Director, directly or indirectly, expressly or by implication, to enter upon a WASD facility or restricted area, is conditioned upon compliance with this Article and operational directives and the payment of any and all fees or charges established and payable to the County; such fees and charges shall include any and all fees or charges established or approved by the Board or the County Manager and entry on WASD property by any person shall be deemed to constitute an agreement by such person to comply with such rules and regulations and to pay any such fees and charges.

(b) It shall be unlawful for any person to do or commit any act forbidden by or to fail to perform any act required by these rules and regulations or to fail to pay any fees established and payable pursuant to this Article.

(c) The Department, through its Director, may from time to time cause to be issued operational directives applicable to WASD property. If any such operational directive contains a requirement that fees and charges be paid for any operation or use of a WASD facility or property as defined in the operational directive, such fees and charges shall be established in accordance with the provisions of this Article.

32-171.2*WASD liability.* The County assumes no responsibility or liability for any loss, injury or damage to persons or property at a WASD facility.

32-171.3*Access of public employees and law enforcement officers.* Authorized County employees, law enforcement officers, and employees of local, state and federal regulatory agencies shall have free and full access to and from any and all WASD facilities to make inspections and/or enforce the provisions of this Article. No person shall obstruct or interfere with any Law Enforcement Officer, employees of local state or federal regulatory agencies, or any designated County or Department employee conducting such inspection and/or enforcement or in the performance of any other power or duty required of such officer or employee.

32-171.4*Offenses and penalties.* Every person who violates any provision of this Article shall be punished by a fine not to exceed five hundred dollars ($500.00), or imprisonment in the Miami-Dade County Jail for a period of not more than sixty (60) days, or both.

32-171.5*Emergencies.* The Director is empowered to take such action as the Director deems necessary when an emergency exists at a WASD facility or property which, in the Director's judgment, presents an immediate threat to public health, security, safety or welfare, or to the operation of a WASD facility or property; provided, however, that in the exercise of such power the Director shall promptly notify the governmental agency(ies) or County department(s) having been assigned by the Board or County Manager primary responsibility for the handling and resolution of such emergency, and provided further that the Director's power herein granted shall cease upon the assumption of jurisdiction over such emergency by the governmental agency(ies) or County department(s) and such assumption of responsibility shall not be inconsistent with the requirements of any emergency procedure or program for a WASD facility or property adopted and approved by the Board. No action shall knowingly be taken by the Director hereunder or by any County department(s) contrary to any regulation or order of the Federal, State or County agency having appropriate jurisdiction.

32-171.6*Trespassing.* Whoever, without being fully authorized, licensed or invited, willfully enters or remains on a WASD facility or property, or a portion thereof, or having been authorized, licensed or invited to a WASD facility or property, or portion thereof, is warned or ordered by authorized Department personnel or a law enforcement officer to depart, and refuses to do so, commits the offense of trespass.

32-171.7*Other laws.* All applicable provisions of the laws of the State of Florida, now in existence or hereafter enacted, are hereby adopted by reference as part of these rules and regulations.

32-171.8*Jurisdiction.* The violation of any provision hereof shall be triable in the Miami-Dade County Court.

32-171.9*Severability.* If any provision of these rules and regulations or the application thereof to any person or circumstances is held invalid, the remainder of these rules and regulations and the application of such provision to other persons or circumstances shall not be affected thereby.

(Ord. No. 02-68, § 1, 4-23-02)

Sec. 32-172. Identification cards for persons.

32-172.1 *Persons who may enter restricted area.* No person shall have entry to any restricted area unless such person possesses a current WASD issued identification card authorizing such access or whose access is otherwise expressly authorized under this Article. Identification cards shall be worn conspicuously on the outer garment of the bearer, in plain view above the waist.

32-172.2 *Plan for issuance.* The Director shall devise, maintain and, as required, revise a plan for the issuance of identification cards to all WASD employees and non-WASD employees working in a restricted area.

Such plan shall provide for ready identification of various clearance levels based on the most appropriate color scheme as determined by the Director. Such color scheme shall specifically identify limited and unlimited security access for WASD employees, non-restricted public access, and distinguish various levels of access for consultants, contractors, contract employees, public officials, and other public employees.

With the exception of temporary identification cards, each identification card shall:

(a) Be issued for a period not to exceed one (1) year;

(b) Contain a photo of the cardholder

(c) Contain a physical description of the cardholder, to include but not be limited to height, weight, and date of birth of cardholder;

(d) Contain the name, title, and employer, or in the case of a WASD employee the employing division or section, of cardholder; and

(e) Contain a unique serial number not to be repeated on any other identification card.

32-172.3 Employees who are required to maintain an operational license to operate, or have direct oversight or control over the operation of any Water or Wastewater Treatment Facility, or who are critical to security or public safety at any Miami-Dade Water and Sewer Facility, shall be classified as exempt employees if agreed to in the applicable Collective Bargaining Agreement and to the extent allowed by law shall be required to submit to both a Federal and State Criminal Background Check and an annual Drug & Alcohol Screening test consistent with Miami-Dade County Personnel Policies and Procedures and applicable Collective Bargaining Agreements. Such positions shall include Water/Wastewater Division Chiefs, Assistant Superintendents, Chief Water Treatment Plant Operators, Chief Wastewater Treatment Plant Operators, Treatment Plant Operator 1, Treatment Plant Supervisors and Treatment Plant Operator 2. Said employees who fail the criminal or drug screening provisions shall be subject to existing Miami-Dade County Personnel Policies and Procedures.

32-172.4. *Application.*

(a) The application for a permanent identification card is to be a public record filed in writing, maintained in WASD's employment records and shall contain the applicant's:

(1) Full current name and any previous names and aliases used:

(2) Current residential address and all residential addresses within the past (5) years;

(3) Date and place of birth;

(4) Current employer and any previous employer within the past five (5) years;

(5) Social Security number and driver's license number as well as copies of each to be made by WASD Security Division personnel from original documents;

(6) Specific reason for entry into the restricted areas;

(7) A photo of applicant taken by the Department at the time of application submission;

(8) Fingerprints authenticated by the Miami-Dade Police Department on an identification record form furnished by the Director of the Miami-Dade Police Department.

(9) Prior felony convictions or entries of findings of guilt (whether pursuant to a plea of guilty or nolo contendere or a judgment of conviction entered by a court of competent jurisdiction);

(10) Signed authorization to conduct a criminal, financial or other background check on the applicant; and

(11) Signatures of applicant and employer for non-WASD employees or immediate supervisor for WASD employees.

(b) Pending final action on an application for an identification card or for individuals at a WASD facility for no more than five (5) total days per calendar year, the Director or his or her designee may issue a temporary identification card to non-WASD employees.

(c) In addition to the information required in subsection (a) above, the Director may require the applicant to produce such further facts and evidence as may be necessary to determine whether or not the applicant possesses the qualifications necessary for an identification card.

(d) The making of a false statement in the application for an identification card under this section shall be grounds for refusal to issue the card and also shall be a violation of this Article.

(e) The Director may conduct or request Miami-Dade Police Department ("MDPD") to conduct a criminal and/or financial background check on any applicant and may conduct or require such other background checks as the Director deems necessary.

(f) Any applicant for a WASD identification card who, within the last five (5) years, (i) has had a felony conviction or (ii) against whom a finding of guilty has been entered on a felony charge shall not be issued an identification card for any restricted area except in the case of a Grandfathered Applicant, whose access shall be governed by subsection (g).

(g) Any Grandfathered Applicant for a WASD identification card who within the last two (2) years, (i) has had a felony conviction or (ii) against whom a finding of guilty has been entered on a felony charge for the following crimes: (a) theft, (b) smuggling, (c) the possession with intent to sell or distribute, sale, or trafficking of narcotics or any other controlled substance, (d) dishonesty, fraud, or misrepresentation, (e) felony theft under Chapter 812, Florida Statutes, or its federal counterpart, or (f) any violent crime committed with a weapon; or (g) any crime directly related to the Grandfathered Applicant's position of employment, shall not be issued an identification card for access

to any restricted area. If a conviction or a finding of guilty on one of the above-listed crimes has occurred more than two (2) years but less than five (5) years from the effective date of this article, the Director has the discretion to issue an identification card to a Grandfathered Applicant under such terms and conditions as the Director deems appropriate to meet the Department's security needs.

A "Grandfathered Applicant" for purposes of this subsection means a person employed at WASD as of the effective date of this article or who, prior to the effective date of this article, was employed at WASD.

(h) Any applicant denied an identification card based on subsection (f) or (g) above may appeal the decision to an appeals committee. The appeals committee shall consist of five members, a member of the Miami-Dade Police Chiefs' Association, excluding the Director of the Miami-Dade Police Department, on a rotating basis, each member to serve for a period of one (1) year, a member of Miami-Dade County Inspector General's Office, a representative of the employee's employer or, at the employer's option, the association representing the employer, the WASD Director or his or her designee, and a union, labor or employee representative. The appeals committee shall determine whether the employee shall be issued an identification card based on procedures issued by the County Manager in an administrative order.

32-172.5 *Identification card for persons.* Identification cards issued by the Department shall at all times remain the property of the County. As such, the Department shall at all times have the right to confiscate or demand return of the identification card of any person who violates the provisions of this Article and to demand the return of the identification card of all persons employed by a company violating this Article or whose lease, contract, permit or license agreement with the County allowing use of a WASD facility has expired or has been canceled or is terminated. The identification card shall be valid for one (1) year from the date of issuance, unless sooner canceled or surrendered. Application for or acceptance of a card or pass under Section 32-172 or entry into any restricted area by any person shall subject such person to the reporting requirements of Section 32-172.5.

32-172.6 *Report of changes in data on application for identification card for a person.* Any holder of a personal identification card shall report in writing to the Director (i) immediately any felony arrests, convictions, or findings of guilt, and (ii) within ten (10) days of the change any other change of data in an application for a personal identification card. Failure to report such changes within the time provided or the making of a false statement in any change in information submitted shall constitute grounds for suspending the use of the card; false statements or material omissions in the change information shall be a violation of this Article. The Director or his designee may suspend or revoke the use of the card based on any felony arrest, conviction, finding of guilt or other just cause, and may reinstate the use of the card when, in his discretion, circumstances warrant, provided, however, that such power to suspend, revoke or reinstate may not be exercised in conflict with a decision of the appeals committee as set forth in Section 32-172.3 (h). Any person whose identification card has been suspended or revoked may appeal the decision to the appeals committee set forth in Section 32-172.3 (h).

32-172.7 *Denial of identification card.* An application for an identification card to enter into any restricted area shall be denied by the Director if the applicant refuses to answer or falsely answers any questions listed in Section 32-172 or refuses to produce documents to verify statements made on the application.

32-172.8 *Identification card or pass for a person; Loss, transfer, alteration or possession of altered identification cards, passes or department documents.*

(a) A person who has lost his or her valid identification card, after identifying himself or herself to the satisfaction of the WASD Security Division, shall be issued a new identification card after such person submits a completed application for a replacement card and, upon payment of a replacement charge as set by Administrative Order.

(b) An identification card for a person shall not be transferable at any time for any purpose.

(c) No person shall retain or have in his or her possession and shall promptly return to the Director or his or her designee, any card, permit, pass, badge or other means of identification issued by the Director after it has expired or when such person is no longer employed at the WASD facility or upon request by the Director or his or her designee that it be returned or when otherwise required by ordinance or otherwise. Such retention shall constitute a violation of this Article.

(d) No person shall forge, counterfeit, alter, erase, obliterate or transfer any identification card, permit, pass, lease, record, form, badge or other instrument or document issued or maintained by the County Manager or Director, pursuant to this Article. No person shall have in his possession any forged, counterfeited, altered, erased, obliterated or transferred identification card, permit, pass, lease, record, form, badge or other instrument or document issued or maintained by the County Manager or Director pursuant to this Article. No person shall have in his possession the identification card of another individual.

(e) In the event that any person who has an application on file for an identification card enters a restricted area without valid identification card or being otherwise authorized, such person may have the identification card or other authorization under this Article suspended or revoked.

(Ord. No. 02-68, § 1, 4-23-02)

Sec. 32-173. Administrative Review procedure.

32-173.1 *Administrative review.* Any person, including the County, aggrieved with any action or inaction by the Director and/or the Department, may file a written request with the County Manager within ten (10) days of the action or inaction. Such person shall be entitled to an appeal before a hearing examiner assigned by the County Manager or his designee from a list supplied by the American Arbitration Association. Such hearing examiners may be paid a fee for their services but shall not be deemed County officers or employees within the purview of Sections 2-10.2, 2-11.1 or otherwise. The hearing examiner shall conduct a hearing after notice and shall transmit his findings of facts, conclusions, and any recommendations together with a transcript of all evidence taken before him and all exhibits received by him, to the Manager who may sustain, reverse or modify the action at issue. Such hearings shall be conducted insofar as is practicable in accordance with the rules of civil procedure governing the procedure in the Circuit Court, except as may be provided in this Code or by rules adopted by the Board of County Commissioners. Any interested party may procure the attendance of witnesses and the production of records at such hearings in the manner provided by Section 2-50. Any person appearing before a hearing examiner under the provisions of this section has the right, at his own expense, to be accompanied, represented and advised by counsel or other qualified representative. (Counsel shall mean a member of the Florida Bar).

(Ord. No. 02-68, § 1, 4-23-02)

Sec. 32-174. Identification.

32-174.1. *Identification cards.* Failure to produce identification cards by all persons required to possess identification cards pursuant to this Article within a WASD facility shall be cause for immediate removal from the WASD facility and shall be grounds for such further actions as may be authorized by law.

32-174.2. *Duty to report violations.* All law enforcement officers and persons required to possess identification cards pursuant to this Article shall be under a continuing duty to promptly report the presence of (1) any unauthorized persons in a restricted area and (2) any unauthorized person on a WASD facility without a conspicuously-placed identification card.

(Ord. No. 02-68, § 1, 4-23-02)

Sec. 32-175. Fees.

The fee schedule for all identification cards required by this Article shall be set and established by an administrative order of the County Manager and approved by the Board of County Commissioners.

(Ord. No. 02-68, § 1, 4-23-02)

Sec. 32-176. False Reports or Threats.

No person shall make any threat involving the operations, including but not limited to, water and wastewater treatment at a WASD facility, or any false report regarding the conduct of operations at any WASD facility.

(Ord. No. 02-68, § 1, 4-23-02)

Sec. 32-177. Forgery and counterfeit.

No person shall make, possess, use, offer for sale, sell, barter, exchange, pass or deliver any forged, counterfeit, or falsely altered pass, permit, identification badge, certificate, placard, sign or other authorization purporting to be issued by or on behalf of the Department, nor shall any information electronically or magnetically encoded thereof be knowingly altered or erased.

(Ord. No. 02-68, § 1, 4-23-02)

Sec. 32-178. Audits by Inspector General's Office.

The Office of the Miami-Dade County Inspector General (IG) shall, on a random basis, perform audits and monitor compliance with the provisions of this Article. The Inspector General shall submit a report and appropriate recommendations to the Board of County Commissioners following such audits. However, the Inspector General shall have the discretion to exclude from such reports any information that may compromise security at a WASD facility or affect the public's safety.

(Ord. No. 02-68, § 1, 4-23-02)

Secs. 32-179--32-200. Reserved.

APPENDIX "D"

MIAMI-DADE
WATER AND SEWER DEPARTMENT
SAFETY UNIT

CONSTRUCTION SAFETY AND HEALTH POLICY

(4 Pages)

Miami-Dade Water and Sewer Department Safety Unit
CONSTRUCTION SAFETY and HEALTH POLICY

The Construction Safety and Health standards contained in this Contract are to aid Contractors in their efforts toward achieving compliance with the Occupational Safety and Health Administration (OSHA) Code of Federal Regulations (CFR) and other regulatory programs in the workplace. The Contract does not contain all OSHA and other regulatory safety and health programs, those indicated are (1) standards or procedures most frequently overlooked and\or (2) procedures as they pertain to hazardous situations.

It is the policy of Miami-Dade County to improve the effectiveness of public service by providing a safe and healthful work place for County and contractual employees, providing for the safety and health of the public, and preserving County resources, through the establishment and implementation of the Miami-Dade Safety and Loss Prevention Program **(Administrative Order No. 7-14)**. A copy of Administrative Order No. 7-14 will be available and provided at the preconstruction meeting.

Miami-Dade County has adopted the Occupational Safety and Health Act. Contractors must comply with standards in 29 CFR 1910 and 1926. 29 CFR 1926, Subpart C, "General Safety and Health Provisions" and other specific sections of these standards include the responsibilities for each Contractor to initiate and maintain safety and health programs, provide for a competent person to conduct frequent and regular inspections, instruct each employee to recognize and avoid unsafe conditions and know what regulations are applicable to the work environment (site). OSHA also uses Special Emphasis Programs (SEPs), Local Emphasis Programs (LEPs), and National Emphasis Programs (NEPs) to find ways to help control accidents, injuries, and illnesses in construction sites where employee and public exposure to unusual physical and health risks exist.

A Contractor's project safety manual must be submitted for review and accepted by the Miami-Dade Water and Sewer Department Safety Unit prior to receiving "Notice to Proceed." The project safety manual must include but not be limited to, all OSHA and all other Federal, State and Local regulatory programs as they pertain to the construction project. The project safety manual must be available and accessible at the construction site.

The Miami-Dade County Water and Sewer Department Safety Unit adheres to and enforces Administrative Order No. 7-14, inclusive of all regulatory programs. It is the responsibility of the Contractor to comply with and enforce all applicable safety regulations. The Contractor shall comply with, but not be limited to, the OSHA Code of Federal Regulations and all other regulatory programs as they pertain to the construction project.

- **Excavation\Trenching (CFR 1926 Subpart P)** any man made cut, cavity, trench, or depression in an earth surface, formed by earth removal. Ensure each employee protection from potential hazards around or within an excavation or trench. Contractor must adhere to the State of Florida **Trench Safety Act (*Title XXXIII, Regulation of Trade, Commerce, Investments and Solicitation, Chapter 553, Building Construction Standards, Part III, (ss 553.60 through 553.64*))**. The Trench Safety Act (TSA) has been incorporated in to a State standard, derived from the OSHA excavation safety standard CFR 1926.650 Subpart P. The TSA states on all contracts for trench excavation in which such excavation will exceed a depth of 5 feet **(ss. 553.63-Trench excavations in excess of 5 feet deep; required information.)**:

1 **The contract bid submitted by the Contractor who will perform such excavation shall include:**
   - **(a) A reference to the trench safety standards that will be in effect during the period of construction of the project.**
   - **(b) Written assurance by the Contractor performing the trench excavation that such Contractor will comply with the applicable trench safety standards.**
   - **(c) A separate item identifying the cost of compliance with the applicable trench safety standards.**

2 **A Contractor performing trench excavation shall:**
   - **(a) As a minimum, comply with the excavation safety standards which are applicable to a project.**
   - **(b) Adhere to any special shoring requirements, if any, of the state or other political subdivisions which may be applicable to such a project.**
   - **(c) If any geotechnical information from the owner, the contractor, or otherwise, the contractor performing trench excavation shall consider this information in the contractor's design of the trench safety system which it will employ on the project. This paragraph shall not require the owner to obtain geotechnical information.**

- Specific excavation requirements **(CFR 1926.651(b)(1))** states that the estimated location of utility installations such as sewer, telephone, fuel, electric, water lines, or any other underground installations that reasonably maybe expected to be encountered during excavation work shall be determined prior to opening an excavation. Contractor shall contact utility companies to establish the location of utility underground installations within 24 hours (unless a longer period is required), or cannot establish the exact location of these installations, the work may proceed, and does so with caution, or detection equipment, or other acceptable means to locate utility installations are used **(CFR 1926.651(b)(2))**. When excavation operations approach the estimated location of underground installations, the exact location of the installations shall be determined by safe and acceptable means. While the excavation is open, underground installations shall be protected, supported, or removed, as necessary, to safeguard workers **(CFR 1926.651(b)(3),(4))**. Each employee shall be protected from cave-ins by an adequate protective system designed in accordance with **paragraph (b) or (c)** of this section. Excavations shall be protected from cave-ins by an adequate protective system except when:
  - Excavations are made entirely in stable rock; or trench less than 5 feet (1.5 meters) in depth and examination of the ground by a competent person provides no indication of a potential cave-in **(CFR 1926.652(a)(1)(i) and (ii))**.
  - Protective system shall have the capacity to resist, without failure, all loads that are intended or could reasonably be expected to be applied or transmitted to the system.

  Employees within the trench shall be protected from materials and equipment which could pose a hazard by falling or rolling into the trench. Materials and equipment shall be placed at least 2 feet from the edge of the trench or by the use of retaining devices that are sufficient to prevent materials or equipment from falling or rolling in excavations or a combination of both if necessary **(CFR 1926.651(j)(2))**.

  A ladder is a safe means of egress which shall be located in trench excavations that are 4 feet or greater in depth so as to require no more than 25 feet of lateral travel for employees **(CFR 1926.651(c)(2))**.

Means of exit within the trench must be free of all obstructions, this would allow the employee immediate use in case of fire or emergency **(CFR 1926.34(c))**.

- **Movement of Motor Traffic (M.O.T.)**…reference the Department of Transportation's Manual on Uniform Traffic Control Devices, Part 6…to provide for reasonably safe and efficient movement of road users through or around temporary traffic control zones (work area) while reasonably protecting workers, responders to traffic incidents, and equipment. This only applies if the Contractor is working in an area where there is movement of traffic. Workers exposed to public vehicular traffic greater than 25 m.p.h. shall be provided with, and shall wear orange warning vest with yellow reflective stripes on front and back **(Class II or III)** or other suitable garments marked with or made of reflectorized or high visibility material **(CFR 1926.651(d))**. Flaggers, signaling by flaggers and the garments worn shall follow the OSHA rules incorporated by reference in the Department of Transportation's Manual.
- **Crane Safety (CFR 1926 Subpart N; 1926.550)**. If a crane is to be used at anytime during this project a crane program must be submitted prior to the beginning of construction. The Crane Safety program is a Miami-Dade Code Enforcement Ordinance. The Crane Ordinance **(Chapter 8E-Cranes and Hoisting Equipment of the Code of Miami-Dade County)** is enforceable by the Miami-Dade Code Enforcement Unit. Accessible areas within the swing radius of the rear of the rotating superstructure of the crane, either permanently or temporarily mounted, must be barricaded in such a manner as to prevent an employee from being struck or crushed by the crane. A copy of the Cranes and Hoisting Equipment Ordinance will be available and provided at the preconstruction meeting.
- **Fall Protection (CFR 1926 Subpart M)** employers are required to assess the workplace to determine if the walking/working surface on which employees are to work have the strength and structural integrity to safely support workers.
- **Electrical Protection (CFR 1926 Subpart K)** addresses electrical safety requirements that are necessary for the practical safeguarding of employees involved in construction work and control of hazardous energy and all electrical hazards.
- **Hazard Communication (CFR 1926 Subpart D; 1926.59)** employers shall develop, implement, and maintain at the workplace a written hazard communication program for their workplaces. Employers must inform their employees of the availability of the program, including the required list(s) of hazardous chemicals, and material safety data sheets required.
- **General Safety and Health Provisions (CFR 1926 Subpart E; 1926.28(a) and 1926.95(a) through (c))** the employer is responsible for requiring the wearing of appropriate personal protection equipment in all operations where there is a an exposure to hazardous conditions or where the need is indicated for using such equipment to reduce the hazard to the employee. Employees working over or near a body water, shall be provided with U. S. Coast Guard approved life jackets or buoyant work vests. **Head Protection (CFR 1926.100)** Head protective equipment (hard hat) shall be worn in areas where there is a possible danger of head injuries from impact, flying or falling objects or electrical shock and burns.
- **Portable Ladders (CFR 1926 Subpart G; 1926.200(h); Subpart X; 1926.1053)** portable ladders with structural defects, such as broken or missing rungs, cleats or steps, broken or split rails, or otherwise corroded, faulty, or defective components must be either immediately marked as defective or tagged with "Do Not Use" or similar language and removed from service until repaired.
- **Occupational Noise Exposure Standard (CFR 1910 Subpart G; 1910.95(l)(1))** the employer shall make available to affected employees or their representatives a copy of

this standard and shall also post a copy in the workplace\site. Hearing Protection **(CFR 1926.52)** feasible hearing controls shall be utilized to protect employees against sound levels that exceed the values in the table.

- **Signs, Signals, and Barricades (CFR 1926 Subpart G; 1926.202; Subpart P 1926.651)** a warning system, such as barricades, hand or mechanical signals, or stop logs, must be used when mobile equipment is operated adjacent to an excavation, or when the equipment is required to approach the edge and the operator does not have a clear and direct view of the excavation. The barricades must conform to the ANSI Manual on Uniform Traffic Control Devices for Streets and Highways.
- **Utility Line Markings ((CFR 1926 Subpart P; 1926. 651(b))** the estimated location of utility installations, such as sewer, telephone, fuel, electric, and water lines, or any other underground installations that reasonably maybe expected to be encountered during excavation work, must be determined prior to opening an excavation.
- **Worksite Analysis**… is a practical analysis of the work environment involves a variety of worksite examinations to identify existing hazards and conditions and operations in which changes might occur to create new hazards. Lack of awareness of a hazard stemming from failure to examine the worksite is a sign that safety and health policies and\or practices are ineffective. An effective active analysis, analyzes the work and worksite to anticipate and prevent harmful occurrences. A job analysis helps an individual to determine if there are hazards in the workplace. This is necessary to help identify and determine what precautions will be necessary to perform the job safely. Verifying whether employees and visitors are wearing their personal protection equipment as it relates to various tasks being performed and as required by OSHA standard **(CFR1926.28 (Subpart C) and 1910.132(a) (Subpart I))**. Reviewing the daily job analysis for the worksite.

The Contractor is advised and encouraged to maintain their Company's policies, procedures, and practices to protect their employees from, and allow them to recognize, job-related safety and health hazards. The purpose of the safety policy and procedures is to promote safety, safeguard the lives and physical welfare of employees and the general public.

APPENDIX “E”

VISUAL INSPECTION REPORT

CD 1.05(1) SDWWTP Effluent Wet Well No. 3 and Drain Lines Rehabilitation

(28 Pages)

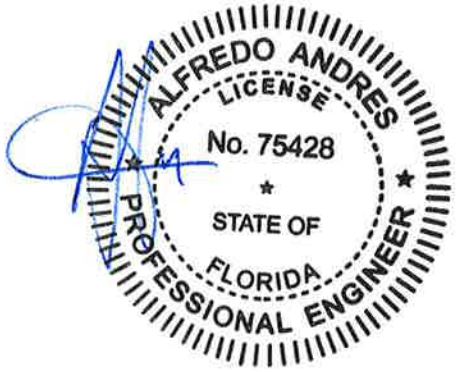
CENIT

MIAMI-DADE COUNTY

CD 1.05.01 SOUTH DISTRICT WASTEWATER PLANT EFFLUENT WET WELLS AND DRAIN LINES REHABILITATION

VISUAL INSPECTION REPORT

BASIN #3



Prepared by: Alfredo Andres, P.E.

For: MIAMI-DADE WATER & SEWER DEPARTMENT

MAY 19th, 2017

Table of Contents

1. BACKGROUND

The scope of the Project is to provide design services related to development of documents for cleaning and coating, repairing of concrete spalls and typical crack injection of concrete effluent wet-well basins and replacement of drain pipelines at the South District Wastewater Treatment Plant (SDWWTP), located at:

SOUTH DISTRICT WASTEWATER TREATMENT PLANT

8950 S.W. 232 Street

Miami, FL 33190

Services shall be implemented and coordinated directly with WASD's Consent Decree Program Manager and Construction Manager (PMCM), scheduling of meetings and site visits, and other related project tasks.

There are four wet-well basins included in the scope of work. From East to West: Basin #2, Basin #1, Basin #3 and Basin #4. The effluent wet well building is located south of the chlorine contact mixer chamber from which the treated waste water flows by gravity into the wet wells.

Appendix A includes a Site Map showing the location for the four wet wells.

On April 4, 2017 Alfredo Andres, PE carried out a visual inspection of the South District Wastewater Treatment Plant (SDWWTP) Effluent Wet Well #3. The inspection was limited to assess the condition of the concrete surface visually accessible. This report does not include a structural forensic analysis nor a service life prediction for the existing structure. A material testing program was not part of project's scope of work.

2. SCOPE OF WORK

This report includes only the inspection of **BASIN #3**.

The extent of the inspection included:

- Perform a condition assessment for the SDWWTP Wet Well Basin No.3 to identify and define the various conditions concrete and drainage may exhibit.
- Provide documentation of all the observations and deficiencies found.
- Provide recommendations for rehabilitation, cleaning and coating the interior and exterior of the wet well basin's structure, as well as rehabilitating the drainage system.

3. WET WELL DESCRIPTION

The effluent wet well #3 is a 50'-9" by 55'-8" (interior dimensions) underground reinforced concrete structure that shares an intermediate wall with wet well #1 to its western side. The wet well dimensions and description (see details in the existing structural drawings available in Appendix B), can be summarized as follows:

- The drawings are dated December 1987.
- The concrete used for the construction shall have a compressive strength off 'c=4000psi and all reinforcement shall comply with a minimum yield stress off y=60,000psi.
- The structure foundation consists on a 2.5" thick mat footing with its top side at elevation -6.63
- The basin's interior and perimeter walls are 16" thick concrete reinforced walls with 19.875' height at its highest point.
- The roof slab is a 12" thick reinforced concrete. Its superior side is at elevation 14.00
- There are three 24" by 16" columns and another three 6' by 16" structural walls inside the wet well. The latter are disposed between the three vertical pumps numbered 7, 8 and 9.
- There is an interior slab on the western side at elevation 1.00. The width of the slab is of 15'-6". This slab is supported by a 1' wall.

- There is a sloped ramp from the northern wall, starting at elevation -1.00 toward the middle of the wet well.
- On the northern side there is the inlet 60" diameter butterfly valve at center elevation 3.00.
- On the western side wall there are two 48" by 48" squared butterfly valves that connect to the adjacent wet well #4. The inferior elevation is at 2.00.
- The access to the interior of the wet well is through a 36" by 36" cast iron hatch located on the eastern side which gives access to a 1'6" (width) ladder attached to the wall.
- On the south side of the western wall there is an overflow 108" diameter pipe. This pipe is accessed through a 36" by 36" hatch; it is not accessible through the interior of the wet well.
- There are steel pipes attached to the roof slab from 3" to 6" for drainage of the building floors and roof, for sanitary sewer servicing the building and also for the electrical conduits connecting the electric gear on the first floor to the pumps.

4. INSPECTION METHODOLOGY

Systematic visual inspection was performed on the slab floor exterior surface (upper side of the roof slab) and on the interior of the wet well.

The inspection consisted of a visual and non-destructive sounding survey field test. The sounding survey was performed with a hammer, except on the lowest area around the pump inlet where there still was about two feet of water at the time of the inspection. Hammer striking was performed on vertical and the elevated floor structural elements. The purpose of the sounding survey was to identify presence of delamination of concrete not visible on the surface. The inspection was performed at each area in a systematic way through the following steps:

1. The inspector entered through roof slab access opening following the fall protection and confined space entry requirements.

2. Once inside, the wall inspection followed a counterclockwise order. Each observation was described and photographed.

3. Next, the interior columns were inspected and uneven surfaces of the floor slabs were detected by systematically walking the area, including detailed inspection of the slab-to-wall joints.

4. Next, the underside of the roof slab was observed as well as the drainage and electrical pipping attached to it.

5. After all interior areas were completed, the accessible exterior area (upper surface of the roof slab) were observed including the concrete supports for the vertical pumps and valves.

Prior to performing the inspection works, the inspection crew locked out and tagged all electrical switches and valves connecting to the wet well #3. Also, all confined spaces, fall protection, ladders and personal protective equipment OSHA requirements were followed. Please refer to the "Site Specific Safety Plan" for more details. Safety officer Alfredo Andres, P.E. was present during the inspection and was in charge of the implementation of all safety requirements. The following materials and personal protective equipment were used:

1. Hard hat and reflective vest
2. Rubber boots with steel toe
3. Safety glasses
4. Safety harness
5. Gloves
6. Rescue Tripod
7. Camera
8. Head and hand held flashlights
9. Hand held two way radios
10. Measuring tape
11. Hammer
12. Air monitors
13. Ladder
14. First Aid Kit
15. 300 watt halogen flood light lamp
16. Air ventilation equipment

5. FINDINGS AND OBSERVATIONS

5.1 WET WELL #3. EXTERIOR CONCRETE

There are minor cracks and spalling on the upper side of the floor slab. There are some areas with hair line cracks but no signs of serious shear stress cracks. There is no exposed reinforcement steel, however, remediation action is required to prevent that from happening and to reduce the potential of deterioration of concrete. These minor cracks should be sealed and repaired (as described in section 6) prior to painting and coating the slab surface.

Some examples are shown in photos #1 and #2.

Photo #1. Upper side of slab. Minor d-crack

Photo #2. Upper side of slab. Minor concrete deterioration

5.2 WET WELL #3. INTERIOR CONCRETE

The concrete on the interior of the wet well is generally in good overall condition.

It shows some minor small cracks, spalling and scaling that should be repaired (as described in section 6) prior to the final coating. There are no signs of exposed reinforcement steel, however, remediation action is required to prevent that from happening and to reduce the potential of deterioration of concrete. See picture below for typical concrete deterioration:

Photo #3. Some minor concrete spalling and cracking

At the time of the inspection, the wet well had been emptied but there still was about 12" of effluent water on the lowest area just beneath the pumps' intake. On these areas, the concrete floor showed some signs of spalling and aggregate exposure.

Mostly all joint sealant between the floor slab and the wall is debonded, or, in some cases non-existent.

Photo #4. Joint sealant debonded on the northern slope slab

There is a deflector wall at the north side of the pumps from the floor to approximately three feet below the roof slab. This wall has no structural function and its only purpose is to avoid the pumps' inlets from getting direct flows from the inlet pipe. The deflector wall is made out of steel C-shaped beams guided with steel plates anchored to the columns. The steel beams show some degree of oxidation, apparently not significant, but should be reevaluated once a water pressure washing is completed.

Photos #5 and #6. South side of the deflector wall

Photo #7. North side of the deflector wall

Photo #8. Deflector wall. Steel guide plate

At the time of the inspection, the wet well had been emptied from effluent water, but it still had dirt and paint in most of its surfaces. For this reason, another detailed evaluation of the concrete interior surfaces should be made when the surfaces are pressured cleaned.

In addition, an inspection by a structural engineering should be performed at such time, to confirm that there are no major damages to the concrete structure and that the minor concrete deterioration described in this report do not constitute any breach of the structural integrity of the tank.

5.3 WET WELL #3. VALVES

On the western side wall there are two 48” by 48” squared butterfly valves that connect to the adjacent wet well #4. The inferior elevation is 2.00

Although both tanks #3 and #4 were emptied simultaneously for the inspection, there were signs of leakage on both valves, which might mean that the sealant joint is damaged.

These two valves show some signs of corrosion as shown in picture #9.

Photo #9 Northern valve on the west wall Wet Well #4

On the northern wall there is the inlet pipe connecting to the chlorine contact chamber, with a 60" diameter butterfly valve at center elevation 3.00. This valve showed no signs of deterioration.

Photo #10. Inlet Valve on the north wall.

On the south side of the eastern wall there is an overflow pipe with a 60" diameter butterfly valve. This valve is accessed through another hatch on the roof slab and it's not accessible through the interior of the wet well tank, as there are deflector walls up to 3 feet from the ceiling.

5.4 WET WELL #3. DRAINAGE AND PIPPING

The drainage system and sanitary sewer from the ground floor and roof is collected and pipped under the wet well slab. This are aged iron pipes generally in very poor condition, in many locations broken and with visible leakage.

Photo #11. Corroded drainage system

A visual inspection of the electrical conduits from the base of the pumps to the VFDs and switch gear, also hanging from the underside of the roof slab, look in good condition. This assessment should be reevaluated during the repair period, when scaffolds are installed and a more detailed inspection can be made, to confirm the condition of the electrical conduits.

Photo #12. Electrical conduits

6. CONCLUSIONS AND RECOMMENDATIONS

The wet well #3 condition assessment performed was based on the concrete surface visually accessible and the sounding survey. No other material testing was performed.

Based on the visual observations, it does not appear to be any critical deterioration of the concrete structure which would impede its ability to perform its original function. Once the tank has been pressure washed by the contractor performing the work, a more detailed structural inspection and evaluation will be performed by a structural engineer, combined with material testing if further recommended, to confirm the previous statement.

6.1 MATERIAL TESTING PROGRAM

Further investigation is recommended to estimate the durability and to be able to predict the remaining service life of the concrete structure. Durability is the capability of maintaining the capacity to perform the function for which the structure is designed and constructed, and service life is the period of time in which all the properties of the concrete exceeds the minimum acceptable values.

These analyses impact essentially all decisions concerning future economic consideration, helps determine when the structural safety is unacceptable due to concrete degradation and/or corrosion of steel reinforcement, and when the actual loads are exceeding the load capacity.

The following more invasive field and laboratory material testing program is recommended:

1. Corrosion Potential ASTM C876. The potential for active corrosion and areas vulnerable to corrosion are measured. The results in the form of contour plots enables the determination of which areas and structural elements are potentially corroding and thus need to be addressed to slow the corrosion process and prevent further damage. A total of six locations are recommended to be tested. Two locations at floor and roof slab and strategic areas vulnerable to corrosion like leaks and cold joint areas at walls.

2. Concrete Compressive Strength Test ASTMC42. Concrete cores to determine the compressive strength of the in-place concrete. A total of three sets of three cores are recommended. It is also recommended to test the depth of carbonation at each core.

3. Chloride Ion and pH Content ASTMC1218, ASTMC1152. To determine the profile of chloride penetration from the surface of the concrete to the depth of the reinforcement. A total of four locations are recommended to be tested. Two locations at floor and roof slab.

4. Petrographic Examination ASTMC856. To describe the overall quality of concrete and mixtures proportions used. Determine the deterioration as a result of chemical attack, steel corrosion, evidence of internal micro-cracking as well as cracking resulting from dimensional changes as well as external loading. A total of two locations are

recommended to be tested.

5. Concrete Cover Survey. To determine the actual clear cover from the concrete surface to the steel reinforcement by ferro scan or ground penetration radar.

The following table summarizes the recommended field and laboratory testing program:

Field and Laboratory Test	ASTM	Quantity
Corrosion Potential	C876	6
Concrete Compressive Strength	C42	3 sets of 3 cores
Chloride Ion and pH Content	C1218,C1115	4
Petrographic Examination	C856	2
Depth of Carbonation	At each extracted core	
Concrete Cover Survey	As needed	

Part of a successful concrete evaluation is the combination of the visual condition assessment and a material testing program. The tank's overall concrete condition requires proper concrete repair procedures and protection for the wastewater environment. There are different types of specific distress along the entire tank that requires different types of approach for which localized tests are recommended. Areas that presents potential for reinforcement corrosion also requires special attention to determine the extent of the damage.

6.2 CONCRETE REPAIR WORKS

The repair procedures will depend on the application, the material actual properties, and the extent of the damage. Proper repair details shall be prepared for each type of condition or concrete element.

The following are typical repair procedure recommendations:

6.2.1 Damage at Concrete Surfaces – No Reinforcement Exposure

A polymer modified, Portland cement based, fast setting, non-sag mortar with corrosion inhibitor is recommended for patching material at damaged concrete surfaces. All deteriorated concrete, oil, grease and all bonding inhibiting materials must be removed prior the application. The concrete surface profile shall be appropriate for the application by waterblast or any other appropriate mechanical means. It is important that the surface is thoroughly clean and dry with no standing water during the application. A bonding agent shall be applied prior the repair mortar application. The repair area shall extend beyond the actual damaged area as specified on bid documents repair details. In case of exposed corroded reinforcement the process shall incorporate the steps of section 6.2.2 of this report. However, all concrete repair works shall follow the proper technical specification and construction bid documents requirements.

6.2.2 Damage at Concrete Surface – Corroded Reinforcement

Remove the concrete from around the corroded reinforcement. Repair configurations shall be preferably square or rectangular with square corners. Reentrant corner shall be minimized as they are susceptible to cracking. Undercut exposed reinforcement by abrasive blasting or any other suitable method to provide clearance under the reinforcing steel. Provide clearance between reinforcing steel and surrounding concrete as specified on bid documents repair details. Sound concrete may have to be removed to provide proper clearance. Extend removal until there is no further cracking or significant corrosion. Loose reinforcement should be secure in its original position and supplemental bars shall be mechanical spliced or lap spliced beyond the damaged area. In case that most of the reinforcement is damaged, a new reinforcing mat shall be installed on the whole area. In case of a vertical application, anchors shall be provided.

6.2.3 Concrete Cracks

Due to its rigid nature, concrete can develop cracks due to shrinkage, temperature changes, uneven drying or excessive loads. Repairing and sealing cracks in concrete requires proper procedure that

begin with widening the crack and breaking away any deteriorated concrete. Crack edges shall be vertical or beveled. All loose material shall be removed by brush or airbrush. For dormant cracks, using an epoxy resin to bond concrete back together is recommended. Epoxy repairs not only seal cracks but also restore strength and stiffness of concrete. Epoxy is not recommended for active cracks. Repairing an active crack with epoxy typically results in a new crack forming near the original. For active cracks with anticipated crack movement, an elastomeric sealant with sufficient elongation properties is recommended. Refer to technical specifications and construction bid documents for a more detailed procedure.

6.3 CONCRETE PROTECTIVE COATING SYSTEM

After all concrete repair works, a coating system must be applied to protect the concrete and resist degradation for its wastewater environmental condition.

6.3.1 Surface Preparation

The correct surface preparation is a key element for the success of the restoration application. First of all, prior to any work it is important that the concrete surface be thoroughly cleaned and left free of all dirt, oil, sludge, film, paint, coatings, unsound concrete and other materials that could interfere with the adhesion or penetrations of the specified coating. The recommended method to achieve the adequate concrete surface profile for coating application is abrasive blasting or water pressure washing. This method carries a very low potential risk of induction micro cracking or bruising of the concrete during the surface preparation. The concrete surface profile achieved will vary depending on the concrete strength and the size and type of aggregates. It is important that the surface profile be suitable for the type of coating applied. Please refer to technical specification 03721 “Preparation for Resurfacing Concrete” and specified coating manufacturer’s instruction for surface preparation requirements.

6.3.2 Coating Application

The application of an epoxy coating system that is formulated to provide corrosion protection, chemical and erosion resistance, abrasion resistance and impact resistance is recommended. Wol-Coat 310 or approved equal shall be applied at all interior concrete surfaces. An even concrete surface shall be provided for the application system. Priming is recommended prior the installation with Wol-Coat410 or approved equal. The number of coats required will depend on the film thickness specified and the type of coating used. The recommended film thickness for Wol-Coat 310 is 32mils D.F.T. usually applied in two coats of 16mils per coat. Manufacturer's written instructions shall be followed. Please refer to technical specifications 09881"Wol-Coat Protective Coatings for Concrete" and construction bid documents for more detailed requirements and procedures for coating application works.

6.4 VALVE REPAIR WORKS

First of all, prior to any work done on the existing valves it is important that the valve steel surface be thoroughly cleaned and left free of all dirt, oil, sludge, film, paint, coatings and other materials that could interfere with the adhesion or penetrations of the specified paint; including the existing sealant rubber joint. The recommended method to achieve the adequate steel surface profile for paint application is water pressure washing. Next, the application of an epoxy paint that is formulated to provide corrosion protection and chemical resistance is recommended. Priming is recommended prior the epoxy paint application. The number of coats required will depend on the film thickness specified and the type of paint used. Manufacturer's written instructions shall be followed. Finally, a new sealant rubber joint is to be installed.

6.5 DRAINAGE AND PIPPING

All cast iron drainage pipes hanging from the roof slab are to be removed and replaced with PVC pipes on the same locations and following the guidelines and regulations of the Florida Building Code and Miami-Dade WASD's specifications.

7. REFERENCES

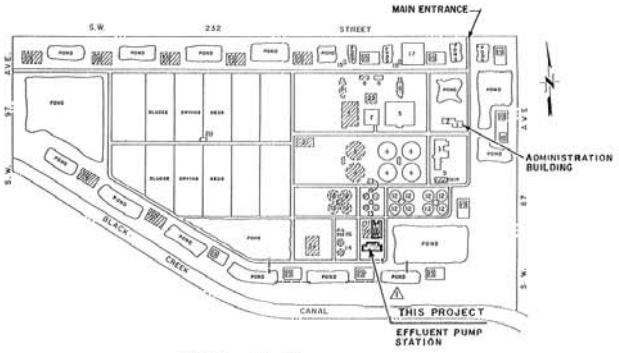
- Florida Building Code.
- American Society for Testing and Materials - Standard Practice for Measuring Delamination in Concrete by Sounding(ASTMD4580)
- American Society for Testing and Materials - Standard Practice for Abrading Concrete (ASTMD4259)
- American Society for Testing and Materials - Standard Practice for Surface Cleaning Concrete for Coating (ASTMD4258)
- American Concrete Institute - Guide for Conducting a Visual Inspection of Concrete in Service (ACI201.1R-08)
- American Concrete Institute - Guide to Concrete Repair(ACI546R-14)
- American Concrete Institute - Code Requirements for Assessment, Repair, and Rehabilitation of Existing Concrete Structures and Commentary (ACI562-16)
- American Concrete Institute - Service Life Prediction - State of the Art Report (ACI365.1R-00)
- International Concrete Repair Institute - Guide for Surface Preparation for the Repair of Deteriorated Concrete Resulting from Reinforcing Steel Corrosion(ICRI Guideline No.310.1R-2008, formerly No.03730)
- International Concrete Repair Institute - Selecting and Specifying Concrete Surface Preparation for Sealers, Coatings, Polymer Overlays, and Concrete Repair (ICRI Guideline No.310.2R-2013, formerly No.03732)

Appendix A. Effluent Wet Wells Site Map Drawing

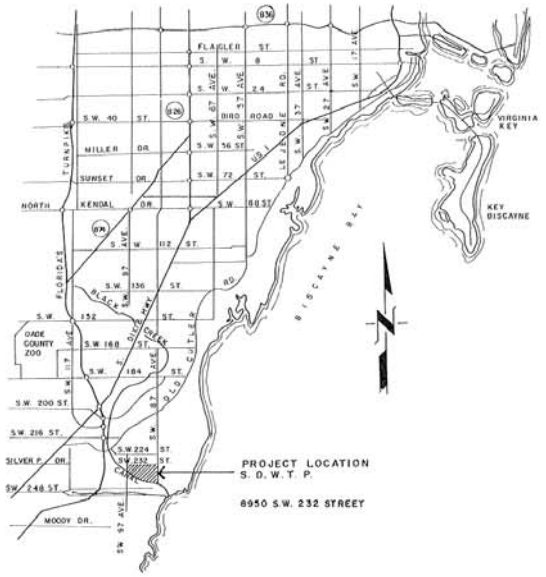
MIAMI-DADE WATER AND SEWER DEPARTMENT

SOUTH DISTRICT WASTEWATER PLANT

CD 1.05.01 WET WELLS AND DRAIN LINES REHABILITATION

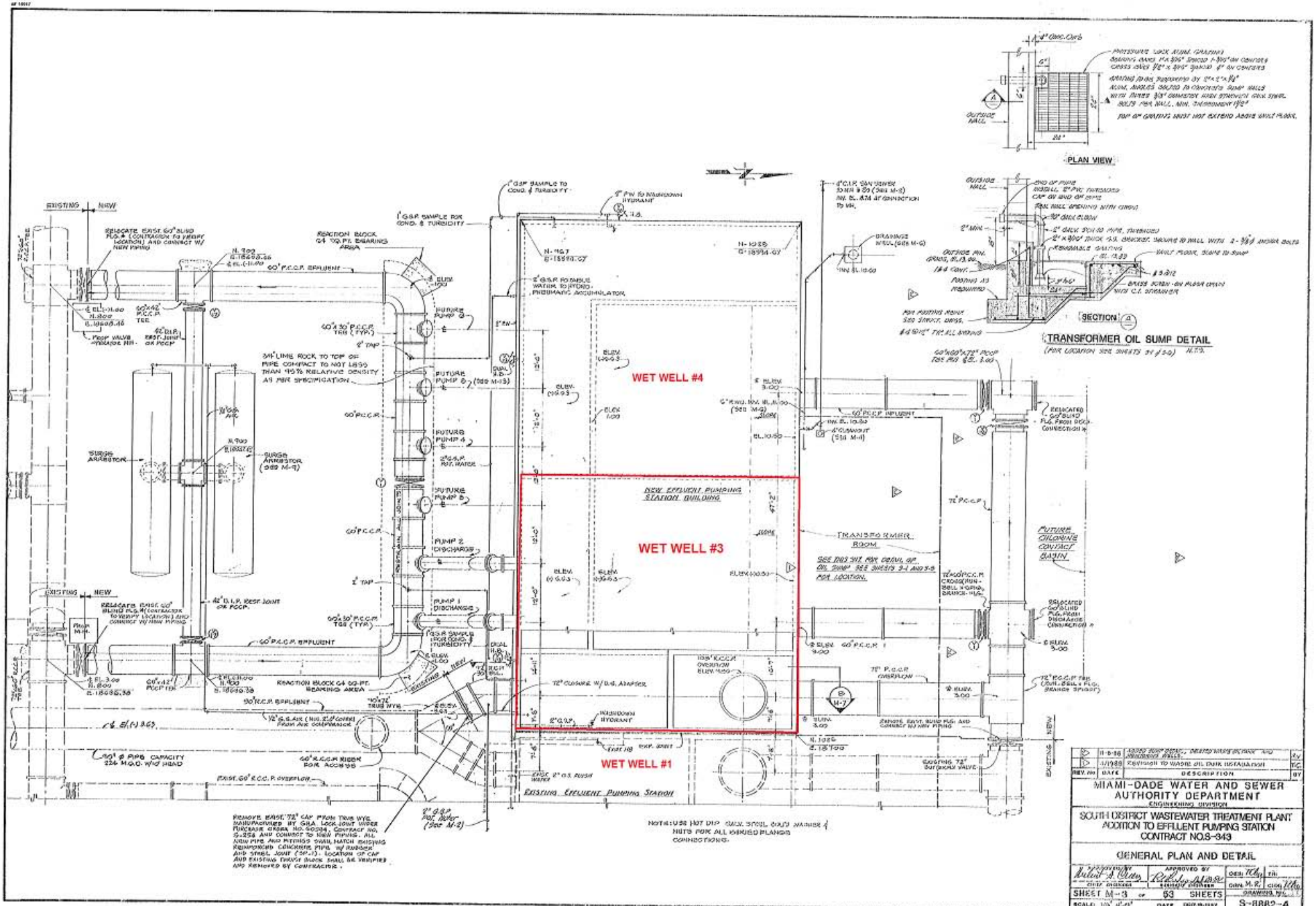


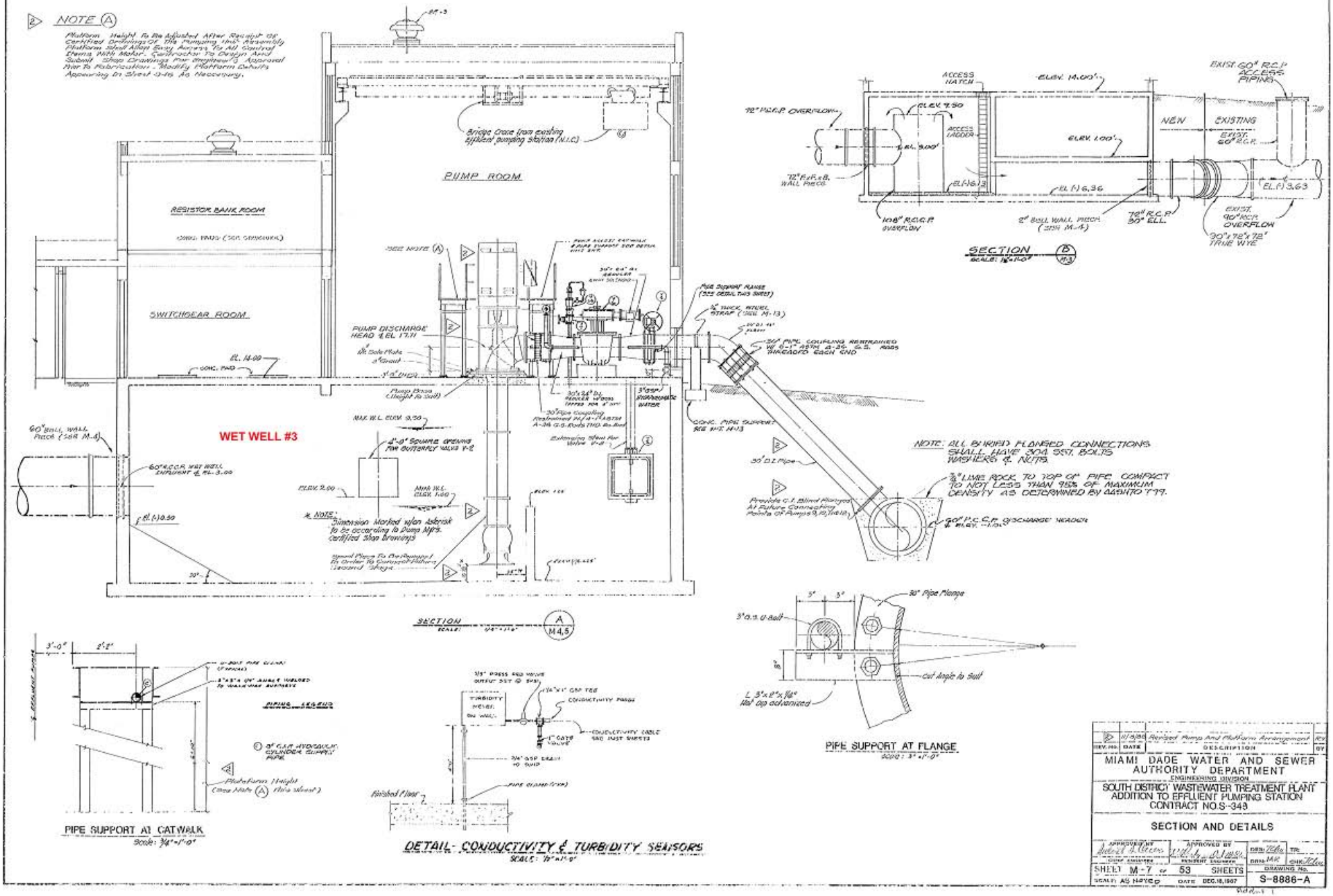
SITE PLAN



LOCATION PLAN

Appendix B. Wet Well #3 Drawings


WET WELL #4
WET WELL #3
WET WELL #1
NEW EFFLUENT PUMPING STATION BUILDING
EXISTING EFFLUENT PUMPING STATION
TRANSFORMER ROOM
FUTURE CHLORINE CONTACT BASIN
TRANSFORMER OIL SUMP DETAIL
PLAN VIEW
SECTION
REMOVE EXIST. 72" CAP FROM TEE WYE MANUFACTURED BY GRA. LOCK JOINT PIPE PURCHASE ORDER NO. 40234, CONTRACT NO. S-358 AND CONNECT TO NEW PIPING. ALL NEW PIPE AND FITTINGS SHALL MATCH EXISTING REINFORCED CONCRETE PIPE W/ RUBBER AND STEEL JOINT (50-D). LOCATION OF CAP AND EXISTING THRUST BLOCK SHALL BE VERIFIED AND REMOVED BY CONTRACTOR.
NOTE: USE HOT DIP GALV. STEEL BOLTS MARKED * NUTS FOR ALL EXPOSED FLANGED CONNECTIONS.
MIAMI-DADE WATER AND SEWER AUTHORITY DEPARTMENT
ENGINEERING DIVISION
SOUTH DISTRICT WASTEWATER TREATMENT PLANT
ADDITION TO EFFLUENT PUMPING STATION
CONTRACT NO.S-343
GENERAL PLAN AND DETAIL
SHEET M-3 OF 53 SHEETS
SCALE: 1/8" = 1'-0"
S-8882-A



REV. NO.	DATE	DESCRIPTION	BY
2	11/3/06	Revised Pump And Platform Arrangement	RV

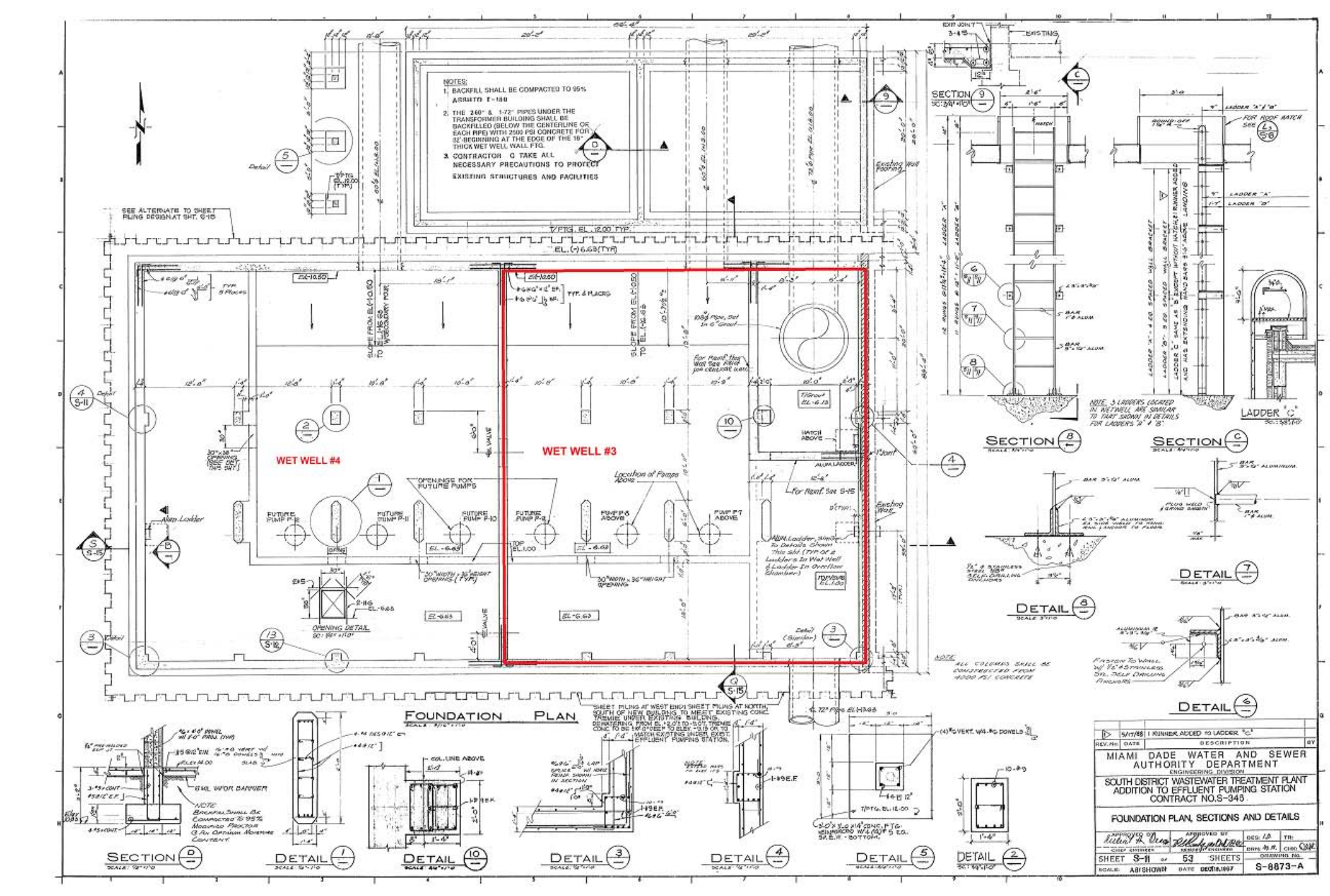
MIAMI DADE WATER AND SEWER AUTHORITY DEPARTMENT
ENGINEERING DIVISION

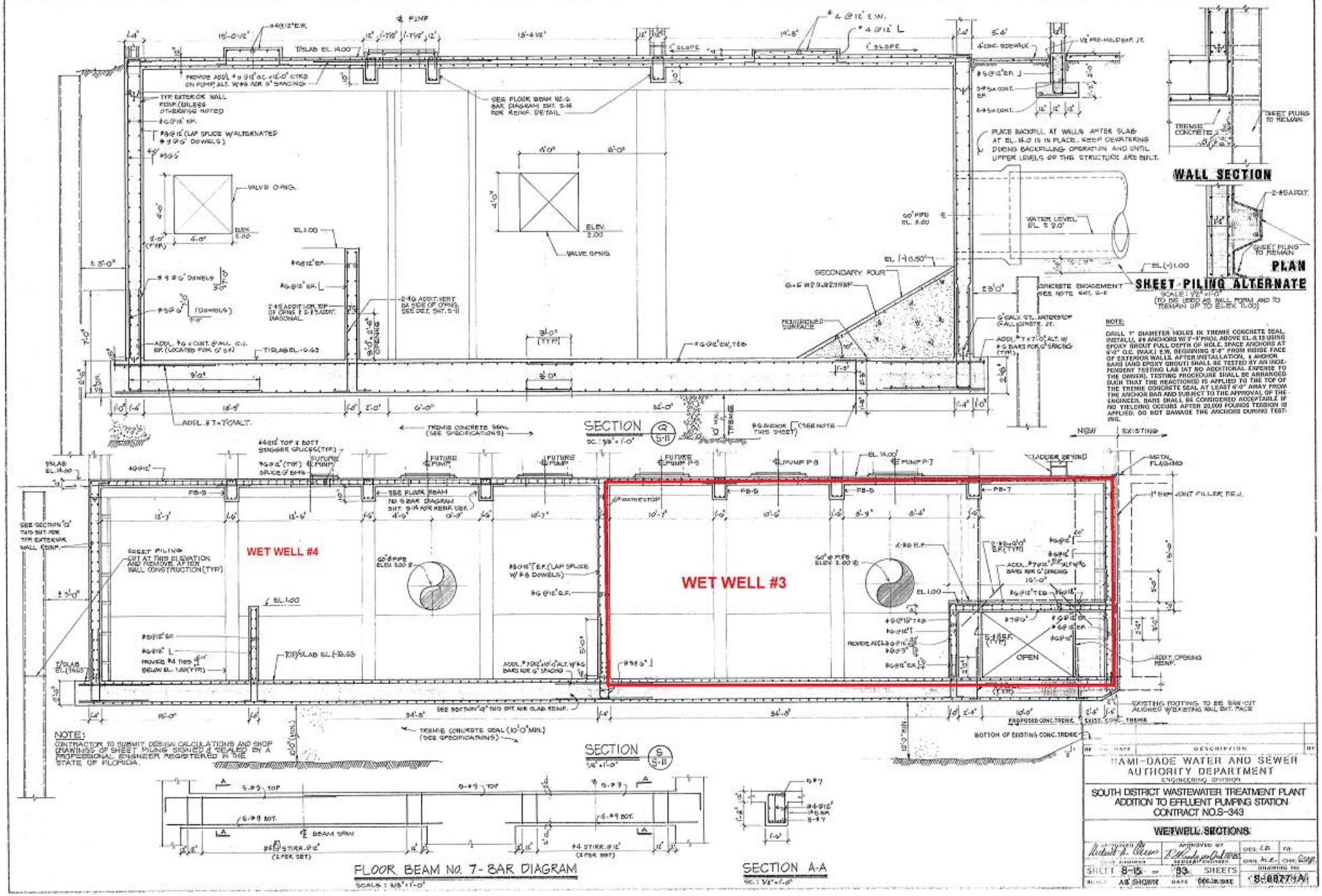
SOUTH DISTRICT WASTEWATER TREATMENT PLANT
ADDITION TO EFFLUENT PUMPING STATION
CONTRACT NO.S-348

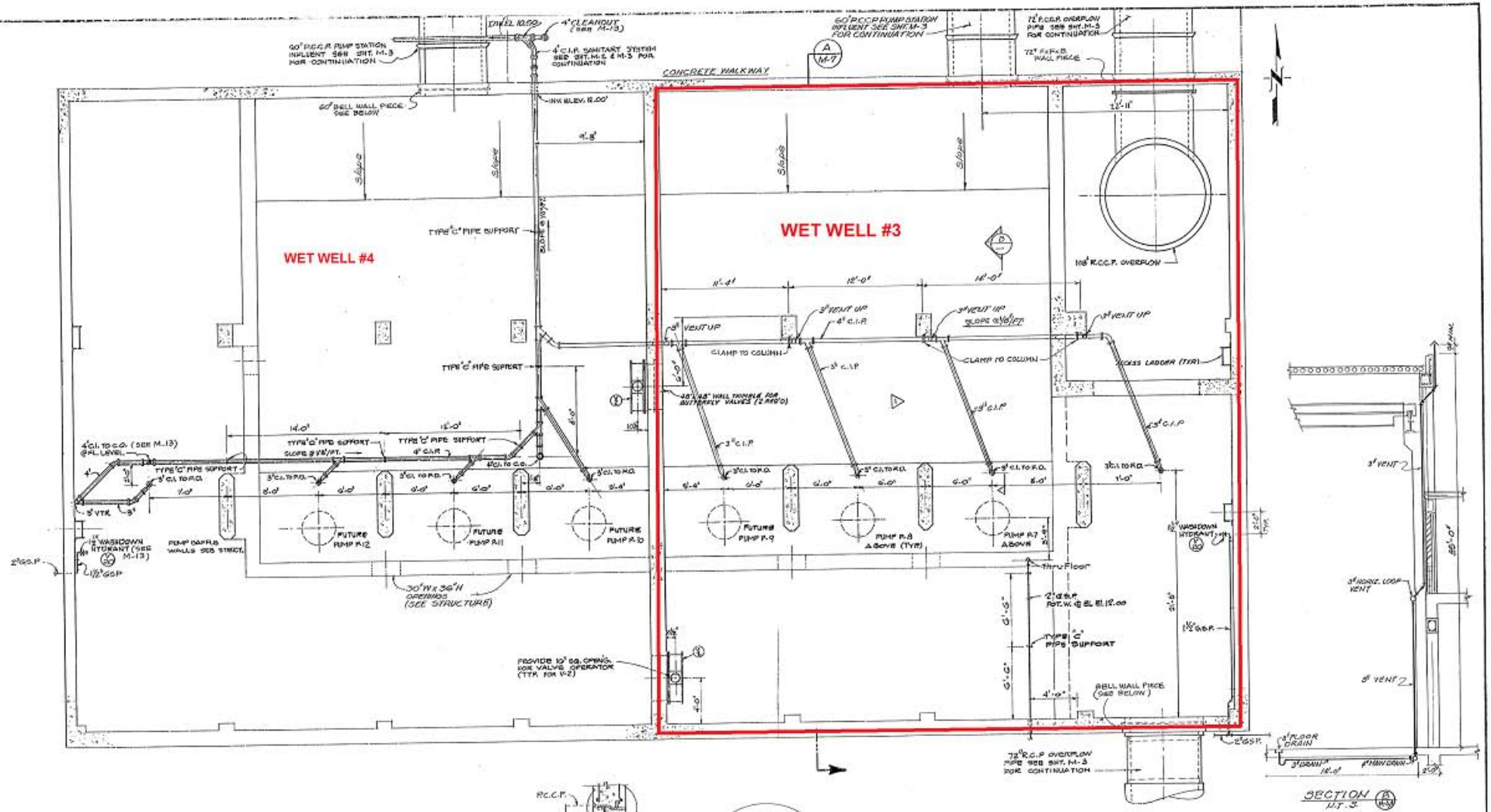
SECTION AND DETAILS

APPROVED BY	APPROVED BY	DESIGN	TR
CHIEF ENGINEER	PROJECT ENGINEER	DRAWN	MR
		CHK.	

SHEET M-7 OF 53 SHEETS
SCALE: AS NOTED DATE DEC. 18, 1987
DRAWING No. S-8886-A

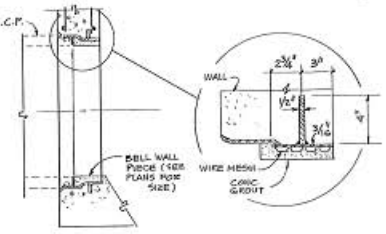

NOTES:
1. BACKFILL SHALL BE COMPACTED TO 95% ASSHTO T-180
2. THE 2-60" & 1-72" PIPES UNDER THE TRANSFORMER BUILDING SHALL BE BACKFILLED (BELOW THE CENTERLINE OF EACH PIPE) WITH 2500 PSI CONCRETE FOR 32'-BEGINNING AT THE EDGE OF THE 18" THICK WET WELL WALL FTG.
3. CONTRACTOR IS TO TAKE ALL NECESSARY PRECAUTIONS TO PROTECT EXISTING STRUCTURES AND FACILITIES
WET WELL #4
WET WELL #3
FOUNDATION PLAN
SECTION
DETAIL
LADDER "C"
NOTE: ALL COLUMNS SHALL BE CONSTRUCTED FROM 4000 PSI CONCRETE
MIAMI DADE WATER AND SEWER AUTHORITY DEPARTMENT
ENGINEERING DIVISION
SOUTH DISTRICT WASTEWATER TREATMENT PLANT ADDITION TO EFFLUENT PUMPING STATION CONTRACT NO.S-345
FOUNDATION PLAN, SECTIONS AND DETAILS
SHEET S-11 OF 53 SHEETS
DRAWING NO. S-8873-A
SCALE: AS SHOWN
DATE: DEC 18, 1997


WET WELL #4
WET WELL #3
SECTION @ S-11
SECTION S-11
SECTION A-A
FLOOR BEAM NO. 7 - BAR DIAGRAM
WALL SECTION
PLAN
SHEET PILING ALTERNATE
NOTE:
CONTRACTOR TO SUBMIT DESIGN CALCULATIONS AND SHOP DRAWINGS OF SHEET PILING SIGNED & SEALED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF FLORIDA.
NOTE:
DRILL 1" DIAMETER HOLES IN TREMIE CONCRETE SEAL, INSTALL #6 ANCHORS W/ 3" PROJ. ABOVE EL. 8.13 USING EPOXY GROUT FULL DEPTH OF HOLE. SPACE ANCHORS AT 6'-0" O.C. (MAX.) E.W. BEGINNING 6'-0" FROM INSIDE FACE OF EXTERIOR WALLS. AFTER INSTALLATION, 6 ANCHOR BARS (AND EPOXY GROUT) SHALL BE TESTED BY AN INDEPENDENT TESTING LAB (AT NO ADDITIONAL EXPENSE TO THE OWNER). TESTING PROCEDURE SHALL BE ARRANGED SUCH THAT THE REACTIONIS IS APPLIED TO THE TOP OF THE TREMIE CONCRETE SEAL AT LEAST 6'-0" AWAY FROM THE ANCHOR BAR AND SUBJECT TO THE APPROVAL OF THE ENGINEER. BARS SHALL BE CONSIDERED ACCEPTABLE IF NO YIELDING OCCURS AFTER 20,000 POUNDS TENSION IS APPLIED. DO NOT DAMAGE THE ANCHORS DURING TESTING.
MIAMI-DADE WATER AND SEWER AUTHORITY DEPARTMENT
ENGINEERING DIVISION
SOUTH DISTRICT WASTEWATER TREATMENT PLANT
ADDITION TO EFFLUENT PUMPING STATION
CONTRACT NO.S-343
WETWELL SECTIONS
SHEET 8-15
93 SHEETS
S-0877(A)



PUMP SUMP PLAN

SCALE: 1/8" = 1'-0"



BELL WALL PIECE DETAIL

NTS.

REV. NO.	DATE	DESCRIPTION	BY
1	11/19/87	CHANGE FLOOR DRAINS	HS

MIAMI-DADE WATER AND SEWER AUTHORITY DEPARTMENT
ENGINEERING DIVISION

SOUTH DISTRICT WASTEWATER TREATMENT PLANT
ADDITION TO EFFLUENT PUMPING STATION
CONTRACT NO. S-343

PUMP SUMP PLAN

APPROVED BY: CHIEF ENGINEER — APPROVED BY: RESIDENT ENGINEER — DES. — TR: — DRN. M.R. — CHK. — DRAWING NO. S-8883-A

SHEET M-4 OF 53 SHEETS

SCALE: 1/4" = 1'-0" — DATE: DEC. 18, 1987

PERMIT NO. 89-04-5005

APPENDIX “F”

VISUAL INSPECTION REPORT

CD 1.05(1) SDWWTP Effluent Wet Well No. 4 and Drain Lines Rehabilitation

(30 Pages)

CENIT

MIAMI-DADE COUNTY

CD 1.05.01 SOUTH DISTRICT WASTEWATER PLANT EFFLUENT WET WELLS AND DRAIN LINES REHABILITATION

VISUAL INSPECTION REPORT

BASIN #4

Prepared by: Alfredo Andres, P.E.

For: MIAMI-DADE WATER & SEWER DEPARTMENT

MAY 30th, 2017

Table of Contents

1. BACKGROUND

The scope of the Project is to provide design services related to development of documents for cleaning and coating, repairing of concrete spalls and typical crack injection of concrete effluent wet-well basins and replacement of drain pipelines at the South District Wastewater Treatment Plant (SDWWTP), located at:

SOUTH DISTRICT WASTEWATER TREATMENT PLANT

8950 S.W. 232 Street

Miami, FL 33190

Services shall be implemented and coordinated directly with WASD's Consent Decree Program Manager and Construction Manager (PMCM), scheduling of meetings and site visits, and other related project tasks.

There are four wet-well basins included in the scope of work. From East to West: Basin #2, Basin #1, Basin #3 and Basin #4. The effluent wet well building is located south of the chlorine contact mixer chamber from which the treated waste water flows by gravity into the wet wells.

Appendix A includes a Site Map showing the location for the four wet wells.

On April 3, 2017 Alfredo Andres, PE carried out a visual inspection of the South District Wastewater Treatment Plant (SDWWTP) Effluent Wet Well #4. The inspection was limited to assess the condition of the concrete surface visually accessible. This report does not include a structural forensic analysis nor a service life prediction for the existing structure. A material testing program was not part of project's scope of work.

2. SCOPE OF WORK

This report includes only the inspection of **BASIN #4**.

The extent of the inspection included:

- Perform a condition assessment for the SDWWTP Wet Well Basin No.4 to identify and define the various conditions concrete and drainage may exhibit.
- Provide documentation of all the observations and deficiencies found.
- Provide recommendations for rehabilitation, cleaning and coating the interior and exterior of the wet well basin's structure, as well as rehabilitating the drainage system.

3. WET WELL DESCRIPTION

The effluent wet well #4 is a 50'-8" by 55'-8" (interior dimensions) underground reinforced concrete structure that shares an intermediate wall with wet well #3 to its eastern side. The wet well dimensions and description (see details in the existing structural drawings available in Appendix B), can be summarized as follows:

- The drawings are dated December 1987.
- The concrete used for the construction shall have a compressive strength off 'c=4000psi and all reinforcement shall comply with a minimum yield stress off y=60,000psi.
- The structure foundation consists on a 2.5" thick mat footing with its top side at elevation -6.63
- The basin's interior and perimeter walls are 16" thick concrete reinforced walls with 19.875' height at its highest point.
- The roof slab is a 12" thick reinforced concrete. Its superior side is at elevation 14.00
- There are three 24" by 16" columns and another three 6' by 16" structural walls inside the wet well. The latter are disposed between the three vertical pumps numbered 10, 11 and 12.
- There is a sloped ramp from the northern wall, starting at elevation -1.00 toward the middle of the wet well.

- On the northern side there is the inlet 60” diameter butterfly valve at center elevation 3.00.
- On the eastern side wall there are two 48” by 48” squared butterfly valves that connect to the adjacent wet well #3. The inferior elevation is at 2.00.
- The access to the interior of the wet well is through a 36” by 36” cast iron hatch located on the eastern side which gives access to a 1’6” (width) ladder attached to the wall.
- On the north side of the western wall there is an overflow pipe 60” diameter butterfly valve.
- There are steel pipes attached to the roof slab from 3” to 6” for drainage of the building floors and roof, for sanitary sewer servicing the building and also for the electrical conduits connecting the electric gear on the first floor to the pumps.

4. INSPECTION METHODOLOGY

Systematic visual inspection was performed on the slab floor exterior surface (upper side of the roof slab) and on the interior of the wet well.

The inspection consisted of a visual and non-destructive sounding survey field test. The sounding survey was performed with a hammer, except on the lowest area around the pump inlet where there still was about two feet of water at the time of the inspection. Hammer striking was performed on vertical and the elevated floor structural elements. The purpose of the sounding survey was to identify presence of delamination of concrete not visible on the surface. The inspection was performed at each area in a systematic way through the following steps:

1. The inspector entered through roof slab access opening following the fall protection and confined space entry requirements.
2. Once inside, the wall inspection followed a counterclockwise order. Each observation was described and photographed.
3. Next, the interior columns were inspected and uneven surfaces of the floor slabs were

detected by systematically walking the area, including detailed inspection of the slab-to-wall joints.

4. Next, the underside of the roof slab was observed as well as the drainage and electrical pipping attached to it.

5. After all interior areas were completed, the accessible exterior area (upper surface of the roof slab) were observed including the concrete supports for the vertical pumps and valves.

Prior to performing the inspection works, the inspection crew locked out and tagged all electrical switches and valves connecting to the wet well #4. Also, all confined spaces, fall protection, ladders and personal protective equipment OSHA requirements were followed. Please refer to the "Site Specific Safety Plan" for more details. Safety officer Alfredo Andres, P.E. was present during the inspection and was in charge of the implementation of all safety requirements. The following materials and personal protective equipment were used:

1. Hard hat and reflective vest
2. Rubber boots with steel toe
3. Safety glasses
4. Safety harness
5. Gloves
6. Rescue Tripod
7. Camera
8. Head and hand held flashlights
9. Hand held two way radios
10. Measuring tape
11. Hammer
12. Air monitors
13. Ladder
14. First Aid Kit
15. 300 watt halogen flood light lamp
16. Air ventilation equipment

5. FINDINGS AND OBSERVATIONS

5.1 WET WELL #4. EXTERIOR CONCRETE

There are minor cracks and spalling on the upper side of the floor slab. There are some areas with hair line cracks but no signs of serious shear stress cracks. There is no exposed reinforcement steel, however, remediation action is required to prevent that from happening and to reduce the potential of deterioration of concrete. These minor cracks should be sealed and repaired (as described in section 6) prior to painting and coating the slab surface.

Some examples are shown in photos #1 and #2.

Photo #1. Upper side of slab. Minor d-crack

Photo #2. Upper side of slab. Minor concrete deterioration

5.2 WET WELL #4. INTERIOR CONCRETE

The wet area (lower area) of the concrete on the interior of the wet well is generally in good overall condition; however, on the ceiling and the upper area of the walls (the dry area) the protective paint has been peeling off the surface of the concrete (see photos #3 to #7 below). In this upper area there is widespread efflorescence that appears as a white powdery substance deposited on the surface of the concrete. This efflorescence is caused by vapor migrating through the slab bringing soluble salts to crystallize on the surface of the concrete. The inadequate material or application technique used to paint the surface of the concrete has caused the paint film to become unbound and peel off the surface, leaving the concrete unprotected and unsealed, and thus facilitating the moisture and vapor migration through the slab.

These salt deposits often contain calcium, sodium and potassium hydroxides or carbonates, bicarbonates, chlorides and sulfates of calcium and magnesium. While some of these substances are initially water-soluble, after being in contact with the atmosphere, carbon dioxide converts them

to water-insoluble calcium carbonate and magnesium carbonate, which are difficult to remove from the concrete surface without the use of acids, special chemicals or sandblasting.

Photo #3. South-eastern wall and ceiling. Efflorescence on the dry/upper areas.

Photos #4 and #5. Paint film peeling off and efflorescence.

Photo #6. Detail of paint film peeling off the concrete surface.

Photos #7. Detail of efflorescence.

The concrete on the wet areas does not show any efflorescence, it shows some minor small cracks, spalling and scaling that should be repaired (as described in section 6) prior to the final coating. There are no signs of exposed reinforcement steel, however, remediation action is required to prevent that from happening and to reduce the potential of deterioration of concrete. See picture below for typical concrete deterioration:

Photo #8. Some minor d-cracks on the roof slab

At the time of the inspection, the wet well had been emptied but there still was about 12" of effluent water on the lowest area just beneath the pumps' intake. On these areas, the concrete floor showed some signs of spalling and aggregate exposure.

Photo #9. Spalling/scaling on floor concrete.

Mostly all joint sealant between the floor slab and the wall is debonded, or, in some cases non-existent.

At the time of the inspection, the wet well had been emptied from effluent water, but it still had dirt and paint in most of its surfaces. For this reason, another detailed evaluation of the concrete interior surfaces should be made when the surfaces are pressured cleaned.

In addition, an inspection by a structural engineering should be performed at such time, to confirm that there are no major damages to the concrete structure and that the minor concrete deterioration described in this report do not constitute any breach of the structural integrity of the tank.

5.3 WET WELL #4. VALVES

On the eastern side wall there are two 48” by 48” squared butterfly valves that connect to the adjacent wet well #3. The inferior elevation is 2.00

Although both tanks #3 and #4 were emptied simultaneously for the inspection, there were signs of leakage on both valves, which might mean that the sealant joint is damaged.

These two valves show some mild signs of corrosion as shown in picture #10.

Photo #10. Butterfly valve on the east wall connecting to wet well #3.

On the northern wall there is the inlet pipe connecting to the chlorine contact chamber, with a 60” diameter butterfly valve at center elevation 3.00. This valve showed no signs of deterioration.

On the north side of the western wall there is an overflow pipe with a 60” diameter butterfly valve with no signs of deterioration.

Photo #11. Overflow valve on the west wall.

5.4 WET WELL #4. DRAINAGE AND PIPPING

The drainage system and sanitary sewer from the ground floor and roof is collected and pipped under the wet well slab. This are aged iron pipes generally in very poor condition, in many locations broken and with visible leakage.

A visual inspection of the electrical conduits from the base of the pumps to the VFDs and switch gear, also hanging from the underside of the roof slab, look in good condition. This assessment should be reevaluated during the repair period, when scaffolds are installed and a more detailed inspection can be made, to confirm the condition of the electrical conduits.

Photo #12. Electrical conduits

6. CONCLUSIONS AND RECOMMENDATIONS

The wet well #4 condition assessment performed was based on the concrete surface visually accessible and the sounding survey. No other material testing was performed.

Based on the visual observations, it does not appear to be any critical deterioration of the concrete structure which would impede its ability to perform its original function. Once the tank has been pressure washed by the contractor performing the work, a more detailed structural inspection and evaluation will be performed by a structural engineer, combined with material testing if further recommended, to confirm the previous statement.

Special attention is needed to determine the chemical composition and origin of the efflorescence. Although this salt deposits typically do not constitute a structural weakening of the concrete, further analysis is recommended to determine if the reinforcement steel has been affected by the efflorescence salts.

6.1 MATERIAL TESTING PROGRAM

Further investigation is recommended to estimate the durability and to be able to predict the remaining service life of the concrete structure. Durability is the capability of maintaining the capacity to perform the function for which the structure is designed and constructed, and service life is the period of time in which all the properties of the concrete exceeds the minimum acceptable values.

These analyses impact essentially all decisions concerning future economic consideration, helps determine when the structural safety is unacceptable due to concrete degradation and/or corrosion of steel reinforcement, and when the actual loads are exceeding the load capacity.

The following more invasive field and laboratory material testing program is recommended:

1. Corrosion Potential ASTM C876. The potential for active corrosion and areas vulnerable to corrosion are measured. The results in the form of contour plots enables the determination of which areas and structural elements are potentially corroding and thus need to be addressed to slow the corrosion process and prevent further damage. A total of six locations are recommended to be tested. Two locations at floor and roof slab and strategic areas vulnerable to corrosion like leaks and cold joint areas at walls.

2. Concrete Compressive Strength Test ASTMC42. Concrete cores to determine the

compressive strength of the in-place concrete. A total of three sets of three cores are recommended. It is also recommended to test the depth of carbonation at each core.

3. Chloride Ion and pH Content ASTMC1218, ASTMC1152. To determine the profile of chloride penetration from the surface of the concrete to the depth of the reinforcement. A total of four locations are recommended to be tested. Two locations at floor and roof slab.

4. Petrographic Examination ASTMC856. To describe the overall quality of concrete and mixtures proportions used. Determine the deterioration as a result of chemical attack, steel corrosion, evidence of internal micro-cracking as well as cracking resulting from dimensional changes as well as external loading. A total of two locations are recommended to be tested.

5. Concrete Cover Survey. To determine the actual clear cover from the concrete surface to the steel reinforcement by ferro scan or ground penetration radar.

The following table summarizes the recommended field and laboratory testing program:

Field and Laboratory Test	ASTM	Quantity
Corrosion Potential	C876	6
Concrete Compressive Strength	C42	3 sets of 3 cores
Chloride Ion and pH Content	C1218,C1115	4
Petrographic Examination	C856	2
Depth of Carbonation	At each extracted core	
Concrete Cover Survey	As needed	

Part of a successful concrete evaluation is the combination of the visual condition assessment and a material testing program. The tank's overall concrete condition requires proper concrete repair procedures and protection for the wastewater environment. There are different types of specific distress along the entire tank that requires different types of approach for which localized tests are

recommended. Areas that presents potential for reinforcement corrosion also requires special attention to determine the extent of the damage.

6.2 CONCRETE REPAIR WORKS

The repair procedures will depend on the application, the material actual properties, and the extent of the damage. Proper repair details shall be prepared for each type of condition or concrete element.

The following are typical repair procedure recommendations:

6.2.1 Damage at Concrete Surfaces – No Reinforcement Exposure

A polymer modified, Portland cement based, fast setting, non-sag mortar with corrosion inhibitor is recommended for patching material at damaged concrete surfaces. All deteriorated concrete, oil, grease and all bonding inhibiting materials must be removed prior the application. The concrete surface profile shall be appropriate for the application by waterblast or any other appropriate mechanical means. It is important that the surface is thoroughly clean and dry with no standing water during the application. A bonding agent shall be applied prior the repair mortar application. The repair area shall extend beyond the actual damaged area as specified on bid documents repair details. In case of exposed corroded reinforcement the process shall incorporate the steps of section 6.2.2 of this report. However, all concrete repair works shall follow the proper technical specification and construction bid documents requirements.

6.2.2 Damage at Concrete Surface – Corroded Reinforcement

Remove the concrete from around the corroded reinforcement. Repair configurations shall be preferably square or rectangular with square corners. Reentrant corner shall be minimized as they are susceptible to cracking. Undercut exposed reinforcement by abrasive blasting or any other suitable method to provide clearance under the reinforcing steel. Provide clearance between reinforcing steel and surrounding concrete as specified on bid documents repair details. Sound concrete may have to be removed to provide proper clearance. Extend removal until there is no

further cracking or significant corrosion. Loose reinforcement should be secure in its original position and supplemental bars shall be mechanical spliced or lap spliced beyond the damaged area. In case that most of the reinforcement is damaged, a new reinforcing mat shall be installed on the whole area. In case of a vertical application, anchors shall be provided.

6.2.3 Concrete Cracks

Due to its rigid nature, concrete can develop cracks due to shrinkage, temperature changes, uneven drying or excessive loads. Repairing and sealing cracks in concrete requires proper procedure that begin with widening the crack and breaking away any deteriorated concrete. Crack edges shall be vertical or beveled. All loose material shall be removed by brush or airbrush. For dormant cracks, using an epoxy resin to bond concrete back together is recommended. Epoxy repairs not only seal cracks but also restore strength and stiffness of concrete. Epoxy is not recommended for active cracks. Repairing an active crack with epoxy typically results in a new crack forming near the original. For active cracks with anticipated crack movement, an elastomeric sealant with sufficient elongation properties is recommended. Refer to technical specifications and construction bid documents for a more detailed procedure.

6.3 CONCRETE PROTECTIVE COATING SYSTEM

After all concrete repair works, a coating system must be applied to protect the concrete and resist degradation for its wastewater environmental condition.

6.3.1 Surface Preparation

The correct surface preparation is a key element for the success of the restoration application. First of all, prior to any work it is important that the concrete surface be thoroughly cleaned and left free of all dirt, oil, sludge, film, paint, coatings, unsound concrete and other materials that could interfere with the adhesion or penetrations of the specified coating. The recommended method to achieve the adequate concrete surface profile for coating application is abrasive blasting or water pressure

washing. This method carries a very low potential risk of induction micro cracking or bruising of the concrete during the surface preparation. The concrete surface profile achieved will vary depending on the concrete strength and the size and type of aggregates. It is important that the surface profile be suitable for the type of coating applied. Please refer to technical specification 03721 “Preparation for Resurfacing Concrete” and specified coating manufacturer’s instruction for surface preparation requirements.

If after the water pressure washing there are still signs of efflorescence on certain areas of the concrete surface, a mild acid clean should be implemented. Please refer to technical specification 0371016 “Removing Efflorescence from Concrete” and specified chemical manufacturer’s instruction for surface preparation requirements. A small patch of 3’ by 3’ should be tested prior to applying the process to the entire affected area.

6.3.2 Coating Application

The application of an epoxy coating system that is formulated to provide corrosion protection, chemical and erosion resistance, abrasion resistance and impact resistance is recommended. Wol-Coat 310 or approved equal shall be applied at all interior concrete surfaces. An even concrete surface shall be provided for the application system. Priming is recommended prior the installation with Wol-Coat410 or approved equal. The number of coats required will depend on the film thickness specified and the type of coating used. The recommended film thickness for Wol-Coat 310 is 32mils D.F.T. usually applied in two coats of 16mils per coat. Manufacturer’s written instructions shall be followed. Please refer to technical specifications 09881“Wol-Coat Protective Coatings for Concrete” and construction bid documents for more detailed requirements and procedures for coating application works.

6.4 VALVE REPAIR WORKS

First of all, prior to any work done on the existing valves it is important that the valve steel surface be thoroughly cleaned and left free of all dirt, oil, sludge, film, paint, coatings and other materials that could interfere with the adhesion or penetrations of the specified paint; including the existing sealant rubber joint. The recommended method to achieve the adequate steel surface profile for paint application is water pressure washing. Next, the application of an epoxy paint that is formulated to provide corrosion protection and chemical resistance is recommended. Priming is recommended prior the epoxy paint application. The number of coats required will depend on the film thickness specified and the type of paint used. Manufacturer's written instructions shall be followed. Finally, a new sealant rubber joint is to be installed.

6.5 DRAINAGE AND PIPPING

All cast iron drainage pipes hanging from the roof slab are to be removed and replaced with PVC pipes on the same locations and following the guidelines and regulations of the Florida Building Code and Miami-Dade WASD's specifications.

7. REFERENCES

- Florida Building Code.
- American Society for Testing and Materials - Standard Practice for Measuring Delamination in Concrete by Sounding(ASTMD4580)
- American Society for Testing and Materials - Standard Practice for Abrading Concrete (ASTMD4259)
- American Society for Testing and Materials - Standard Practice for Surface Cleaning Concrete for Coating (ASTMD4258)

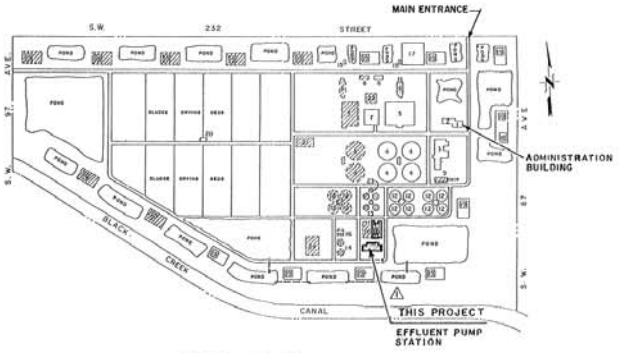
- American Concrete Institute - Guide for Conducting a Visual Inspection of Concrete in Service (ACI201.1R-08)
- American Concrete Institute - Guide to Concrete Repair(ACI546R-14)
- American Concrete Institute - Code Requirements for Assessment, Repair, and Rehabilitation of Existing Concrete Structures and Commentary (ACI562-16)
- American Concrete Institute - Service Life Prediction - State of the Art Report (ACI365.1R-00)
- International Concrete Repair Institute - Guide for Surface Preparation for the Repair of Deteriorated Concrete Resulting from Reinforcing Steel Corrosion(ICRI Guideline No.310.1R-2008, formerly No.03730)
- International Concrete Repair Institute - Selecting and Specifying Concrete Surface Preparation for Sealers, Coatings, Polymer Overlays, and Concrete Repair (ICRI Guideline No.310.2R-2013, formerly No.03732)

Appendix A. Effluent Wet Wells Site Map Drawing

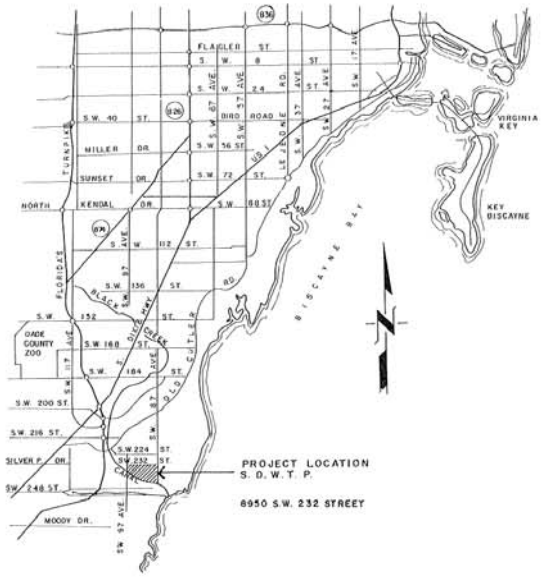
MIAMI-DADE WATER AND SEWER DEPARTMENT

SOUTH DISTRICT WASTEWATER PLANT

CD 1.05.01 WET WELLS AND DRAIN LINES REHABILITATION

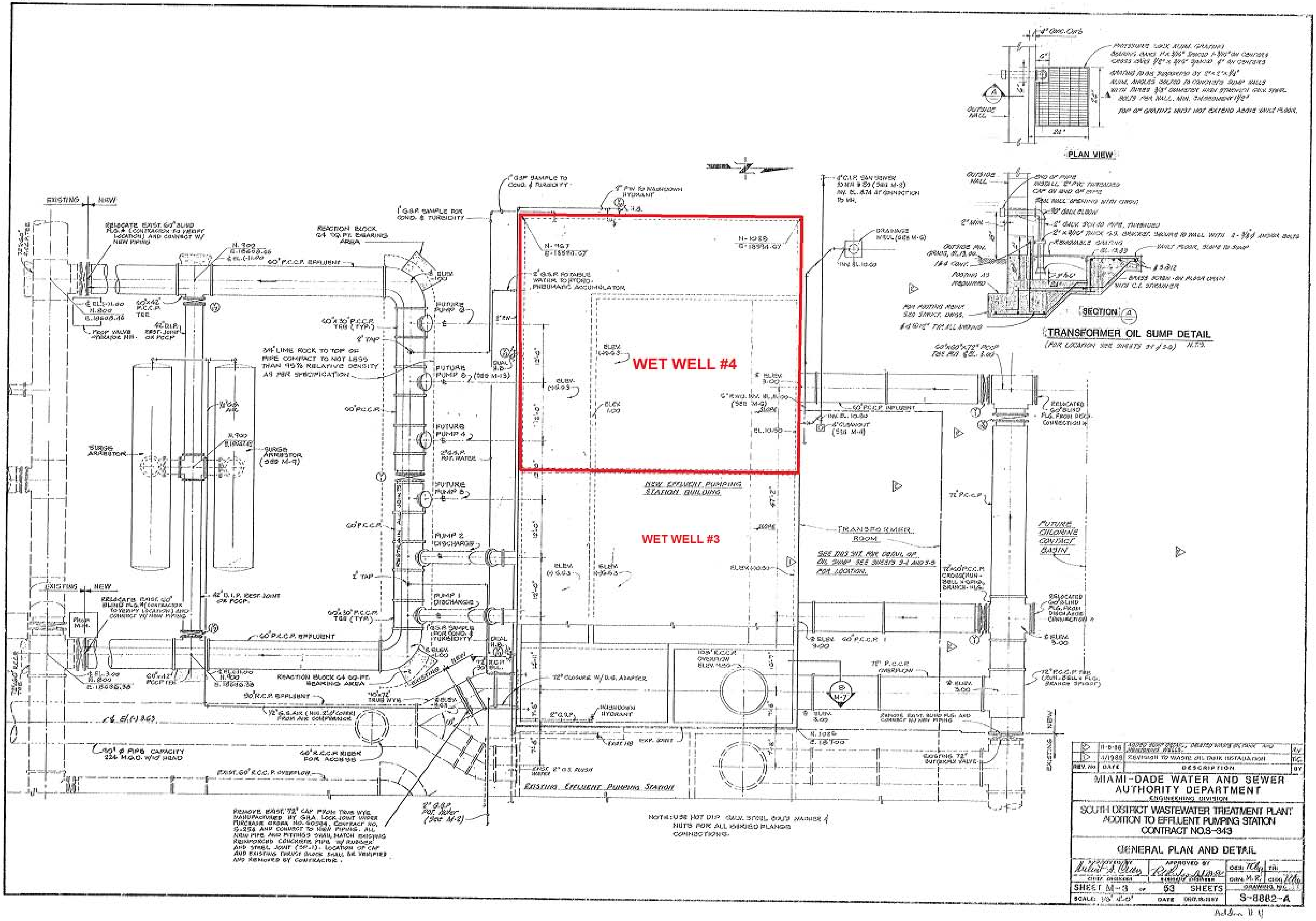


SITE PLAN



LOCATION PLAN

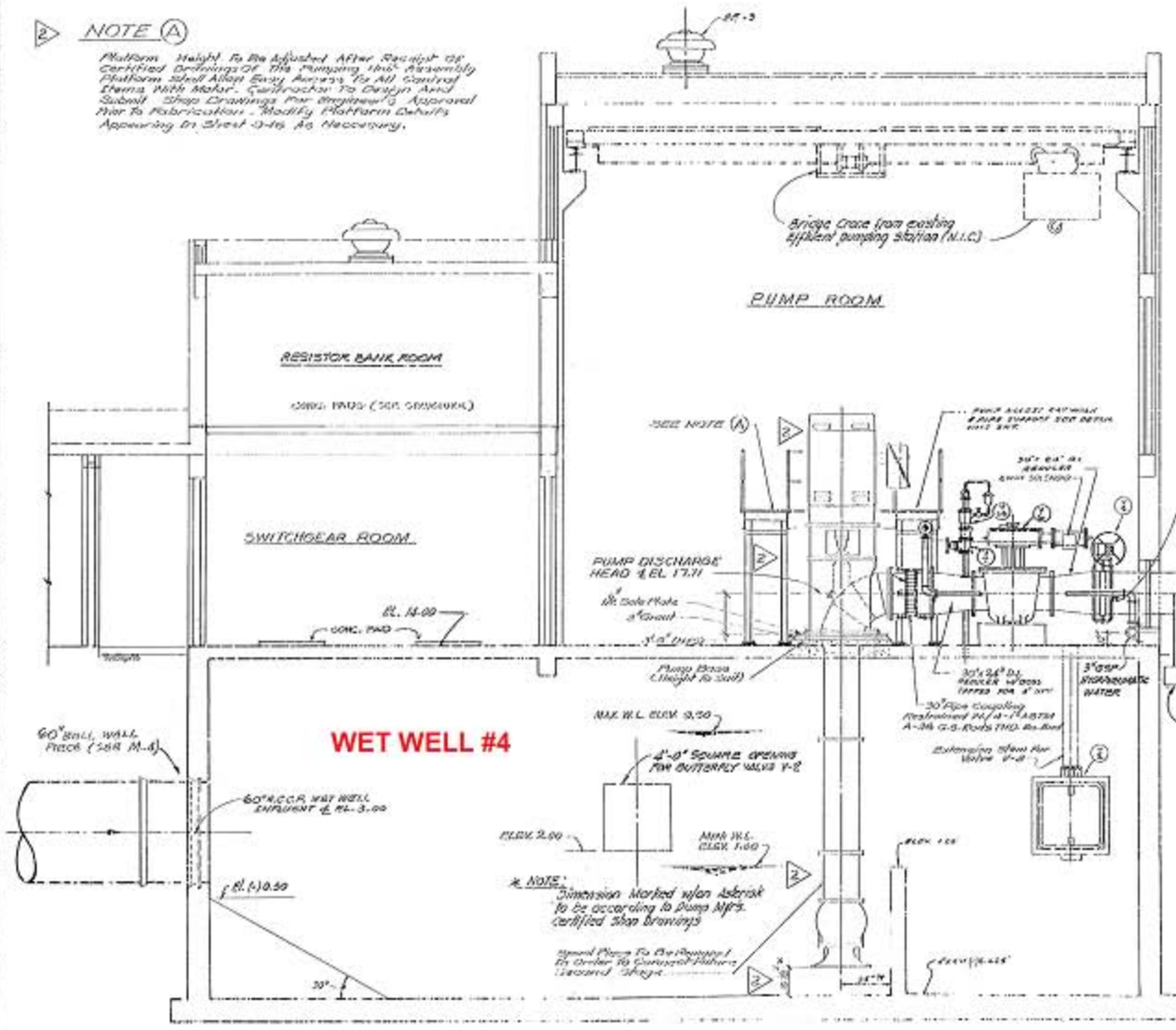
Appendix B. Wet Well #4 Drawings


WET WELL #4
WET WELL #3
NEW EFFLUENT PUMPING STATION BUILDING
EXISTING EFFLUENT PUMPING STATION
TRANSFORMER ROOM
FUTURE CHLORINE CONTACT BASIN
EXISTING
NEW
FUTURE PUMP 6
FUTURE PUMP 5
FUTURE PUMP 4
FUTURE PUMP 3
PUMP 2 DISCHARGE
PUMP 1 DISCHARGE
SURGE ARRESTOR
SURGE ARRESTOR (SEE M-9)
60" P.C.C.P. EFFLUENT
60" P.C.C.P. INFLUENT
72" P.C.C.P.
72" P.C.C.P. OVERFLOW
90" R.C.P. EFFLUENT
90" ⌀ PIPE CAPACITY 224 M.G.D. W/12' HEAD
60" R.C.C.P. RISER FOR ACCESS
EXIST. 60" R.C.C.P. OVERFLOW
REACTION BLOCK 64 SQ. FT. BEARING AREA
60"x30" P.C.C.P. TEE (TYP.)
60"x42" P.C.C.P. TEE
RELOCATE EXIST. 60" BLIND FLG.# (CONTRACTOR TO VERIFY LOCATION) AND CONNECT W/ NEW PIPING
RELOCATED 60" BLIND FLG. FROM DISCHARGE CONNECTION #
72"x60" P.C.C.P. CROSS (RUN-BELL x SPIG., BRANCH-FLG.)
72" P.C.C.P. TEE (RUN-BELL x FLG. BRANCH SPIGOT)
EXISTING 72" BUTTERFLY VALVE
REMOVE EXIST. BLIND FLG. AND CONNECT TO NEW PIPING
3/4" LIME ROCK TO TOP OF PIPE COMPACT TO NOT LESS THAN 95% RELATIVE DENSITY AS PER SPECIFICATION
42" D.I.P. REST. JOINT OR PCCP
72" CLOSURE W/ D.G. ADAPTER
WASHDOWN HYDRANT
SEE P&D SHT. FOR DETAIL OF OIL SUMP. SEE SHEETS S-1 AND S-5 FOR LOCATION.
NOTE: USE HOT DIP GALV. STEEL BOLTS WASHER & NUTS FOR ALL BURIED FLANGE CONNECTIONS.
REMOVE EXIST. 72" CAP FROM TRUE WYE MANUFACTURED BY GHA LOCK JOINT UNDER PURCHASE ORDER NO. 40584, CONTRACT NO. S-254 AND CONNECT TO NEW PIPING. ALL NEW PIPE AND FITTINGS SHALL MATCH EXISTING REINFORCED CONCRETE PIPE W/ RUBBER AND STEEL JOINT (SP-1). LOCATION OF CAP AND EXISTING THRUST BLOCK SHALL BE VERIFIED AND REMOVED BY CONTRACTOR.
PLAN VIEW
SECTION A
TRANSFORMER OIL SUMP DETAIL
(FOR LOCATION SEE SHEETS S-1 & S-5) N.T.S.
OUTSIDE WALL
24"
REMOVABLE GRATING
VAULT FLOOR, SLOPE TO SUMP
BRASS SCREW-IN FLOOR DRAIN WITH C.I. STRAINER
FOOTING AS REQUIRED
FOR FOOTING REINF. SEE STRUCT. DWGS.
TOP OF GRATING MUST NOT EXTEND ABOVE VAULT FLOOR.
MIAMI-DADE WATER AND SEWER AUTHORITY DEPARTMENT
ENGINEERING DIVISION
SOUTH DISTRICT WASTEWATER TREATMENT PLANT
ADDITION TO EFFLUENT PUMPING STATION
CONTRACT NO. S-343
GENERAL PLAN AND DETAIL
APPROVED BY
SHEET M-3 OF 63 SHEETS
DRAWING NO. S-8882-A
SCALE: 1/8" = 1'-0"
REV. NO. | DATE | DESCRIPTION | BY
4/1989 REVISION TO WASTE OIL TANK INSTALLATION

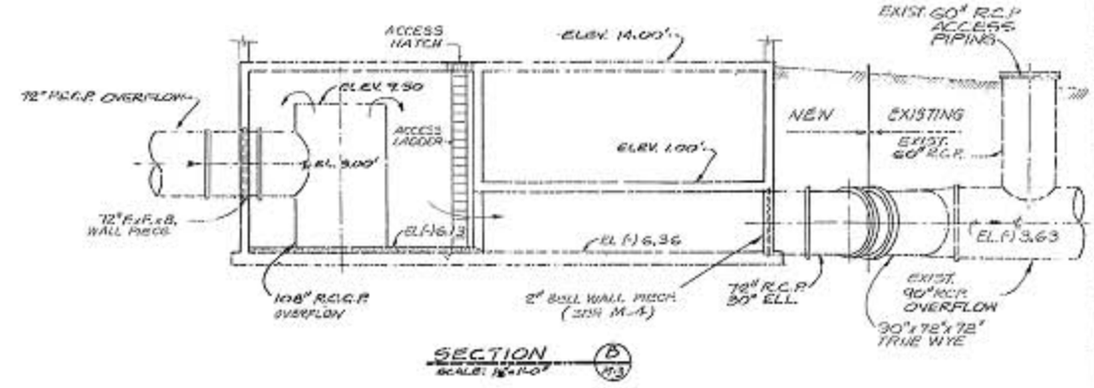
NOTE (A)

Platform Height To Be Adjusted After Receipt Of Certified Drawings Of The Pumping Unit Assembly. Platform Shall Allow Easy Access To All Control Items With Motor. Contractor To Design And Submit Shop Drawings For Engineer's Approval Prior To Fabrication. Modify Platform Details Appearing On Sheet S-16 As Necessary.

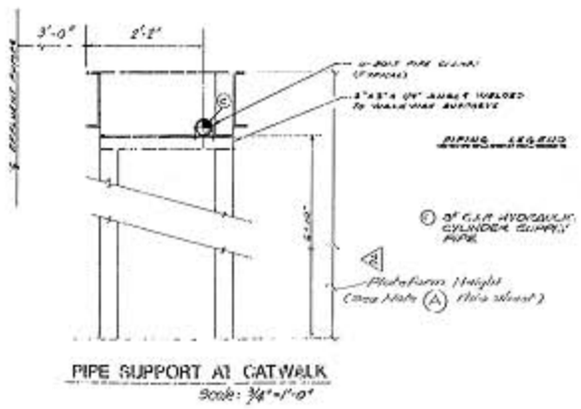
WET WELL #4



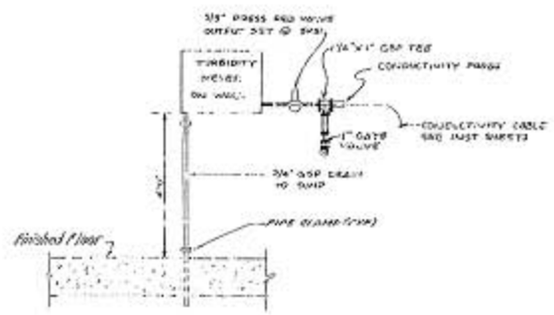
SECTION (A) M4,5



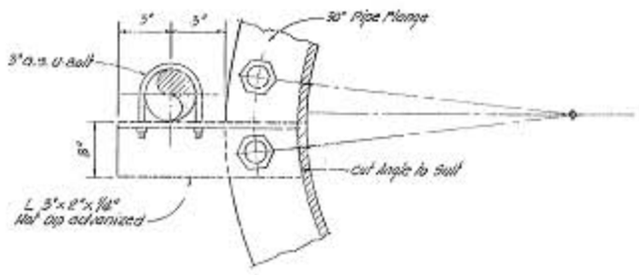
SECTION (B) M-3



PIPE SUPPORT AT CATWALK
Scale: 3/4"=1'-0"



DETAIL - CONDUCTIVITY & TURBIDITY SENSORS
SCALE: 1/2"=1'-0"



PIPE SUPPORT AT FLANGE
Scale: 3"=1'-0"

REV. NO.	DATE	DESCRIPTION	BY
2	11/9/88	Revised Pumps And Platform Arrangement	RH

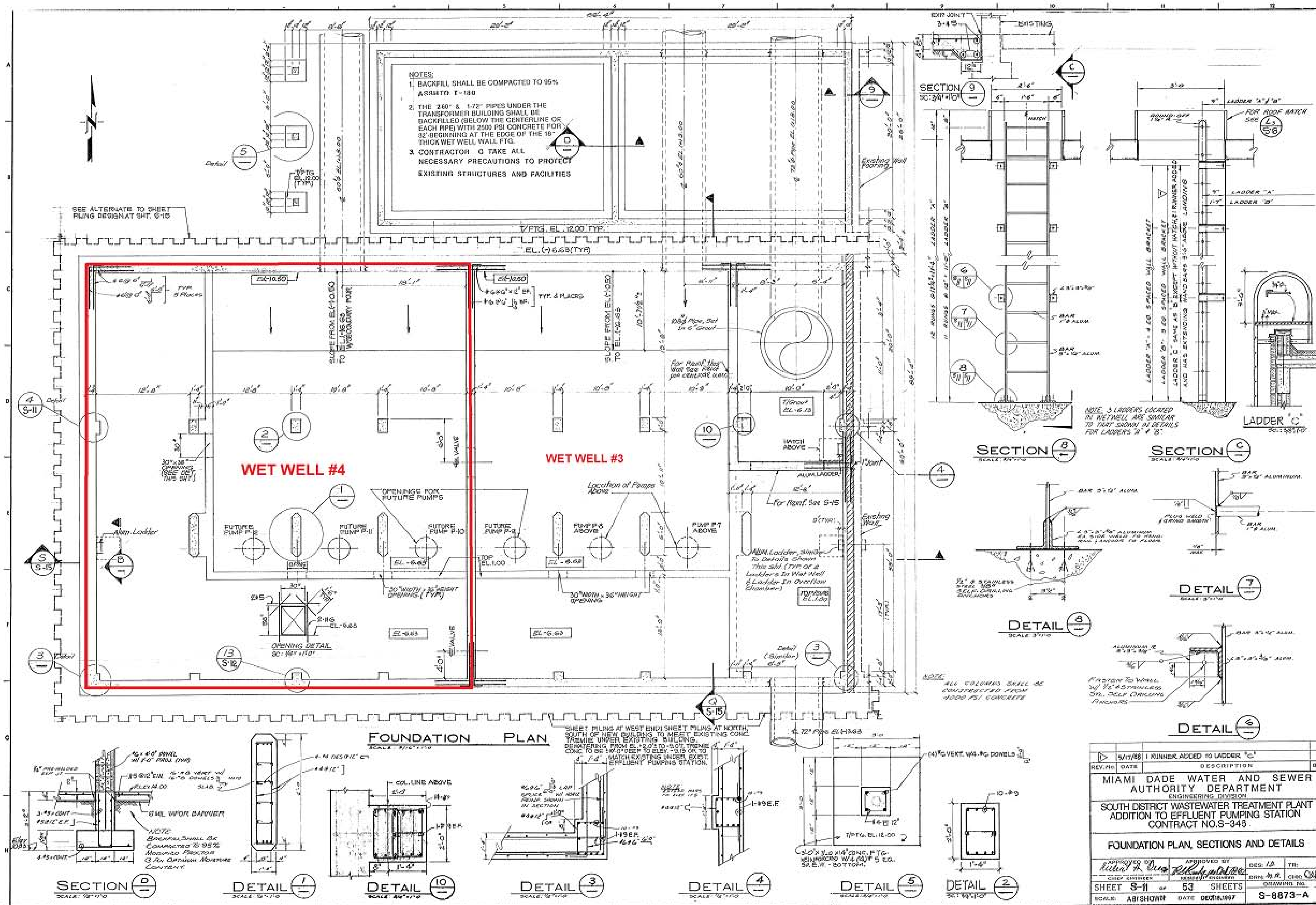
MIAMI DADE WATER AND SEWER AUTHORITY DEPARTMENT
ENGINEERING DIVISION

SOUTH DISTRICT WASTEWATER TREATMENT PLANT
ADDITION TO EFFLUENT PUMPING STATION
CONTRACT NO. S-348

SECTION AND DETAILS

APPROVED FOR	APPROVED BY	DRN. TRL	TR.
CHIEF ENGINEER	PROJECT ENGINEER	DRN. MR	CHK. TRL

SHEET M-7 OF 53 SHEETS | DRAWING NO. S-8886-A
SCALE: AS NOTED | DATE DEC. 18, 1987


NOTES:
1. BACKFILL SHALL BE COMPACTED TO 95% ASSHTO T-180
2. THE 2-60" & 1-72" PIPES UNDER THE TRANSFORMER BUILDING SHALL BE BACKFILLED (BELOW THE CENTERLINE OF EACH PIPE) WITH 2500 PSI CONCRETE FOR 32'-BEGINNING AT THE EDGE OF THE 18" THICK WET WELL WALL FTG.
3. CONTRACTOR TO TAKE ALL NECESSARY PRECAUTIONS TO PROTECT EXISTING STRUCTURES AND FACILITIES
SEE ALTERNATE TO SHEET PILING DESIGN AT SHT. S-16
T/FTG. EL. 12.00 TYP.
EL. (-)6.68(TYP)
WET WELL #4
WET WELL #3
OPENINGS FOR FUTURE PUMPS
FUTURE PUMP P-9
FUTURE PUMP P-11
FUTURE PUMP P-10
FUTURE PUMP P-8
PUMP P-6 ABOVE
PUMP P-7 ABOVE
Location of Pumps Above
OPENING DETAIL
30" WIDTH x 36" HEIGHT OPENING
Alum. Ladder
HATCH ABOVE
ALUM. LADDER
For Reinf. See S-15
Existing Wall Footing
FOUNDATION PLAN
SHEET PILING AT WEST END, SHEET PILING AT NORTH, SOUTH OF NEW BUILDING TO MEET EXISTING CONC. TREMIE UNDER EXISTING BUILDING. DEWATERING FROM EL.+2.0'± TO -5.0'. TREMIE CONC. TO BE 10'-0" DEEP TO ELEV. -15.15 OR TO MATCH EXISTING UNDER EXIST. EFFLUENT PUMPING STATION.
NOTE: ALL COLUMNS SHALL BE CONSTRUCTED FROM 4000 PSI CONCRETE
NOTE: 3 LADDERS LOCATED IN WETWELL ARE SIMILAR TO THAT SHOWN IN DETAILS FOR LADDERS "A" & "B".
SECTION 9
SECTION 8
SECTION C
LADDER "C"
DETAIL 7
DETAIL 8
DETAIL 6
SECTION D
DETAIL 1
DETAIL 10
DETAIL 3
DETAIL 4
DETAIL 5
DETAIL 2
1 5/17/88 1 RUNNER ADDED TO LADDER "C"
REV. NO. DATE DESCRIPTION BY
MIAMI DADE WATER AND SEWER AUTHORITY DEPARTMENT
ENGINEERING DIVISION
SOUTH DISTRICT WASTEWATER TREATMENT PLANT ADDITION TO EFFLUENT PUMPING STATION CONTRACT NO.S-345
FOUNDATION PLAN, SECTIONS AND DETAILS
APPROVED BY CHIEF ENGINEER
APPROVED BY
SHEET S-11 OF 53 SHEETS
SCALE: AS SHOWN
DRAWING NO. S-8873-A

PUMP

#4@12"E.W.

#4 @12" E.W.

#4 @12" L

1" SLOPE

1" SLOPE

T/SLAB EL. 14.00

PROVIDE ADDL #9 @12" O.C. x 12'-0" CTRD. ON PUMP ALT. W/#4 FOR 6" SPACING

SEE FLOOR BEAM NO. 6 BAR DIAGRAM SHT. S-14 FOR REINF. DETAIL

TYP. EXTERIOR WALL REINF. (UNLESS OTHERWISE NOTED)

#6@12" EF.

#8@12" (LAP SPLICE W/ALTERNATED #3 PG 6" DOWELS)

#9@6"

VALVE OPNG.

EL. 2.00

EL. 1.00

#6@12" EF.

#6@12" EF.

#9@6" DOWELS

(DOWELS)

2-#6 ADDIT. VERT. EA SIDE OF OPNG. SEE DET. SHT. S-11

2-#5 ADDIT. HOR. TOP OF OPNS. & 2-#5 ADDIT. DIAGONAL

ADDL. #6 x CONT. @ ALL C.J. BF. (LOCATED MIN. 6" SF)

T/SLAB EL. -6.63

ADDL. #7 x T'0" ALT.

TREMIE CONCRETE SEAL (SEE SPECIFICATIONS)

4'-0" 6'-0"

4'-0"

ELEV. 2.00

VALVE OPNG.

3'-0" (TYP.)

#6 @12" EW, T&B

SECONDARY POUR

6x6 W2.9xW2.9WWF

ROUGHENED SURFACE

60" PIPE EL. 3.00

WATER LEVEL EL. ± 2.0'

EL. (-) 0.50'

EL. (-) 1.00

CONCRETE ENGAGEMENT SEE NOTE SHT. S-11

6" GALV. STL. WATERSTOP @ ALL CONSTR. JT.

ADDL. #7 x 7'-0" ALT. W/ #6 BARS FOR 6" SPACING (TYP.)

4'CONC. SIDEWALK

1/2" PRE-MOLD EXP. JT.

#9@12" EF.

3-#5x CONT. EF

4-#6x CONT.

PLACE BACKFILL AT WALLS AFTER SLAB AT EL. 14.0 IS IN PLACE. KEEP DEWATERING DURING BACKFILLING OPERATION AND UNTIL UPPER LEVELS OF THE STRUCTURE ARE BUILT.

TREMIE CONCRETE

SHEET PILING TO REMAIN

WALL SECTION

2-#5 ADDIT.

SHEET PILING TO REMAIN

PLAN

SHEET PILING ALTERNATE

SCALE: 1/2"=1'-0"

(TO BE USED AS WALL FORM, AND TO REMAIN UP TO ELEV. 11.00)

NOTE:

DRILL 1" DIAMETER HOLES IN TREMIE CONCRETE SEAL. INSTALL #8 ANCHORS W/ 2'-0" PROJ. ABOVE EL. 8.13 USING EPOXY GROUT FULL DEPTH OF HOLE. SPACE ANCHORS AT 6'-0" O.C. (MAX.) E.W. BEGINNING 6'-3" FROM INSIDE FACE OF EXTERIOR WALLS. AFTER INSTALLATION, 5 ANCHOR BARS (AND EPOXY GROUT) SHALL BE TESTED BY AN INDEPENDENT TESTING LAB (AT NO ADDITIONAL EXPENSE TO THE OWNER). TESTING PROCEDURE SHALL BE ARRANGED SUCH THAT THE REACTION(S) IS APPLIED TO THE TOP OF THE TREMIE CONCRETE SEAL AT LEAST 6'-0" AWAY FROM THE ANCHOR BAR AND SUBJECT TO THE APPROVAL OF THE ENGINEER. BARS SHALL BE CONSIDERED ACCEPTABLE IF NO YIELDING OCCURS AFTER 20,000 POUNDS TENSION IS APPLIED. DO NOT DAMAGE THE ANCHORS DURING TESTING.

SECTION @ S-11

SC.: 3/8" = 1'-0"

#6 ANCHOR (SEE NOTE THIS SHEET)

NEW EXISTING

#4@12" TOP & BOTT STAGGER SPLICES (TYP.)

#6@12" (TYP.) SPLICE @ BARS

FUTURE PUMP

FUTURE PUMP P-9

PUMP P-8

EL. 14.00'

PUMP P-7

LADDER BEYOND

METAL FLASHING

1" EXP. JOINT FILLER REJ.

FB-5

FB-7

SEE SECTION "Q" THIS SHT. FOR TYP. EXTERIOR WALL REINF.

SEE FLOOR BEAM NO. 9 BAR DIAGRAM SHT. S-14 FOR REINF. DET.

6" WATERSTOP

SHEET PILING CUT AT THIS ELEVATION AND REMOVE AFTER WALL CONSTRUCTION (TYP.)

WET WELL #4

WET WELL #3

60" Ø PIPE ELEV. 3.00

#8@12" E.F. (LAP SPLICE W/ #8 DOWELS)

#6@12" E.F.

#8@12" EF.

#6@12" L

PROVIDE #4 TIES @ BELOW EL. 1.00 (TYP.)

T/SLAB EL. (-)6.63

ADDL. #7@12" 10'-0" ALT. W/ #6 BARS FOR 6" SPACING

#9@6"

4-#6 E.F.

EL. 1.00

#6@18" T&B

#6@12"

PROVIDE ADDL #6@12" @ 6" & #6@9" EW

#6@12" EW

#6@12" T&B

#6@18"

#9@6"

#6@12" EF.

#6@12"

5-#8 EF (TYP.)

5-#10 EF (TYP.)

OPEN

ADDIT. OPENING REINF.

SEE SECTION "Q" THIS SHT. FOR SLAB REINF.

EXISTING FOOTING TO BE SAW-CUT ALIGNED W/EXISTING WALL EXT. FACE

PROPOSED CONC. TREMIE

EXIST. CONC. TREMIE

BOTTOM OF EXISTING CONC. TREMIE

TREMIE CONCRETE SEAL (10'-0" MIN.) (SEE SPECIFICATIONS)

SECTION @ S-11

1/4" = 1'-0"

NOTE:

CONTRACTOR TO SUBMIT DESIGN CALCULATIONS AND SHOP DRAWINGS OF SHEET PILING SIGNED & SEALED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF FLORIDA.

FLOOR BEAM NO. 7 - BAR DIAGRAM

SCALE: 3/8" = 1'-0"

5-#9 TOP

6-#9 BOT.

BEAM SPAN

#4 STIRR. @ 12" (2 PER SET)

SECTION A-A

SC.: 3/8" = 1'-0"

NO.	DATE	DESCRIPTION	BY

MIAMI-DADE WATER AND SEWER AUTHORITY DEPARTMENT
ENGINEERING DIVISION

SOUTH DISTRICT WASTEWATER TREATMENT PLANT
ADDITION TO EFFLUENT PUMPING STATION
CONTRACT NO. S-343

WET WELL SECTIONS

APPROVED [illegible] CHIEF ENGINEER	APPROVED R. Rodriguez-Ortiz REGIONAL ENGINEER	DES: I.D.	TR:
		DRN: M.E.	CHK: [illegible]
SHEET S-15 OF 93 SHEETS		DRAWING NO.	
SCALE: AS SHOWN	DATE: 06/30/1997	S-8827-A	

WET WELL #4

WET WELL #3

60" P.C.C.P. PUMP STATION INFLUENT SEE SHT. M-3 FOR CONTINUATION

72" R.C.C.P. OVERFLOW PIPE SEE SHT. M-3 FOR CONTINUATION

4" CLEANOUT (SEE M-13)

4" C.I.P. SANITARY SYSTEM SEE SHT. M-5 & M-3 FOR CONTINUATION

CONCRETE WALKWAY

60" BELL WALL PIECE SEE BELOW

INV. ELEV. 8.00'

TYPE 'C' PIPE SUPPORT

108" R.C.C.P. OVERFLOW

3" VENT UP

4" C.I.P.

CLAMP TO COLUMN

3" C.I.P.

LOOSE LADDER (TYP.)

30", 48" WALL THIMBLE FOR BUTTERFLY VALVES (2 REQ'D)

4" C.I. TO C.O. (SEE M-13) @ FL. LEVEL

3" C.I. TO F.D.

FUTURE PUMP P-12

FUTURE PUMP P-11

FUTURE PUMP P-10

FUTURE PUMP P-9

PUMP P-8 ABOVE (TYP.)

PUMP P-7 ABOVE

3" WASHDOWN HYDRANT

1" WASHDOWN HYDRANT (SEE M-13)

PUMP BAFFLE WALLS SEE STRUCT.

2" GSP

1 1/2" GSP

30" W x 36" H OPENINGS (SEE STRUCTURE)

PROVIDE 10" SQ. OPENING FOR VALVE OPERATOR (TYP. FOR V-2)

Thru Floor

2" G.S.P. INVT. W. @ EL. 81.12.00

TYPE 'C' PIPE SUPPORT

BELL WALL PIECE (SEE BELOW)

72" R.C.C.P. OVERFLOW PIPE SEE SHT. M-3 FOR CONTINUATION

3" FLOOR DRAIN

3" VENT

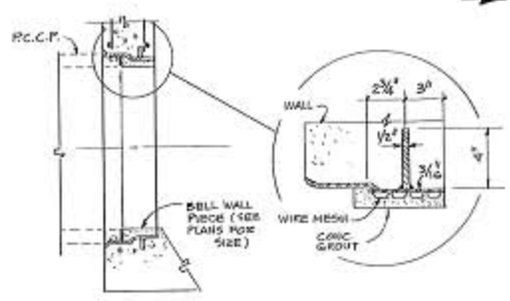
8" VENT

3" HORIZ. LOOP VENT

SECTION U.T. 3

PUMP SUMP PLAN

SCALE: 1/8" = 1'-0"



BELL WALL PIECE DETAIL

NTS.

REV. NO.	DATE	DESCRIPTION	BY
1	11/17/00	CHANGE FLOOR DRAINS	RLS

MIAMI-DADE WATER AND SEWER AUTHORITY DEPARTMENT
ENGINEERING DIVISION

SOUTH DISTRICT WASTEWATER TREATMENT PLANT
ADDITION TO EFFLUENT PUMPING STATION
CONTRACT NO. S-343

PUMP SUMP PLAN

APPROVED BY: CHIEF ENGINEER — APPROVED BY: PROJECT ENGINEER — DES. TRs — DRN. M.P. — CHK. TRs — TR:

SHEET M-4 OF 53 SHEETS — DRAWING NO. S-8883-A

SCALE: 1/8" = 1'-0" — DATE: DEC. 18, 1987

PERMIT NO. 87-04-5005

APPENDIX “G”

DESIGN PLANS

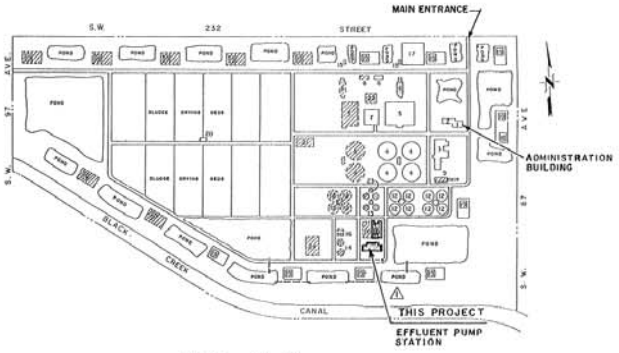
CD 1.05(1) SDWWTP Effluent Wet Wells No. 3&4 and Drain Lines Rehabilitation

(7 Pages)

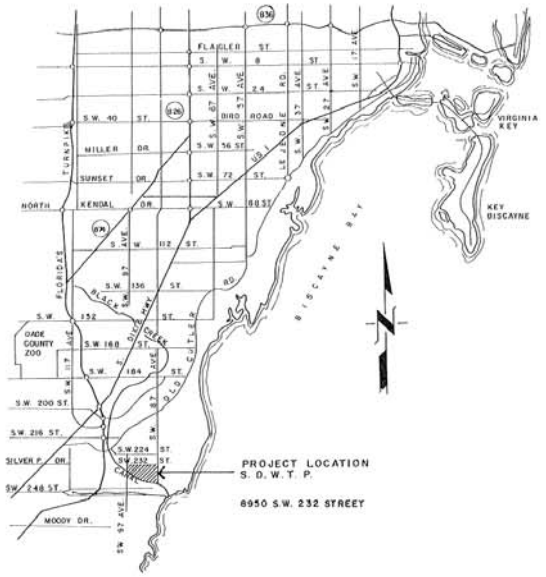
MIAMI-DADE WATER AND SEWER DEPARTMENT

SOUTH DISTRICT WASTEWATER PLANT

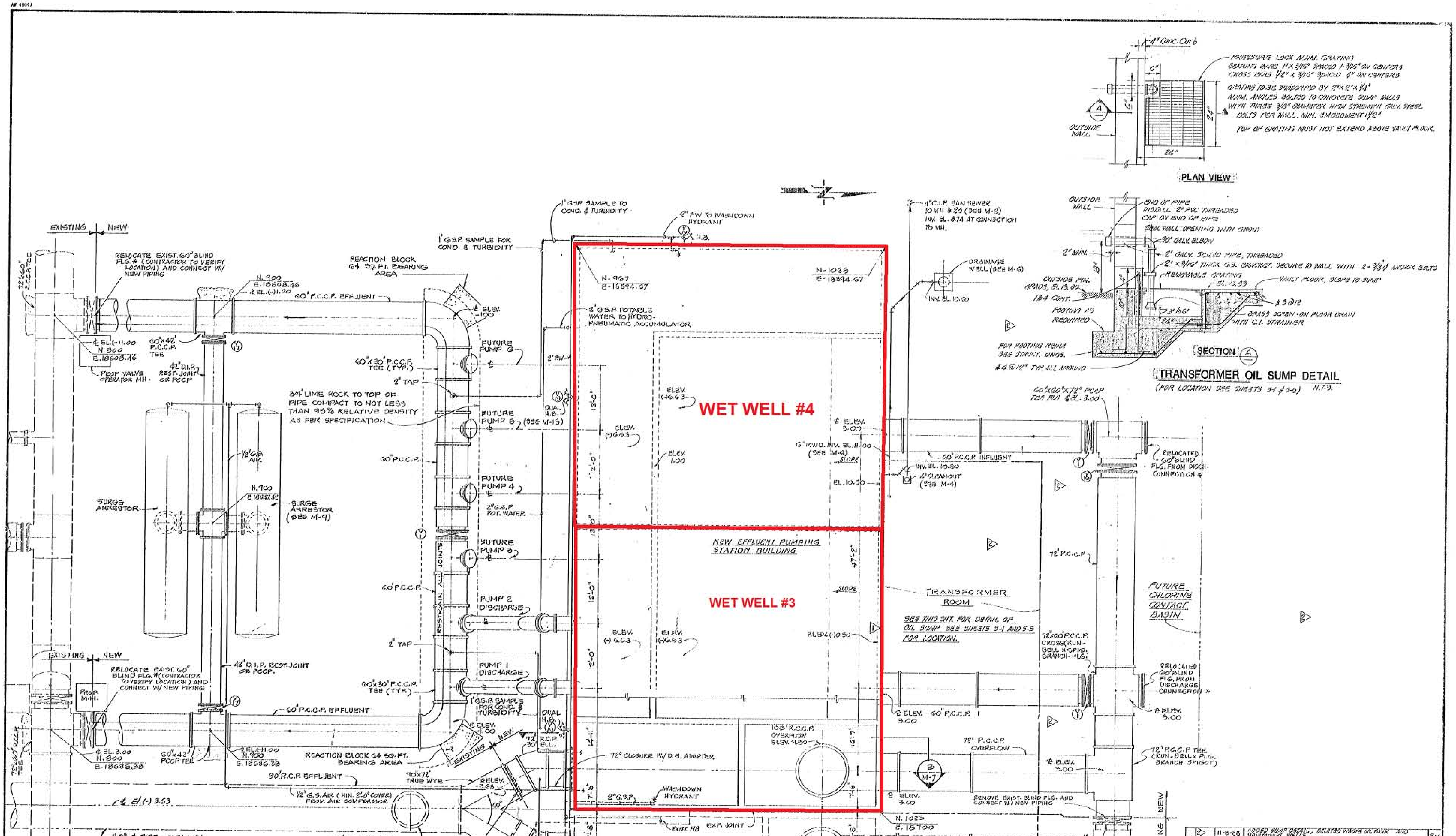
CD 1.05.01 WET WELLS AND DRAIN LINES REHABILITATION



SITE PLAN



LOCATION PLAN



REV. No.	DATE	DESCRIPTION	BY
2	11-8-88	ADDED SUMP DETAIL, DELETED WASTE OIL TANK AND MONITORING WELLS.	R.V.
1	1/1988	REVISION TO WASTE OIL TANK INSTALLATION	T.G.

MIAMI-DADE WATER AND SEWER AUTHORITY DEPARTMENT
ENGINEERING DIVISION

SOUTH DISTRICT WASTEWATER TREATMENT PLANT
ADDITION TO EFFLUENT PUMPING STATION
CONTRACT NO.S-343

GENERAL PLAN AND DETAIL

APPROVED BY: CHIEF ENGINEER — APPROVED BY: RESIDENT ENGINEER — DES: T.C. — DRN: M.R. — CHK: T.C.

SHEET M-3 of 53 SHEETS — DRAWING NO. S-8882-A

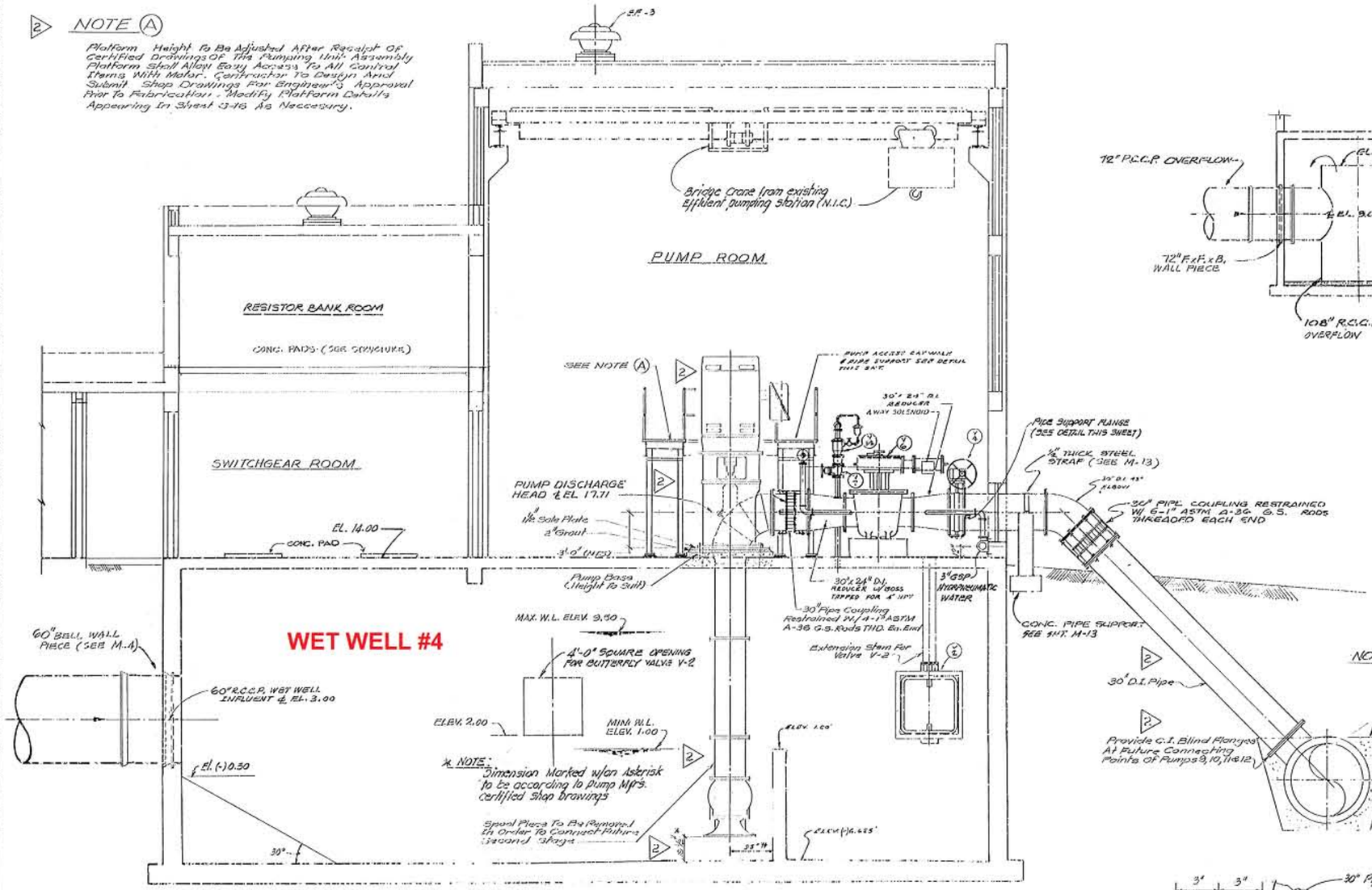
SCALE: 1/8" = 1'-0" — DATE DEC. 18, 1987

ISSUED FOR BID 2018

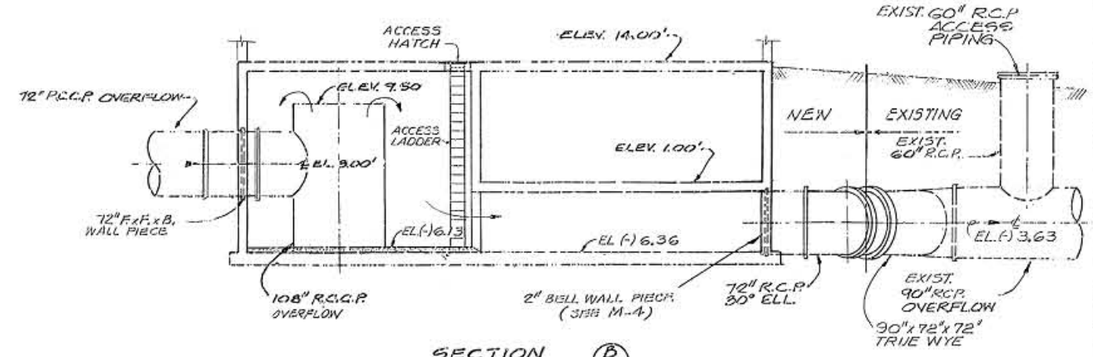
Addm. II

NOTE (A)

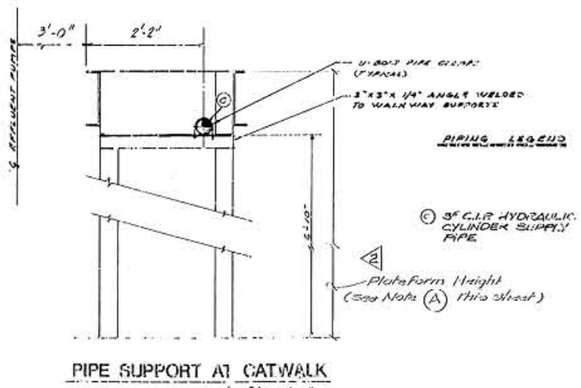
Platform Height To Be Adjusted After Receipt Of Certified Drawings Of The Pumping Unit Assembly Platform Shall Allow Easy Access To All Control Items With Motor. Contractor To Design And Submit Shop Drawings For Engineer's Approval Prior To Fabrication. Modify Platform Details Appearing In Sheet S-16 As Necessary.



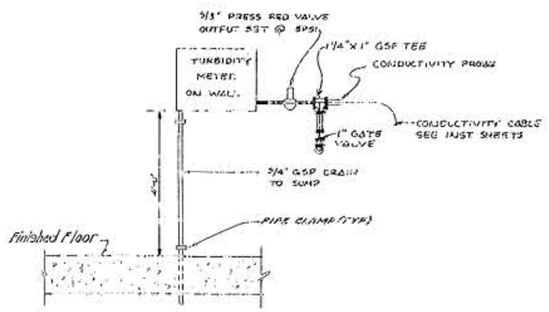
SECTION
SCALE: 1/4"=1'-0"
A
M4,5



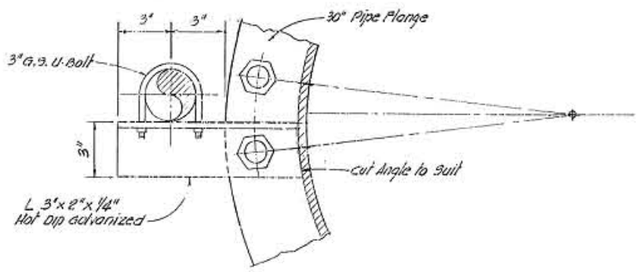
SECTION
SCALE: 1/4"=1'-0"
B
M-3



PIPE SUPPORT AT CATWALK
Scale: 3/4"=1'-0"



DETAIL - CONDUCTIVITY & TURBIDITY SENSORS
SCALE: 1"=1'-0"



PIPE SUPPORT AT FLANGE
Scale: 3"=1'-0"

ISSUED FOR BID 2018

REV. NO.	DATE	DESCRIPTION	BY
2	11/3/88	Revised Pump And Platform Arrangement	RV

MIAMI DADE WATER AND SEWER AUTHORITY DEPARTMENT
ENGINEERING DIVISION

SOUTH DISTRICT WASTEWATER TREATMENT PLANT
ADDITION TO EFFLUENT PUMPING STATION
CONTRACT NO. S-348

SECTION AND DETAILS

APPROVED BY	APPROVED BY	DES: TCLin	TRI
CHIEF ENGINEER	RESIDENT ENGINEER	DRN: MK	CHK: TCLin
SHEET M-7 OF 53 SHEETS		DRAWING NO. S-8886-A	
SCALE: AS NOTED	DATE DEC. 18, 1987		

Addend 1

ISSUED FOR BID 2018

NOTES:
1. BACKFILL SHALL BE COMPACTED TO 95% ASSHTO T-180
2. THE 2-60" & 1-72" PIPES UNDER THE TRANSFORMER BUILDING SHALL BE BACKFILLED (BELOW THE CENTERLINE OF EACH PIPE) WITH 2500 PSI CONCRETE FOR 32'-BEGINNING AT THE EDGE OF THE 18" THICK WET WELL WALL FTG.
3. CONTRACTOR TO TAKE ALL NECESSARY PRECAUTIONS TO PROTECT EXISTING STRUCTURES AND FACILITIES

WET WELL #4

WET WELL #3

FOUNDATION PLAN
SCALE: 1/16"=1'-0"

SECTION 9 / SECTION 8 / SECTION C

LADDER "C"

DETAIL 7 / DETAIL 8 / DETAIL 6

DETAIL 1 / DETAIL 10 / DETAIL 3 / DETAIL 4 / DETAIL 5 / DETAIL 2

NOTE: 3 LADDERS LOCATED IN WETWELL ARE SIMILAR TO THAT SHOWN IN DETAILS FOR LADDERS "A" & "B".

NOTE: ALL COLUMNS SHALL BE CONSTRUCTED FROM 4000 PSI CONCRETE

REV. No.	DATE	DESCRIPTION	BY
1	5/17/88	1 RUNNER ADDED TO LADDER "C"	

MIAMI DADE WATER AND SEWER AUTHORITY DEPARTMENT
ENGINEERING DIVISION

SOUTH DISTRICT WASTEWATER TREATMENT PLANT ADDITION TO EFFLUENT PUMPING STATION CONTRACT NO.S-343

FOUNDATION PLAN, SECTIONS AND DETAILS

APPROVED BY: CHIEF ENGINEER	APPROVED BY: RESIDENT ENGINEER	DES: I.D.	TR:
		DRN: M.R.	CHK:
SHEET S-11 OF 53 SHEETS		DRAWING No. S-8873-A	
SCALE: AS SHOWN	DATE DEC 19, 1987		

℄ PUMP

#4@12" E.W.

15'-01/2"

T/SLAB EL. 14.00

12" 1'-7½" 1'-7½" 12"

13'-4½"

12" 12"

1" SLOPE

19'-8"

#4 @ 12" E.W.

#4 @ 12" L

1" SLOPE

1'-0" 5'-4"

4" CONC. SIDEWALK

½" PRE-MOLD EXP. JT.

#5@12" E.F.

3-#5x CONT. EF.

4-#5x CONT.

2'-0"

1'-1"

12" 12" 12"

PROVIDE ADDL #5 @12" O.C. x12'-0" CTR'D. ON PUMP ALT. W/#4 FOR 6" SPACING

SEE FLOOR BEAM NO. 6 BAR DIAGRAM SHT. S-14 FOR REINF. DETAIL

TYP. EXTERIOR WALL REINF. (UNLESS OTHERWISE NOTED)

#6@12" EF.

#8@12" (LAP SPLICE W/ALTERNATED #9@6" DOWELS)

4'-0" #9@6"

VALVE OPNG.

4'-0" 4'-0" ELEV. 2.00

2'-0" (TYP.)

EL. 1.00

#6@12" EF.

#6@12" EF.

#9@6" DOWELS

3'-0" 7'-0"

#9@6" 7'-0" (DOWELS) 9'-0"

2-#5 ADDIT. HOR. TOP OF OPNG. & 2-#5 ADDIT. DIAGONAL

2-#6 ADDIT. VERT. EA SIDE OF O'PNG. SEE DET. SHT. S-11

3'-0" 2'-6" OPENING

± 3'-0"

7'-0"

ADDL. #6 x CONT. @ ALL C.J. EF. (LOCATED FOR 6" SP.)

T/SLAB EL. -6.63

9'-0"

2'-6"

2'-6" TYP.

1'-0" 1'-4" 13'-9"

ADDL. #7 x 7'-0" ALT.

4'-0" 6'-0"

4'-0"

ELEV. 2.00

VALVE OPNG.

3'-0" (TYP.)

#6 @12" EW, T&B

2'-0"

1'-0" 2'-0" 6'-0"

32'-0"

10'-0" MIN.

TREMIE

#6 ANCHOR (SEE NOTE THIS SHEET)

1'-3"

2'-6"

1'-4" 1'-0"

60" PIPE EL. 3.00 ℄

WATER LEVEL EL. ± 2.0'

EL. (-) 0.50'

SECONDARY FOUR 6x6 W2.9xW2.9 WWF

ROUGHENED SURFACE

30°

±3'-0"

CONCRETE ENCASEMENT SEE NOTE SHT. S-11

6" GALV. STL. WATERSTOP @ ALL CONSTR. JT.

ADDL. #7 x 7'-0" ALT. W/ #6 BARS FOR 6" SPACING (TYP.)

EL. (-) 1.00

TREMIE CONCRETE

SHEET PILING TO REMAIN

WALL SECTION

2-#5 ADDIT.

1'-4"

SHEET PILING TO REMAIN

PLAN

SHEET PILING ALTERNATE

SCALE: 1/2"=1'-0"

(TO BE USED AS WALL FORM AND TO REMAIN UP TO ELEV. 11.00)

PLACE BACKFILL AT WALLS AFTER SLAB AT EL. 14.0 IS IN PLACE. KEEP DEWATERING DURING BACKFILLING OPERATION AND UNTIL UPPER LEVELS OF THE STRUCTURE ARE BUILT.

NOTE:

DRILL 1" DIAMETER HOLES IN TREMIE CONCRETE SEAL. INSTALL #6 ANCHORS W/ 2'-3" PROJ. ABOVE EL. 8.13 USING EPOXY GROUT FULL DEPTH OF HOLE. SPACE ANCHORS AT 6'-0" O.C. (MAX.) E.W. BEGINNING 6'-8" FROM INSIDE FACE OF EXTERIOR WALLS. AFTER INSTALLATION, 5 ANCHOR BARS (AND EPOXY GROUT) SHALL BE TESTED BY AN INDEPENDENT TESTING LAB (AT NO ADDITIONAL EXPENSE TO THE OWNER). TESTING PROCEDURE SHALL BE ARRANGED SUCH THAT THE REACTION(S) IS APPLIED TO THE TOP OF THE TREMIE CONCRETE SEAL AT LEAST 6'-0" AWAY FROM THE ANCHOR BAR AND SUBJECT TO THE APPROVAL OF THE ENGINEER. BARS SHALL BE CONSIDERED ACCEPTABLE IF NO YIELDING OCCURS AFTER 20,000 POUNDS TENSION IS APPLIED. DO NOT DAMAGE THE ANCHORS DURING TESTING.

TREMIE CONCRETE SEAL (SEE SPECIFICATIONS)

SECTION ℄ S-11

SC.: 3/8" = 1'-0"

#4@12" TOP & BOTT STAGGER SPLICES (TYP.)

#6@12" (TYP.) SPLICE @ BMG

FUTURE ℄ PUMP

FUTURE ℄ PUMP

FUTURE ℄ PUMP

FUTURE ℄ PUMP P-9

℄ PUMP P-8

EL. 14.00'

℄ PUMP P-7

LADDER BEYOND

METAL FLASHING

1" EXP. JOINT FILLER, P.E.J.

FB-5

FB-5

FB-5

FB-7

6" WATERSTOP

SEE SECTION 'Q' THIS SHT. FOR TYP. EXTERIOR WALL REINF.

SHEET PILING CUT AT THIS ELEVATION AND REMOVE AFTER WALL CONSTRUCTION (TYP.)

12'-7" 1'-6" 12'-6" 1'-6" 10'-7"

SEE FLOOR BEAM NO. 5 BAR DIAGRAM SHT. S-14 FOR REINF. DET.

4'-6" 6'-0"

1'-6" 10'-7" 1'-6" 8'-9" 8'-4" 1'-6"

WET WELL #4

WET WELL #3

60" ℄ PIPE ELEV. 3.00

#8@12" E.F. (LAP SPLICE W/ #8 DOWELS)

#6@12" E.F.

60" ℄ PIPE ELEV. 3.00

4-#6 E.F.

2-#6x6'-0" E.F. (TYP.)

#6@12"

#6@12" 4'-0"

ADDL. #7@12" 5'-0" ALT. W/#6 BARS FOR 6" SPACING 16'-0"

EL. 1.00

#6@12" T&B

#6@18"

#6@12" T&B

#7@6"

#6@12" EF.

#6@12" EF.

#6@12"

#6@12" E.F.

#5@12" EF.

#6@12" L

PROVIDE #4 TIES 4'-11" BELOW EL. 1.00 (TYP.)

T/SLAB EL. (-)6.63

TOP/SLAB EL. (-)6.63

ADDL. #7@12" 10'-0" ALT. W/ #6 BARS FOR 6" SPACING

5'-0"

#9@6"

5'-0"

5-#8 E.F. (TYP.)

OPEN

5'-0"

3'-4"

8'-0"

13'-0"

5'-0"

ADDIT. OPENING REINF.

5-#8 E.F. (TYP.)

SEE SECTION 'Q' THIS SHT. FOR SLAB REINF.

2'-6" 1'-4" 15'-0" 1'-0" 34'-8" 1'-4" 34'-8" 1'-0" 2'-4" 10'-0" 2'-3" 1'-4"

PROPOSED CONC. TREMIE

EXIST. CONC. TREMIE

EXISTING FOOTING TO BE SAW-CUT ALIGNED W/EXISTING WALL EXT. FACE

10'-0" MIN.

BOTTOM OF EXISTING CONC. TREMIE

TREMIE CONCRETE SEAL (10'-0" MIN.) (SEE SPECIFICATIONS)

10'-0" (MIN.)

NEW EXISTING

NOTE:

CONTRACTOR TO SUBMIT DESIGN CALCULATIONS AND SHOP DRAWINGS OF SHEET PILING SIGNED & SEALED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF FLORIDA.

SECTION ℄ S-11

1/4" = 1'-0"

5-#9 TOP

5-#9 TOP

5-#9 TOP

6-#9 BOT.

6-#9 BOT.

℄ BEAM SPAN

#4 STIRR. @ 12" (2 PER SET)

#4 STIRR. @ 12" (2 PER SET)

FLOOR BEAM NO. 7 - BAR DIAGRAM

SCALE: 3/8" = 1'-0"

5-#7

#4@12"

1"E.F.

5-#7

1'-8"

1'-0"

SECTION A-A

SC.: 3/8" = 1'-0"

ISSUED FOR BID 2018

NO.	DATE	DESCRIPTION	BY
1			
2			

MIAMI-DADE WATER AND SEWER AUTHORITY DEPARTMENT
ENGINEERING DIVISION

SOUTH DISTRICT WASTEWATER TREATMENT PLANT
ADDITION TO EFFLUENT PUMPING STATION
CONTRACT NO. S-343

WETWELL SECTIONS

APPROVED BY Milton L. Clem, CHIEF ENGINEER	APPROVED BY R. Rodriguez-Ortiz, RESIDENT ENGINEER	DES: I.D.	FR:
		DRN: M.R.	CHK: RRO
SHEET S-15 OF 93 SHEETS		DRAWING NO.	
SCALE AS SHOWN	DATE DEC. 18, 1987	S-8847HA	

WET WELL #4

WET WELL #3

60" P.C.C.P PUMP STATION INFLUENT SEE SHT. M-3 FOR CONTINUATION

INV. EL 10.50

4" CLEANOUT (SEE M-13)

4" C.I.P. SANITARY SYSTEM SEE SHT. M-2 & M-3 FOR CONTINUATION

CONCRETE WALKWAY

A M-7

60" P.C.C.P PUMP STATION INFLUENT SEE SHT. M-3 FOR CONTINUATION

72" P.C.C.P. OVERFLOW PIPE SEE SHT. M-3 FOR CONTINUATION

72" F x F x B. WALL PIECE

60" BELL WALL PIECE SEE BELOW

INV. ELEV. 12.00'

9'-8"

22'-11"

Slope

Slope

Slope

Slope

SLOPE @ 1/8"/FT.

TYPE 'C' PIPE SUPPORT

TYPE 'C' PIPE SUPPORT

TYPE 'C' PIPE SUPPORT

108" R.C.C.P. OVERFLOW

11'-4"

12'-0"

14'-0"

3" VENT UP

3" VENT UP

4" C.I.P.

3" VENT UP

SLOPE @ 1/8"/FT.

3" VENT UP

CLAMP TO COLUMN

CLAMP TO COLUMN

ACCESS LADDER (TYP.)

3" C.I.P.

18" x 18" WALL THIMBLE FOR BUTTERFLY VALVES (2 REQ'D)

3" C.I.P.

3" C.I.P.

3" C.I.P.

3" C.I.P.

14'-0"

12'-0"

4" C.I. TO C.O. (SEE M-13) @ FL. LEVEL

TYPE 'C' PIPE SUPPORT SLOPE @ 1/8"/FT.

TYPE 'C' PIPE SUPPORT

4" C.I.P.

TYPE 'C' PIPE SUPPORT

4" C.I. TO C.O.

3" C.I. TO F.D.

3" C.I. TO F.D.

3" C.I. TO F.D.

3" C.I. TO F.D.

3" C.I. TO F.D.

3" C.I. TO F.D.

3" C.I. TO F.D.

4'

3'-0"

7'-0"

8'-0"

6'-0"

6'-0"

6'-0"

6'-0"

5'-4"

5'-4"

6'-0"

6'-0"

6'-0"

6'-0"

8'-0"

7'-0"

3" VTR

3"

1½" WASHDOWN HYDRANT (SEE M-13)

PUMP BAFFLE WALLS SEE STRUCT.

FUTURE PUMP P-12

FUTURE PUMP P-11

FUTURE PUMP P-10

FUTURE PUMP P-9

PUMP P-8 ABOVE (TYP.)

PUMP P-7 ABOVE

1½" WASHDOWN HYDRANT

21'-0" TYP.

2" G.S.P.

1½" G.S.P.

Thru Floor

2" G.S.P. FOT. W. & EL EL. 12.00

6'-6"

6'-6"

21'-8"

1½" G.S.P.

TYPE 'C' PIPE SUPPORT

4'-0"

BELL WALL PIECE (SEE BELOW)

72" R.C.C.P OVERFLOW PIPE SEE SHT. M-3 FOR CONTINUATION

2" G.S.P.

30" W x 36" H OPENINGS (SEE STRUCTURE)

PROVIDE 10" SQ. OPENG. FOR VALVE OPERATOR (TYP. FOR V-2)

4'-0"

3" VENT

3" HORIZ. LOOP VENT

3" VENT

35'-0"

8" FLOOR DRAIN

3" DRAIN

4" MIN. DRAIN

18'-0"

2'-0"

SECTION U.T. 3. B M-3

PUMP SUMP PLAN

SCALE: 1/4" = 1'-0"

P.C.C.P.

WALL

2¾"

3"

½"

3/16"

4"

BELL WALL PIECE (SEE PLANS FOR SIZE)

WIRE MESH

CONC. GROUT

BELL WALL PIECE DETAIL

NTS.

ISSUED FOR BID 2018

PERMIT NO. 89-04-5005

REV. NO.	DATE	DESCRIPTION	BY
1	11/19/90	CHANGE FLOOR DRAINS	W.S.

MIAMI-DADE WATER AND SEWER AUTHORITY DEPARTMENT
ENGINEERING DIVISION

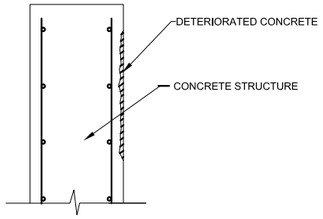
SOUTH DISTRICT WASTEWATER TREATMENT PLANT
ADDITION TO EFFLUENT PUMPING STATION
CONTRACT NO. S-343

PUMP SUMP PLAN

APPROVED BY: Hubert A. Vieux, CHIEF ENGINEER	APPROVED BY: Richard Ortiz, RESIDENT ENGINEER	DES: T.Chu	TR:
		DRN: M.R.	CHK: T.Chu
SHEET M-4 OF 53 SHEETS		DRAWING NO. S-8883-A	
SCALE: 1/4" = 1'-0"	DATE: DEC. 19, 1987		

REPAIR DETAIL - TYPE I

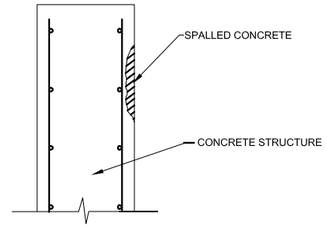
AREA WITH MINOR DAMAGE <3/4"
(CONCRETE SURFACE DETERIORATED WITHOUT SPALLING)



NOTES: 1. CONCRETE SURFACE MUST BE CLEANED WITH PRESSURE WATER FOLLOWED BY ABRASIVE BLASTING AS PER SPEC 03721
2. REMOVE LOOSE MATERIALS AS REQUIRED UNTIL SOUND CONCRETE IS FOUND.
3. PRESSURE CLEAN ALL REMAINING EXPOSED AREAS WITH AIRBLAST.
4. RESTORE THE CONCRETE BY PATCHING WITH TNEMEC SERIES 217 MORTARCRETE, OR APPROVED EQUAL.

REPAIR DETAIL - TYPE II

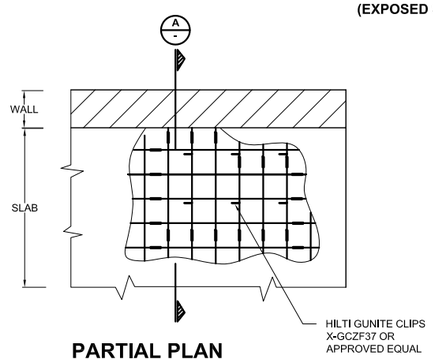
<1-1/2" SPALLED CONCRETE
(STEEL REBAR NOT EXPOSED)



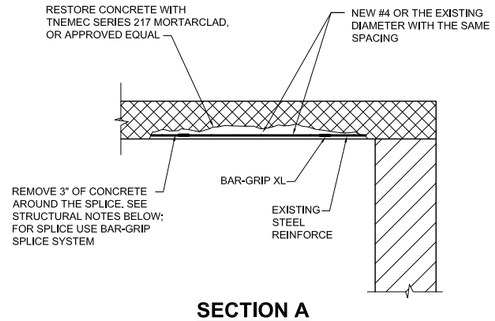
NOTES: 1. CONCRETE SURFACE MUST BE CLEANED WITH PRESSURE WATER FOLLOWED BY ABRASIVE BLASTING AS PER SPEC 03721
2. REMOVE LOOSE MATERIALS AS REQUIRED UNTIL SOUND CONCRETE IS FOUND.
3. PRESSURE CLEAN ALL REMAINING EXPOSED AREAS WITH AIRBLAST.
4. RESTORE THE CONCRETE BY PATCHING SURFACE VOIDS AND RESURFACE WITH TNEMEC SERIES 217 MORTARCRETE, OR APPROVED EQUAL.

REPAIR DETAIL - TYPE III

SPALLED CONCRETE
(EXPOSED STEEL REBAR)



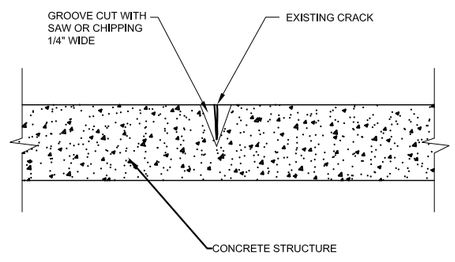
PARTIAL PLAN
N.T.S.
(LOOKING UP AT BOTTOM OF SLAB)



SECTION A
N.T.S.

NOTES: 1. AREA TO BE REPAIRED, SHALL BE PROVIDED WITH ADEQUATE SHORING PRIOR TO START OF REPAIR WORK. CONTRACTOR SHALL SUBMIT SIGNED AND SEALED SHORING PLANS AND DETAILS FOR REVIEW AND APPROVAL BY ENGINEER OF RECORD.
2. CONCRETE SURFACE MUST BE CLEANED WITH PRESSURE WATER FOLLOWED BY ABRASIVE BLASTING AS PER SPEC 03721.
3. REMOVE 3" DEPTH OF CONCRETE TO EXPOSE DAMAGED AND CORRODED REINFORCEMENT BARS.
4. REMOVE 3" DEPTH OF CONCRETE AROUND THE SPLICE LOCATIONS, BAR-GRIP XL SPLICE SYSTEM SHALL BE USED.
5. CUT AND REMOVE EXISTING CORRODED REINFORCEMENT BARS; UNCOVER AND CLEAN THE REQUIRED UNDAMAGED LENGTH (3" MINIMUM) OF REBARS FOR INDICATED SPLICE PER BAR-GRIP XL SYSTEM REQUIREMENTS.
6. REMOVE LOOSE MATERIALS AS REQUIRED UNTIL SOUND CONCRETE IS FOUND.
7. PRESSURE CLEAN EXPOSED AREAS WHERE DAMAGED CONCRETE WAS REMOVED.
8. PLACE NEW REBARS TO SPLICE WITH EXISTING REBARS. USE BAR-GRIP XL SYSTEM OF BAR SPLICE PRODUCTS OR APPROVED EQUAL.
9. IN AREAS WHERE SPALLED CONCRETE IS REMOVED, PLACE HILTI GUNITE CLIPS X-GCZF37, OR APPROVED EQUAL, AT EVERY 12".
10. RESTORE THE CONCRETE BY PATCHING WITH TNEMEC SERIES 217 MORTARCRETE, OR APPROVED EQUAL.
11. ALL NEW REINFORCEMENT SHALL COMPLY WITH ASTM-615 FOR DEFORMED BARS WITH A MINIMUM YIELD STRENGTH OF 60,000 psi.

REPAIR DETAIL - CRACK <1/4"



NOTES: 1. CONCRETE SURFACE MUST BE CLEANED WITH PRESSURE WATER FOLLOWED BY ABRASIVE BLASTING AS PER SPEC 03721
2. REMOVE LOOSE MATERIALS AND FORM A V-SHAPED GROOVE ALONG THE CRACK INTO SOUND CONCRETE.
3. PRESSURE CLEAN THE V-SHAPED GROOVE WITH AIRBLAST.
4. SEAL AND/OR INJECT WITH EPOXY RESIN.

ISSUED FOR BID 2018

ALFREDO ANDRES, P.E.

CENIT
560 SABAL PALM RD.
MIAMI, FL 33137
P: 305-998-8833

SDWWTP EFFLUENT WET WELLS No.3&4 AND DRAINLINES REHABILITATION
CONSENT DECREE PROJECT 1.05(1) PCTS No. 13179
MIAMI DADE WATER AND SEWER DEPARTMENT

REPAIR DETAILS

DATE: JULY 2018
PROJECT No.: CD 1.05(1)
FILENAME: Repair Details.dwg
DRAWING No.: R-D