RFQ NO. 21-TA003721CD
DESIGN-BUILD SERVICES FOR LAKE MANATEE WATER TREATMENT PLANT ALUM SLUDGE DEWATERING SYSTEM (906-25)
June 11, 2021

Manatee County BCC
Procurement Division
1112 Manatee Avenue West Ste 803
Bradenton, FL 34205
purchasing@mymanatee.org

ADVERTISEMENT
REQUEST FOR QUALIFICATIONS NO. 21-TA003721CD
DESIGN-BUILD SERVICES FOR LAKE MANATEE WATER TREATMENT PLANT ALUM SLUDGE DEWATERING SYSTEM

Manatee County, a political subdivision of the State of Florida (hereinafter referred to as County) will receive qualification proposal responses (Proposals) from individuals, corporations, partnerships, and other legal entities authorized to do business in the State of Florida (Proposers), to provide design and construction services as specified in this Request for Qualifications.

DATE, TIME AND PLACE DUE:
The Due Date and Time for submission of Proposals in response to this RFQ **is July 15, 2021 by 3:00 P.M. ET.** Proposals must be delivered to the following location: Manatee County Administration Building, 1112 Manatee Ave. W., Suite 803, Bradenton, FL 34205 and time stamped by a Procurement representative by the Due Date and Time. Proposals will be opened immediately following the Due Date and Time at the Manatee County Administration Building, Suite 803.

SOLICITATION INFORMATION CONFERENCE:
A non-mandatory Information Conference will be held at 9:00 AM on June 28, 2021 at the Lake Manatee Sludge Drying Beds, 1451 Dam Road, Bradenton, FL 34212. A site tour will be conducted immediately following the Information Conference. .

DEADLINE FOR QUESTIONS AND CLARIFICATION REQUESTS:
The deadline to submit all questions, inquiries, or requests concerning interpretation, clarification or additional information pertaining to this Request for Qualifications to the Manatee County Procurement Division is July 6, 2021. Questions and inquiries should be submitted via email to the Designated Procurement Contact shown below.

Important: A prohibition of lobbying is in place. Review Section A.13 carefully to avoid violation and possible sanctions.

DESIGNATED PROCUREMENT CONTACT: Chris Daley, CPPO, CPPB, Procurement Project Manager
(941) 749-3048, Fax (941) 749-3034
Email: chris.daley@mymanatee.org
Manatee County Financial Management Department
Procurement Division

AUTHORIZED FOR RELEASE: Chris Daley, CPPO, CPPB

Digitally signed by Chris Daley, CPPO, CPPB
Date: 2021.06.11 08:35:11 -04'00'

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SECTION A, INSTRUCTIONS TO PROPOSERS

In order to receive consideration, Proposers must meet the minimum qualification requirements, submit the required forms and information, and comply with the instructions as follows. Proposals will be accepted from a single business entity, joint venture, partnership or corporation. The County intends to award an agreement(s) for the provision of design and construction services as identified in this RFQ.

A.01 INFORMATION CONFERENCE AND SITE VISIT

A non-mandatory Information Conference will be held at 9:00 AM on June 28, 2021 at the Lake Manatee Sludge Drying Beds, 1451 Dam Road, Bradenton, FL 34212. A site tour will be conducted immediately following the Information Conference. Attendance is not mandatory, but is strongly encouraged.

A.02 DUE DATE AND TIME

The Due Date and Time for submission of Proposals in response to this Request for Qualifications (RFQ) **is July 15, 2021 by 3:00 P.M. ET.** Proposals must be delivered to the following location: Manatee County Administration Building, 1112 Manatee Ave. W., Suite 803, Bradenton, FL 34205 prior to the Due Date and Time.

Proposal(s) received after the Due Date and Time will not be considered. It will be the sole responsibility of the Proposer to deliver its Proposal to the Manatee County Procurement Division for receipt on or before the Due Date and Time. If a Proposal is sent by U.S. Mail, courier or other delivery services, the Proposer will be responsible for its timely delivery to the Procurement Division. Proposals delayed in delivery will not be considered, will not be opened at the public opening, and arrangements will be made for their return at the Proposer's request and expense.

A.03 PUBLIC OPENING OF RESPONSES

Sealed Proposals will be publicly opened at Manatee County Administration Procurement Division, 1112 Manatee Avenue West, 8th Floor, Suite 803, Bradenton, Florida 34205, in the presence of County officials immediately upon expiration of the Due Date and Time. Proposers or their representatives may attend the Proposal opening.

Manatee County will make public at the opening the names of the business entities which submitted a Proposal and city and state in which they reside. No review or analysis of the Proposals will be conducted at the Proposal opening.

A.04 SUBMISSION OF RESPONSES

The contents of the Proposal sealed package must include:

- One (1) bound original clearly identifying Proposer and marked “ORIGINAL”.
- Four (4) bound copy(s) clearly identifying Proposer and marked “COPY” with all required information and identical to the original.
- One (1) electronic format copy(s) clearly identifying Proposer.

Electronic format copies should be submitted on separate Universal Serial Bus (USB) portable flash memory drives or compact disc (CD) in MicroSoft Office® or Adobe Acrobat® portable document format (PDF) in one continuous file. Do not password protect or otherwise encrypt electronic Proposal copies. Electronic copies must contain an identical Proposal to the original.

Upon submission, all Proposals become the property of Manatee County which has the right to use any or all ideas presented in any Proposal submitted in response to this Request for Qualifications whether, or not, the Proposal is accepted.

Submit the Proposal package in a sealed container with the following information clearly marked on the outside of the package: RFQ No. 21-TA003721CD, Design-Build Services for Lake Manatee Water Treatment Plant Alum Sludge Dewatering System, Proposer's name, and Proposer's address. Proposals must be received by the Manatee County Procurement Division prior to the Due Date and Time at the following address:

Manatee County
Procurement Division
1112 Manatee Avenue West, Suite 803
Bradenton, FL 34205

A.05 ORGANIZATION OF RESPONSES

Proposals must be organized and arranged with tabs in the same order as listed in the subsections within Attachment B, Proposal Response, identifying the response to each specific item.

Proposals must clearly indicate the legal name, address and telephone number of the Proposer. Proposal Signature Form must be signed by an official or other individual authorized to make representations for the Proposer.

A.06 DISTRIBUTION OF SOLICITATION DOCUMENTS

All documents issued pursuant to this RFQ are distributed electronically and available for download at no charge at www.mymanatee.org > *Business* > *Bids and Proposals.* Documents may be viewed and downloaded for printing using Adobe Reader® or Microsoft software, as applilcable.

At its sole discretion, the County may utilize a third-party provider to distribute Proposals. For more information regarding this service visit the Procurement webpage of the County website. Utilization of this third-party service is not a requirement for doing business with Manatee County.

Additionally, the RFQ and all related documents are available for public inspection at the Manatee County Procurement Division, 1112 Manatee Avenue West, Suite 803, Bradenton, FL 34205. Call (941) 749-3014 to schedule an appointment. Documents are available between the hours of 8:00 A.M. and 5:00 P.M., Monday through Friday, with the exception of County holidays.

As a courtesy, Manatee County notifies the Manatee County Chamber of Commerce and the Manasota Black Chamber of Commerce of all active solicitations, who then distributes the information to its members.

A.07 ADDENDA

Any interpretations, corrections or changes to this RFQ will be made by addendum. Addenda will be posted on the Procurement Division's web page of the County website at http://www.mymanatee.org/> *Business* > *Bids and Proposals*. For those solicitations

that are advertised on a third-party website, addenda will likewise be posted on the third-party website.

All addenda are a part of the RFQ and each Proposer will be bound by such addenda. It is the responsibility of each Proposer to obtain, read and comprehend all addenda issued. Failure of any Proposer to acknowledge an issued addendum in its Proposal will not relieve the Proposer from any obligation contained therein.

A.08 RESPONSE EXPENSES

All costs incurred by Proposer in responding to this RFQ and to participate in any interviews/presentations/demonstrations, including travel, will be the sole responsibility of the Proposer.

A.09 QUESTION AND CLARIFICATION PERIOD

Each Proposer shall examine all RFQ documents and will judge all matters relating to the adequacy and accuracy of such documents. Any questions or requests concerning interpretation, clarification or additional information pertaining to this RFQ shall be made in writing via email to the Manatee County Procurement Division to the Designated Procurement Contact or to purchasing@mymanatee.org. All questions received and responses given will be provided to potential Proposers via an addendum to this RFQ

Manatee County will not be responsible for oral interpretations given by other sources including County staff, representative, or others. The issuance of a written addendum by the Procurement Division is the only official method whereby interpretation, clarification or additional information will be given.

A.10 FALSE OR MISLEADING STATEMENTS

Proposals which contain false or misleading statements, or which provide references which do not support an attribute or condition claimed by the Proposer, may be rejected. If, in the opinion of the County, such information was intended to mislead the County in its evaluation of the Proposal, and the attribute, condition or capability is a requirement of this RFQ. Such Proposer will be disqualified from consideration for this RFQ and may be disqualified from submitting a response on future solicitation opportunities with the County.

A.11 WITHDRAWAL OR REVISION OF RESPONSES

Proposers may withdraw Proposals under the following circumstances:

a. If Proposer discovers a mistake(s) prior to the Due Date and Time. Proposer may withdraw its Proposal by submitting a written notice to the Procurement Division. The notice must be received in the Procurement Division prior to the Due Date and Time for receiving Proposals. A copy of the request shall be retained, and the unopened Proposal returned to the Proposer; or

b. After the Proposals are opened but before a contract is signed, Proposer alleges a material mistake of fact if:

    1. The mistake is clearly evident in the solicitation document; or
    2. Proposer submits evidence which clearly and convincingly demonstrates that a

mistake was made in the Proposal. Request to withdraw a Proposal must be in writing and approved by the Procurement Official.

A.12 JOINT VENTURES

Proposers intending to submit a Proposal as a joint venture with another entity are required to have filed proper documents with the Florida Department of Business and Professional Regulation and all other State or local licensing agencies as required by Florida Statute Section 489.119, prior to the Due Date and Time.

A.13 LOBBYING

After the issuance of any solicitation, no prospective Proposer, or their agents, representatives or persons acting at the request of such Proposer, shall contact, communicate with or discuss any matter relating in any way to the solicitation with any County officers, agents or employees, other than the Procurement Official or designee, unless otherwise directed by the Procurement Official or designee. This prohibition includes copying such persons on written communications (including email correspondence) but does not apply to presentations made to evaluation committees or at a County Commission meeting where the Commission is considering approval of a proposed contract/purchase order. This requirement ends upon final execution of the contract/purchase order or at the time the solicitation is cancelled. Violators of this prohibition will be subject to sanctions as provided in the Manatee County Code of Ordinances Section 2-26-31 and 2-26-32. Sanctions may include (a) written warning; (b) termination of contracts; and (c) debarment or suspension.

A.14 EXAMINATION OF RESPONSES

The examination and evaluation of the Proposals submitted in response to this solicitation generally requires a period of not less than ninety (90) calendar days from the Due Date and Time.

A.15 ERRORS OR OMISSIONS

Once a Proposal is opened, the County will not accept any request by Proposer to correct errors or omissions in the Proposal other than as identified in paragraph A.11.

A.16 DETERMINATION OF RESPONSIBLENESS AND RESPONSIVENESS

The County will conduct a due diligence review of all Proposals received to determine if the Proposer is responsible and responsive.

To be responsive a Proposer must submit a Proposal that conforms in all material respects to the requirements of this RFQ and contains all the information, fully completed attachments and forms, and other documentation required. Proposals that are deemed non-responsive will not be considered or evaluated.

To be responsible, a Proposer must meet the minimum qualification requirements and have the capability to perform the Scope of Services contained in this RFQ. Proposals submitted by Proposers that are deemed non-responsible will not be considered or evaluated.

A.17 RESERVED RIGHTS

The County reserves the right to accept or reject any and all Proposals, to waive irregularities and technicalities, to request additional information and documentation,

and to cancel this solicitation at any time prior to execution of the contract. In the event only one Proposal is received, the County reserves the right to negotiate with the Proposer. The County reserves the right to award the contract to a responsive and responsible Proposer which in its sole determination is the best value and in the best interests of the County.

The County reserves the right to conduct an investigation as it deems necessary to determine the ability of any Proposer to perform the work or service requested. Upon request by the County, Proposer shall provide all such information to the County. Additional information may include, but will not be limited to, current financial statements prepared in accordance with generally accepted accounting practices and certified by an independent CPA or official of Proposer; verification of availability of equipment and personnel; and past performance records.

A.18 APPLICABLE LAWS

Proposer must be authorized to transact business in the State of Florida. All applicable laws and regulations of the State of Florida and ordinances and regulations of Manatee County will apply to any resulting contract. This solicitation process will be conducted in accordance with Manatee County Code of Ordinances, Chapter 2-26.

A.19 TAXES

Manatee County is exempt from Federal Excise and State Sales Taxes. (F.E.T. Cert. No. 59-78-0089K; Florida Sales Tax Exempt Cert. No. 85-8012622206C-6). Therefore, the Proposer is prohibited from delineating a separate line item in its Proposal for any sales or service taxes.

The Successful Proposer will be responsible for the payment of taxes of any kind, including but not limited to sales, consumer, use, and other similar taxes payable on account of the work performed and/or materials furnished under the award in accordance with all applicable laws and regulations.

A.20 SCRUTINIZED COMPANIES

Pursuant to Florida Statute Section 287.135, as of July 1, 2012, a company that, at the time of submitting a response for a new contract or renewal of an existing contract, is on the Scrutinized Companies with Activities in Sudan List or the Scrutinized Companies with Activities in the Iran Petroleum Energy Sector List, created pursuant to Florida Statute Section 215.473, is ineligible for, and may not submit a response for or enter into or renew a contract with an agency or local governmental entity for goods or services of $1 million or more.

A.21 COLLUSION

Proposer certifies that its Proposal is made without prior understanding, agreement, or connection with any other corporation, firm or person submitting a Proposal for the same materials, services, supplies, or equipment and is in all respects fair and without collusion or fraud.

Any such violation may result in contract cancellation, return of materials or discontinuation of services and the possible removal of Proposer from participation in future County solicitations for a specified period.

The County reserves the right to disqualify a Proposer during any phase of the solicitation process and terminate for cause any resulting contract upon evidence of collusion with intent to defraud on the part of the Proposer.

A.22 CODE OF ETHICS

With respect to this Request for Qualifications, if any Proposer violates, directly or indirectly, the ethics provisions of the Manatee County Procurement Code and/or Florida criminal or civil laws related to public procurement, including but not limited to Florida Statutes Chapter 112, Part II, Code of Ethics for Public Officers and Employees, such Proposer will be disqualified from eligibility to perform the work described in this RFQ, and may also be disqualified from submitting any future bids or proposals to supply goods or services to Manatee County.

A.23 PUBLIC ENTITY CRIMES

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

In addition, Manatee County Code of Laws Chapter 2-26 Article V prohibits the award of County contracts to any person or entity who/which has, within the past 5 years, been convicted of, or admitted to in court or sworn to under oath, a public entity crime or of any environmental law that, in the reasonable opinion of the Purchasing Official, establishes reasonable grounds to believe the person or business entity will not conduct business in a reasonable manner.

To ensure compliance with the foregoing, Manatee County Code of Laws requires all persons or entities desiring to contract with Manatee County to execute and file with the Purchasing Official an affidavit, executed under the pain and penalties of perjury, confirming that person, entity, and any person(s) affiliated with the entity, does not have such a record and is therefore eligible to seek and be awarded business with Manatee County. Proposer is to complete Form 3 and submit with your Proposal.

A.24 AMERICANS WITH DISABILITIES

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

A.25 EQUAL EMPLOYMENT OPPORTUNITY

In accordance with Title VI of the Civil Rights Act of 1964, Title 15, Part 8 of the Code of Federal Regulations and the Civil Rights Act of 1992, Manatee County hereby

notifies all Proposers that it will affirmatively ensure minority business enterprises are afforded full opportunity to participate in response to this Request for Qualifications and will not be discriminated against on the grounds of race, color, national origin, religion, sex, age, handicap, or marital status in consideration of award.

A.26 MINORITY AND/OR DISADVANTAGED BUSINESS ENTERPRISE

The State of Florida Office of Successful Proposer Diversity provides the certification process and maintains the database of certified MBE/DBE firms. Additional information may be obtained at http://www.osd.dms.state.fl.us/iframe.htm or by calling (850) 487-0915.

A.27 DISCLOSURE

Upon receipt, all inquiries and responses to inquiries related to this Request for Proposal become "Public Records", and shall be subject to public disclosure consistent with Florida Statute, Chapter 119.

Proposals become subject to disclosure thirty (30) days after the opening or if a notice of intent to award decision is made earlier than this time as provided by Florida Statutes § 119.071(1)(b). No announcement or review of the Proposals shall be conducted at the public opening.

If County rejects all Proposals and concurrently notices its intent to reissue the solicitation, the rejected Proposals are exempt from public disclosure until such time the County provides notice of an intended decision concerning the reissued solicitation or until County withdraws the reissued solicitation. A Proposal is not exempt for longer than twelve (12) months after the initial notice of rejection of all Proposals.

Pursuant to Florida Statute 119.0701, to the extent Successful Proposer is performing services on behalf of County, Successful Proposer must:

a. Keep and maintain public records required by public agency to perform the service. That information and data it manages as part of the services may be public record in accordance with Chapter 119, Florida Statutes and Manatee County public record policies. Proposer agrees, prior to providing goods/services, it will implement policies and procedures, which are subject to approval by County, to maintain, produce, secure, and retain public records in accordance with applicable laws, regulations, and County policies including but not limited to Section 119.0701, Florida Statutes.

b. Upon request from the public agency's custodian of public records, provide the public agency with a copy of the requested records or allow the records to be inspected or copied within a reasonable time at a cost that does not exceed the cost provided in Florida Statutes, Chapter 119, or as otherwise provided by law.

c. Ensure that public records that are exempt or confidential and exempt from public records disclosure requirements are not disclosed except as authorized by law for the duration of the contract term and following completion of the contract if the Successful Proposer does not transfer the records to the public agency.

d. Upon completion of the contract, transfer, at no cost, to the public agency all public records in possession of contractor or keep and maintain public records required by

the public agency to perform the service. If the Successful Proposer transfers all public records to County upon completion of the contract, the Successful Proposer shall destroy any duplicate public records that are exempt or confidential and exempt from public records disclosure requirements. If the Successful Proposer keeps and maintains public records upon completion of the contract, the Successful Proposer shall meet all applicable requirements for retaining public records. All records stored electronically must be provided to County, upon request from County's custodian of public records, in a format that is compatible with the information technology systems of County.

IF THE SUCCESSFUL PROPOSER HAS QUESTIONS REGARDING THE APPLICATION OF CHAPTER 119, FLORIDA STATUTES, TO ITS DUTY TO PROVIDE PUBLIC RECORDS RELATING TO ANY RESULTING CONTRACT, CONTACT COUNTY'S CUSTODIAN OF PUBLIC RECORDS AT:

PHONE: (941) 742-5845
EMAIL: DEBBIE.SCACCIANOCE@MYMANATEE.ORG
ATTN: RECORDS MANAGER
1112 MANATEE AVENUE WEST
BRADENTON, FL 34205

A.28 TRADE SECRETS

Manatee County is subject to Chapter 119, Florida Statutes. Therefore, all documents, materials, and data submitted as part of a Proposal in response to a Request for Proposal are governed by the disclosure, exemption and confidentiality provisions relating to public records in Florida Statutes.

Notwithstanding any other provision in this solicitation, designation of the entire proposal as 'trade secret', 'proprietary', or 'confidential' is not permitted and may result in a determination that the Proposal is non-responsive and therefore the proposal will not be evaluated or considered.

Except for materials that are 'trade secrets' as defined by Chapter 812, Florida Statutes, ownership of all documents, materials and data submitted as part of a Proposal in response to the Request for Proposal shall belong exclusively to County.
To the extent that Proposer desires to maintain the confidentiality of materials that constitute trade secrets pursuant to Florida law, trade secret material submitted must be segregated from the portions of the Proposal that are not declared as trade secret. In addition, Proposer shall cite, for each trade secret claimed, the Florida Statute number which supports the designation. Further, Proposer shall offer a brief written explanation as to why the cited Statute is applicable to the information claimed as trade secret. Additionally, Proposer shall provide a hard copy of its Proposal that redacts all information designated as trade secret.

In conjunction with trade secret designation, Proposer acknowledges and agrees that:

1. Trade secret requests made after the opening will not be considered. However, County reserves the right to clarify the Proposers request for trade secret at any time; and

2. County and its officials, employees, agents, and representatives are hereby granted full rights to access, view, consider, and discuss the information designated as trade secret throughout the evaluation process and until final execution of any awarded purchase order or contract; and
3. That after notice from County that a public records request has been made pursuant to Proposer's proposal, the Proposer at its sole expense, shall be responsible for defending its determination that submitted material is a trade secret and is not subject to disclosure. Action by Proposer in response to notice from the County shall be taken immediately, but no later than 10 calendar days from the date of notification or Proposer will be deemed to have waived the trade secret designation of the materials.

Offeror shall indemnify and hold County, and its officials, employees, agents and representatives harmless from any actions, damages (including attorney's fees and costs), or claims arising from or related to the designation of trade secrets by the Proposer, including actions or claims arising from County's non-disclosure of the trade secret materials.

A.29 CONFIDENTIALITY OF SECURITY RELATED RECORDS

a. Pursuant to Florida Statutes § 119.071(3), the following records (hereinafter referred to collectively as "the Confidential Security Records") are confidential and exempt from the disclosure requirements of Florida Statutes § 119.07(1):

   i. A Security System Plan or portion thereof for any property owned by or leased to County or any privately owned or leased property held by County.

   ii. Building plans, blueprints, schematic drawings, and diagrams, including draft, preliminary, and final formats, which depict the internal layout and structural elements of a building, arena, stadium, water treatment facility, or other structure owned or operated by County.
   iii. Building plans, blueprints, schematic drawings, and diagrams, including draft, preliminary, and final formats, which depict the internal layout or structural elements of an attractions and recreation facility, entertainment or resort complex, industrial complex, retail and service development, office development, or hotel or motel development in the possession of, submitted to County.

b. Successful Proposer agrees that, as provided by Florida Statute, it shall not, as a result of a public records request, or for other reason disclose the contents of, or release or provide copies of the Confidential Security Records to any other party absent the express written authorization of County's Property Management Director or to comply with a court order requiring such release or disclosure. To the extent Successful Proposer receives a request for such records, it shall immediately contact the County's designated Contract administrator who shall coordinate County's response to the request.

A.30 E-VERIFY

Prior to the employment of any person under this contract, the Successful Proposer shall utilize the U.S. Department of Homeland Security's E-Verify system to verify the employment eligibility of (a) all persons employed during the contract term by the Successful Proposer to perform employment duties within Florida and (b) all persons,

including subcontractors, assigned by the Successful Proposer to perform work pursuant to the contract with Manatee County. For more information on this process, please refer to United States Citizenship and Immigration Service site at: http://www.uscis.gov/.

Only those individuals determined eligible to work in the United States shall be employed under this contract.

By submission of a Proposal in response to this RFQ, the successful Proposer commits that all employees and subcontractors will undergo e-verification before placement on this contract.

The successful Proposer shall maintain sole responsibility for the actions of its employees and subcontractors. For the life of the contract, all employees and new employees brought in after contract award shall be verified under the same requirement stated above.

A.31 LICENSES AND PERMITS

The successful Proposer shall be solely responsible for obtaining all necessary license and permit fees, including, but not limited to, all license fees, permit fees, impact fees, or inspection fees, and responsible for the costs of such fees. Successful Proposer is solely responsible for ensuring all work complies with all Federal, State, local, and Manatee County ordinances, orders, codes, laws, rules, regulations, directives, and guidelines.

A.32 MINIMUM WAGE REQUIREMENTS

The successful Proposer shall comply with all minimum wage requirements, such as Living Wage requirements, minimum wages based on Federal Law, minimum wages based on the Davis-Bacon Act, and the provisions of any other employment laws, as may be applicable to the Agreement.

A.33 PROTEST

Any actual bidder, Proposer, or contractor who is aggrieved in connection with the notice of intent to award of a contract with a value greater than $250,000 where such grievance is asserted to be the result of a violation of the requirements of the Manatee County Procurement Code or any applicable provision of law by the officers, agents, or employees of the County, may file a protest to the Procurement Official.

Protest must be in writing and delivered via email at purchasing@mymanatee.org or by hand delivery to the Procurement Division at 1112 Manatee Avenue West, Suite 803, Bradenton, FL 34205 by 5:00 p.m. on the fifth business day following the date of posting of the Notice of Intent to Award on the County website. There is no stay of the procurement process during a protest. The Procurement Official shall have the authority to settle and resolve a protest concerning the intended award of a contract.

For additional information regarding the County protest process, visit the Procurement Division webpage on the County website.

A.34 BINDING OFFER

Proposals will remain valid for a period of 120 days following the Due Date and Time and will be considered a binding offer to perform the required services and/or provide the

required goods. The submission of a Proposal will be taken as prima facie evidence that the Proposer has familiarized itself with the contents of this Solicitation

A.35 ACCESSIBILITY

The County is committed to making its documents and information technologies accessible to individuals with disabilities by meeting the requirements of Section 508 of the Rehabilitation Act and best practices (W3C WCAG 2). **For assistance with accessibility regarding this solicitation, contact the Manatee County Procurement Division via email at purchasing@mymanatee.org or by phone at 941-748-4501, X3014.**

Successful Bidder shall ensure all its electronic information, documents, applications, reports, and deliverables required under the Agreement are in a format that meets the requirements of Section 508 of the Rehabilitation Act and best practices (W3C WCAG 2).

Where not fully compliant with these requirements and best practices, Successful Bidder shall provide clear points of contact for each document and information technology to direct users in how to obtain alternate formats. Further, successful Bidder shall develop accommodation strategies for those non-compliant resources and implement strategies to resolve the discrepancies.

A.36 SOLICITATION SCHEDULE

The following schedule has been established for this Solicitation process. Refer to the County's website (www.mymanatee.org > *Business* > *Bids & Proposals*) for meeting locations and updated information pertaining to any revisions to this schedule.

Scheduled Item	Scheduled Date
Non-Mandatory Solicitation Information Conference at Lake Manatee Sludge Drying Beds, 1451 Dam Road, Bradenton, FL 34212	June 28, 2021 9:00 a.m.
Question and Clarification Deadline	July 6, 2021
Final Addendum Posted	July 9, 2021
Proposal Due Date and Time	July 15, 2021, by 3:00 p.m.
Technical Evaluation Meeting	August 3, 2021
Technical Evaluation Meeting	August 4, 2021
Interviews/Presentations/Demonstrations (if conducted)	August 11, 2021
Final Evaluation Meeting (if required)	August 12, 2021
Projected Award	October 2021

END SECTION A

SECTION B, EVALUATION OF RESPONSES

B.01 EVALUATION

A due diligence review will be conducted to determine if the Proposal is responsive to the submission requirements outlined in this Solicitation and to determine if the Proposer is a responsible Proposer.

A responsive Proposal is one that follows the requirements of this Solicitation, includes all documentation, is submitted in the format outlined in this Solicitation, is of timely submission, and has the appropriate signatures as required on each document. Failure to comply with these requirements may result in the Proposal being deemed non-responsive. A responsible Proposer is a Proposer which the County affirmatively determines has the ability, capability and skill to perform under the terms of the agreement; can provide the materials and/or service promptly within the time specified, without delay or interference; has a satisfactory record of integrity and business ethics; and meets the minimum qualification requirements in this RFQ.

Evaluation of Proposals will be conducted by an evaluation committee. Each evaluation committee member will evaluate, score and rank the Proposals for each of the evaluation criteria. The committee will consider all information submitted by each responsible and responsive Proposer; clarification information provided by Proposer; information obtained during the interviews, presentations, or demonstrations; feedback received from Proposer's references; and any other relevant information received during any investigation of Proposer to ascertain the ability of the Proposer to perform the Scope of Services as stated in this RFQ.

B.02 EVALUATION CRITERIA

The following evaluation criteria have been established for this RFQ.

Criteria	Maximum Points
Proposer & Team's Experience	25
Approach to Project Management, Design and Construction	40
Organizational Structure and Capacity	15
Similar Completed Projects	20

B.03 CLARIFICATIONS, INTERVIEWS, PRESENTATIONS, DEMONSTRATIONS

As part of the evaluation process, the evaluation committee will determine a list of those responsive and responsible Proposals that are deemed by the committee as having a reasonable probability of being selected for award (Short List). At a minimum, the evaluation committee shall conduct discussions with the Short List Proposers and may request additional information or clarification from Proposers for the purpose of further evaluation of (a) conformance to the solicitation requirements, (b) the abilities of the Proposer, and (c) understanding of the Proposal submitted. Additional information and clarification must be submitted by Proposer within the requested time-period.

Additionally, interviews, presentations or demonstrations may be conducted with Proposers as part of the evaluation process. If conducted, the Short List Proposers will be

invited to meet with the committee. The information gained from these interviews, presentations, or demonstrations will be part of the committee's consideration in making a recommendation for award. Therefore, Proposers should make arrangements to attend, if invited.

The interviews, presentations and demonstrations are closed to the public to the extent permitted by law.

In the final evaluations, each evaluator will consider the information obtained from the proposals as well as the discussions and clarifications presented during the presentations. As part of the final evaluations, the initial technical evaluation scores and ranking for each short-listed firm, in each of the evaluation criterion, will be discussed by the evaluation committee and are subject to change.

B.04 RECOMMENDATION FOR NEGOTIATION

The evaluation committee will determine from the responses to this RFQ and subsequent investigations, the Proposer(s) who best meets the County's requirements. Upon completion of the technical evaluations, the evaluation committee will make a recommendation as to the Proposer(s) which the County should enter into negotiations, if any. The County will notice the Intent to Negotiate, in the same manner the original Request for Qualifications document was noticed prior to commencing negotiations.

Upon approval to commence negotiations, the recommended Proposer(s) shall submit one original hard copy and one electronic copy on a CD or USB flash drive of its pricing proposal. The pricing information should show a categorical breakout of the pricing, with any alternates or options clearly identified. The pricing information shall be clear and unambiguous to facilitate evaluation of the prices submitted.

The County will conduct negotiations with the highest ranked Proposer. If the County and the highest-ranked Proposer cannot reach agreement on a contract, the County reserves the right to terminate negotiations and may, at its sole discretion, begin negotiations with the next highest-ranked Proposer(s). This process may continue until a contract acceptable to the County has been negotiated or all Proposals are rejected.

B.05 RECOMMENDATION FOR AWARD

Upon successful completion of negotiations, a recommendation for award to the successful Proposer(s) will be presented for approval per County ordinances, policies and procedures.

END SECTION B

SECTION C, AWARD OF THE AGREEMENT

C.01 GENERAL

By submitting a Proposal, Proposer understands and agrees:

a. The Proposal and all subsequent information requested by the County during the procurement process will serve as a basis for the Agreement.
b. All products and papers produced during the Agreement period become the property of Manatee County upon termination or completion of the engagement.

C.02 AGREEMENT

The successful Proposer(s) will be required to execute the Agreement in a form and with provisions acceptable to the County (See Attachment G, Sample Agreement). The County (as Owner) will execute this Agreement with the successful Proposer (as Contractor).

The negotiated Agreement may or may not include all elements of this RFQ or the Proposal submitted by the successful Proposer(s) where alternatives provide best value, are desirable to the County, and the parties agree to such terms. Negotiations of the terms of the Agreement, may include specifications, scope of project, price, the Agreement period, renewal, or any other relevant provisions.

C.03 AWARD

County does not make award to a Proposer who is delinquent in payment of any taxes, fees, fines, contractual debts, judgments, or any other debts due and owed to County, or is in default on any contractual or regulatory obligation to County. By submitting this solicitation response, Proposer attests that it is not delinquent in payment of any such debts due and owed to County, nor is it in default on any contractual or regulatory obligation to County. In the event the Proposer's statement is discovered to be false, Proposer will be subject to suspension and debarment and County may terminate any contract it has with Proposer.

Award of the Agreement is subject to approval as provided for in the Manatee County Procurement Code.

END SECTION C

SECTION D, FORMS

FORM 1 - ACKNOWLEDGMENT OF ADDENDA

The undersigned acknowledges receipt of the following addenda:

Addendum No. _____	Date Received:
Addendum No. _____	Date Received:
Addendum No. _____	Date Received:
Addendum No. _____	Date Received:
Addendum No. _____	Date Received:
Addendum No. _____	Date Received:
Addendum No. _____	Date Received:
Addendum No. _____	Date Received:
Addendum No. _____	Date Received:

Print or type Proposer's information below:

Name of Proposer	Telephone Number
Street Address	City/State/Zip
Email Address	Website Address
Print Name & Title of Authorized Officer	Signature of Authorized Official Date

FORM 2 - PROPOSAL SIGNATURE FORM

The undersigned represents that by signing this Proposal Signature Form that:

(1) He/she has the authority and approval of the legal entity purporting to submit the Proposal and any additional documentation which may be required such as the Joint Venture Agreement or Joint Venture Affidavit, if applicable; and

(2) All facts and responses set forth in the Proposal are true and correct; and

(3) If the Proposer is selected by County to negotiate an agreement, that Proposer's negotiators will negotiate in good faith to establish an agreement to provide the services described in this RFQ; and

(4) By submitting a Proposal and signing below, the Proposer agrees to the terms and conditions in this RFQ, which incorporates all addenda, appendices, exhibits, and attachments, in its entirety, and is prepared to sign the Agreement, of which a sample is incorporated into this RFQ as Attachment G. The Proposer understands that if it submits exceptions to the Sample Agreement in its Proposal, the Proposer may be determined non-responsive.

Print or type Proposer's information below:

Name of Proposer	Telephone Number
Street Address	City/State/Zip
Email Address	Web Address
Print Name & Title of Authorized Officer	Signature of Authorized Officer Date

FORM 3- PUBLIC CONTRACTING AND ENVIRONMENTAL CRIMES CERTIFICATION

SWORN STATEMENT PURSUANT TO MANATEE COUNTY PROCUREMENT CODE SECTION 2-26 ARTICLE V,

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

This sworn statement is submitted to Manatee County by

_____

[print individual's name and title]

for _____

[name of entity submitting sworn statement]

whose business address is: _____

and (if applicable) its Federal Employer Identification Number (FEIN) is _____

_____. If the entity has no FEIN, include the Social Security Number of the individual signing this sworn statement:

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

(1) been convicted of bribery or attempting to bribe a public officer or employee of Manatee County, the State of Florida, or any other public entity, including, but not limited to the Government of the United States, any state, or any local government authority in the United States, in that officer's or employee's official capacity; or

(2) been convicted of an agreement or collusion among Proposers or prospective Proposers in restraint of freedom of competition, by agreement to bid a fixed price, or otherwise; or

(3) been convicted of a violation of an environmental law that, as determined by the County, reflects negatively upon the ability of the person or entity to conduct business in a responsible manner; or

(4) made an admission of guilt of such conduct described in items (1), (2) or (3) above, which is a matter of record, but has not been prosecuted for such conduct, or has made an admission of guilt of such conduct, which is a matter of record, pursuant to formal prosecution. An admission of guilt shall be construed to include a plea of nolo contendere; or

(5) where an officer, official, agent or employee of a business entity has been convicted of, or has admitted guilt to, any of the crimes set forth above on behalf of such and entity and pursuant to the direction or authorization of an official thereof (including the person

committing the offense, if he/she is an official of the business entity), the business shall be chargeable with the conduct herein above set forth. A business entity shall be chargeable with the conduct of an affiliated entity, whether wholly owned, partially owned, or one which has common ownership or a common board of directors.

For purposes of this Form, business entities are affiliated if, directly or indirectly, one business entity controls or has the power to control another business entity, or if an individual or group of individuals controls or has the power to control both entities. Indicia of control shall include, without limitation, interlocking management or ownership, identity of interests amount family members, shared organization of a business entity following the ineligibility of a business entity under this Article, or using substantially the same management, ownership or principles as the ineligible entity.

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

I UNDERSTAND THAT ANY CONTRACT OR BUSINESS TRANSACTION SHALL PROVIDE FOR SUSPENSION OF PAYMENTS, OR TERMINATION, OR BOTH, IF THE PROCUREMENT DIVISION OR THE COUNTY ADMINISTRATOR DETERMINES THAT **SUCH PERSON OR ENTITY HAS MADE FALSE CERTIFICATION.**

_____
Signature of Contractor Representative

STATE OF _____

COUNTY OF_____

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

by _____. ☐ Personally known OR ☐ Produced the following identification: _____

[Type of identification]

_____
Notary Public Signature

My commission expires_____

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

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

FORM 4 - CONFLICT OF INTEREST DISCLOSURE FORM

The award of an agreement resulting from this RFQ is subject to the provisions of Manatee County Code of Laws. Proposer must disclose within its Proposal: the name of any officer, director, or agent who is also an employee of Manatee County. Furthermore, Proposer must disclose the name of any County employee who owns, directly or indirectly, an interest of more than five percent (5%) in the Proposer's firm or any of its branches, divisions, or affiliates.

By signing below, Proposer confirms that it is not currently engaged or will not become engaged in any obligations, undertakings or contracts that will require the firm to maintain an adversarial role against the County or that will impair or influence the advice or recommendations it provides to the County.

Please check one of the following statements and attach additional documentation if necessary:

_____ To the best of my knowledge, the undersigned firm has no potential conflict of interest for this RFQ.

_____ The undersigned firm, by execution of this form, submits information which may be a potential conflict of interest for this RFQ.

Acknowledged and attested to by:

_____

Firm Name

_____

Signature

_____

Name and Title (Print or Type)

_____

Date

Return this fully executed form with your Proposal.

FORM 5 - NON-COLLUSION AFFIDAVIT

STATE OF _____

COUNTY OF _____

Before me, the undersigned authority, personally appeared _____, who, after being by me first duly sworn, deposes and says of his/her personal knowledge that:

a. He/She is _____ of _____, the Proposer that has submitted a Proposal to perform work for the following:

RFQ No.: _____ Title: _____

b. He/She is fully informed respecting the preparation and contents of the attached Request for Qualifications, and of all pertinent circumstances respecting such Solicitation.

Such Proposal is genuine and is not a collusive or sham Proposal.

c. Neither the said Proposer nor any of its officers, partners, owners, agents, representatives, employees, or parties in interest, including this affiant, has in any way colluded, conspired, connived, or agreed, directly or indirectly, with any other Proposer, firm, or person to submit a collusive or sham Proposal in connection with the Solicitation and contract for which the attached Proposal has been submitted or to refrain from proposing in connection with such Solicitation and contract, or has in any manner, directly or indirectly, sought by agreement or collusion or communication or conference with any other Proposer, firm, or person to fix the price or prices in the attached Proposal or any other Proposer, or to fix any overhead, profit, or cost element of the Proposal price or the Proposal price of any other Proposer, or to secure through any collusion, conspiracy, connivance, or unlawful agreement any advantage against the City or any person interested in the proposed contract.

d. The price or prices to be submitted shall be fair and proper and shall not be tainted by any collusion, conspiracy, connivance, or unlawful agreement on the part of the Proposer or any of its agents, representatives, owners, employees, or parties in interest, including this affiant.

Signature: _____

Subscribed and sworn to (or affirmed) before me this _____ day of _____ 20__, by _____, who is personally known to me OR has produced _____ as identification.

Notary Signature_____
Notary Name: _____
Notary Public (State): _____
My Commission No: _____
Expires on: _____
SEAL

FORM 6 - TRUTH – IN – NEGOTIATION CERTIFICATE

The undersigned warrants (i) that it has not employed or retained any company or person, other than bona fide employees working solely for the undersigned, to solicit or secure the Agreement and (ii) that it has not paid or agreed to pay any person, company, corporation, individual, or firm other than its bona fide employees working solely for the undersigned or agreed to pay any fee, commission, percentage, gift, or any other consideration contingent upon or resulting from the award or making of the Agreement.

The undersigned certifies that the wage rates and other factual unit costs used to determine the compensation provided for in the Agreement are accurate, complete, and current as of the date of the Agreement.

(This document must be executed by an authorized official of Proposer (e.g., President, CEO, Partner, Managing Partner)

Name: _____

Title:_____

Date:_____

Signature:_____

FORM 7 – SCRUTINIZED COMPANY CERTIFICATION

This certification is required pursuant to Florida State Statute Section 287.135 and must be executed and returned with Proposer's Proposal.

As of July 1, 2011, a company that, at the time of bidding or submitting a Proposal for a new contract or renewal of an existing contract, is on the Scrutinized Companies with Activities in Sudan List or the Scrutinized Companies with Activities in the Iran Petroleum Energy Sector List is ineligible for, and may not bid on, submit a Proposal for, or enter into or renew a contract with an agency or local governmental entity for goods or services of $1 million or more.

Companies must complete and return this form with its response.

Company: _____

FEIN: _____

Address. _____

City/State/Zip. _____

I, _____, as a representative of _____ _____ certify and affirm that this entity is not on the Scrutinized Companies with Activities in Sudan List or the Scrutinized Companies with Activities in the Iran Petroleum Energy Sector List.

Signature	Title
Printed Name	Date

FORM 8, INSURANCE REQUIREMENTS

The Successful Proposer will not commence work under the resulting Agreement until all insurance coverages indicated by an "X" herein have been obtained. The Successful Proposer shall obtain and submit to the Procurement Division within ten (10) calendar days from the date of notice of intent to award, at its expense, the following minimum amounts of insurance (inclusive of any amounts provided by an umbrella or excess policy): Work under this Agreement cannot commence until all insurance coverages indicated herein have been obtained on a standard ACORD form (inclusive of any amounts provided by an umbrella or excess policy):

☒ **Automobile Liability Insurance Required Limits**
Coverage must be afforded under a per occurrence policy form including coverage for all owned, hired and non-owned vehicles for bodily injury and property damage of not less than:

- $1,000,000 Combined Single Limit; OR
- $ 500,000 Bodily Injury and $500,000 Property Damage
- $10,000 Personal Injury Protection (No Fault)
- $500,000 Hired, Non-Owned Liability
- $10,000 Medical Payments

This policy shall contain severability of interests' provisions.

☒ **Commercial General Liability Insurance Required Limits (per Occurrence form only; claims-made form is not acceptable)**
Coverage shall be afforded under a per occurrence policy form, policy shall be endorsed and name 'Manatee County, a political subdivision of the State of Florida' as an Additional Insured, and include limits not less than:

- $1,000,000 Single Limit Per Occurrence
- $2,000,000 Aggregate
- $1,000,000 Products/Completed Operations Aggregate
- $1,000,000 Personal and Advertising Injury Liability
- $50,000 Fire Damage Liability
- $10,000 Medical Expense, and
- $1,000,000, Third Party Property Damage
- $ Project Specific Aggregate (Required on projects valued at over $10,000,000)

This policy shall contain severability of interests' provisions.

☒ **Employer's Liability Insurance**
Coverage limits of not less than:

- $100,000 Each Accident
- $500,000 Disease Each Employee
- $500,000 Disease Policy Limit

☒ Worker's Compensation Insurance
☐ **US Longshoremen & Harbor Workers Act**
☐ **Jones Act Coverage**

Coverage limits of not less than:

- Statutory workers' compensation coverage shall apply for all employees in compliance with the laws and statutes of the State of Florida and the federal government.
- If any operations are to be undertaken on or about navigable waters, coverage must be included for the US Longshoremen & Harbor Workers Act and Jones Act.

Should 'leased employees' be retained for any part of the project or service, the employee leasing agency shall provide evidence of Workers' Compensation coverage and Employer's Liability coverage for all personnel on the worksite and in compliance with the above Workers' Compensation requirements. NOTE: Workers' Compensation coverage is a firm requirement. Elective exemptions are considered on a case-by-case basis and are approved in a very limited number of instances.

☐ **Aircraft Liability Insurance Required Limits**
Coverage shall be afforded under a per occurrence policy form, policy shall be endorsed and name 'Manatee County a political subdivision of the State of Florida' as an Additional Insured, and include limits not less than:

- $ Each Occurrence Property and Bodily Injury with no less than $100,000 per passenger each occurrence or a 'smooth' limit.
- $ General Aggregate.

☐ **Un-Manned Aircraft Liability Insurance (Drone)**
Coverage shall be afforded under a per occurrence policy form, policy shall be endorsed and name 'Manatee County a political subdivision of the State of Florida' as an Additional Insured, and include limits not less than:

- $ Each Occurrence Property and Bodily Injury; Coverage shall specifically include operation of Unmanned Aircraft Systems (UAS), including liability and property damage.
- $ General Aggregate

☐ **Installation Floater Insurance**
When the contract or agreement **does not** include construction of, or additions to, above ground building or structures, but does involve the installation of machinery or equipment, Installation Floater Insurance shall be afforded under a per occurrence policy form, policy shall be endorsed and name "Manatee County, a political subdivision of the State of Florida" as an Additional Insured, and include limits not less than:

- 100% of the completed value of such addition(s), building(s), or structure(s)

☒ **Professional Liability and/or Errors and Omissions (E&O) Liability Insurances**
Coverage shall be afforded under either an occurrence policy form or a claims-made policy form. If the coverage form is on a claims-made basis, then coverage must be maintained for a minimum of three years from termination of date of the contract. Limits must not be less than:

- $ 1,000,000 Bodily Injury and Property Damage Each Occurrence
- $ 2,000,000 General Aggregate

☒ **Builder's Risk Insurance**
When the contract or agreement includes the construction of roadways and/or the addition of a permanent structure or building, including the installation of machinery and/or equipment, Builder's Risk Insurance shall be afforded under a per occurrence policy form, policy shall be endorsed and name "Manatee County, a political subdivision of the State of Florida" as an Additional Insured, and include limits not less than:

- An amount equal to 100% of the completed value of the project, or the value of the equipment to be installed
- The policy shall not carry a self-insured retention/deductible greater than $10,000

Coverage shall be for all risks and include, but not be limited to, storage and transport of materials, equipment, supplies of any kind whatsoever to be used on or incidental to the project, theft coverage, and Waiver of Occupancy Clause Endorsement, where applicable.

☐ **Cyber Liability Insurance**
Coverage shall comply with Florida Statute 501.171, shall be afforded under a per occurrence policy form, policy shall be endorsed and name 'Manatee County, a political subdivision of the State of Florida' as an Additional Insured, and include limits not less than:

- $ Security Breach Liability
- $ Security Breach Expense Each Occurrence
- $ Security Breach Expense Aggregate
- $ Replacement or Restoration of Electronic Data
- $ Extortion Threats
- $ Business Income and Extra Expense
- $ Public Relations Expense

NOTE: Policy must not carry a self-insured retention/deductible greater than $25,000.

☐ **Hazardous Materials Insurance (As Noted Below)**
Hazardous materials include all materials and substances that are currently designated or defined as hazardous by the law or rules of regulation by the State of Florida or federal government. All coverage shall be afforded under either an occurrence policy form or a claims-made policy form, and the policy shall be endorsed and name 'Manatee County, a political subdivision of the State of Florida' as an Additional Insured. If the coverage form is on a claims-made basis, then coverage must be maintained for a minimum of three years from termination of date of the contract. Limits must not be less than:

☐ ***Pollution Liability***
Amount equal to the value of the contract, subject to a $1,000,000 minimum, for Bodily Injury and Property Damage to include sudden and gradual release, each claim and aggregate.

☐ ***Asbestos Liability (If handling within scope of Contract)***
Amount equal to the value of the contract, subject to a $1,000,000 minimum, for Bodily Injury and Property Damage to include sudden and gradual release, each claim and aggregate.

☐ ***Disposal***
When applicable, Successful Proposer shall designate the disposal site and furnish a Certificate of Insurance from the disposal facility for Environmental Impairment Liability Insurance covering liability.

- Amount equal to the value of the contract, subject to a $1,000,000 minimum, for Liability for Sudden and Accidental Occurrences, each claim and an aggregate.
- Amount equal to the value of the contract, subject to a $1,000,000 minimum, for Liability for Non-Sudden and Accidental Occurrences, each claim and an aggregate.

☐ **Hazardous Waste Transportation Insurance**
Successful Proposer shall designate the hauler and have the hauler furnish a Certificate of Insurance for Automobile Liability insurance with Endorsement MCS-90 for liability arising out of the transportation of hazardous materials. EPA identification number shall be provided.

All coverage shall be afforded under either an occurrence policy form or a claims-made policy form and the policy shall be endorsed and name "Manatee County, a political subdivision of the State of Florida" as an Additional Insured. If the coverage form is on a claims-made basis, then coverage must be maintained for a minimum of three years from termination of date of the contract. Limits must not be less than:

- Amount equal to the value of the contract, subject to a $1,000,000 minimum, per accident.

☐ **Liquor Liability Insurance**
Coverage shall be afforded under a per occurrence policy form, policy shall be endorsed and name "Manatee County, a political subdivision of the State of Florida" as an Additional Insured, and include limits not less than:

- $1,000,000 Each Occurrence and Aggregate

☐ **Garage Keeper's Liability Insurance**
Coverage shall be required if the maintenance, servicing, cleaning or repairing of any County motor vehicles is inherent or implied within the provision of the contract.

Coverage shall be afforded under a per occurrence policy form, policy shall be endorsed and name "Manatee County, a political subdivision of the State of Florida" as an Additional Insured, and include limits not less than:

- Property and asset coverage in the full replacement value of the lot or garage.

☐ **Bailee's Customer Liability Insurance**
Coverage shall be required for damage and/or destruction when County property is temporarily under the care or custody of a person or organization, including property that is on, or in transit to and from the person or organization's premises. Perils covered should include fire, lightning, theft, burglary, robbery, explosion, collision, flood, earthquake and damage or destruction during transportation by a carrier.

Coverage shall be afforded under a per occurrence policy form, policy shall be endorsed and name "Manatee County, a political subdivision of the State of Florida" as an Additional Insured, and include limits not less than:

- Property and asset coverage in the full replacement value of the County asset(s) in the Successful Proposer'S care, custody and control.

☐ **Hull and Watercraft Liability Insurance**
Coverage shall be afforded under a per occurrence policy form, policy shall be endorsed and name "Manatee County, a political subdivision of the State of Florida" as an Additional Insured, and include limits not less than:

- $ Each Occurrence
- $ General Aggregate
- $ Fire Damage Liability
- $10,000 Medical Expense, and
- $ Third Party Property Damage
- $ Project Specific Aggregate (Required on projects valued at over $10,000,000)

☐ **Other [Specify]**

BOND REQUIREMENTS
☐ **Bid Bond**
A Bid Bond in the amount of $_____ or ____% of the total offer. Bid bond shall be submitted with the sealed response and shall include project name, location, and / or address and project number. In lieu of the bond, the bidder may file an alternative form of security in the amount of $_____ or ____% of the total offer. in the form of a money order, a certified check, a cashier's check, or an irrevocable letter of credit issued to Manatee County. NOTE: A construction project over $200,000 requires a Bid Bond in the amount of 5% of the total bid offer.

☒ **Payment and Performance Bond**
A Payment and Performance Bond shall be submitted by Successful Bidder for 100% of the award amount and shall be presented to Manatee County within ten (10) calendar days of issuance of the notice of intent to award. NOTE: A construction project over $200,000 requires a Payment and Performance Bond.

INSURANCE REQUIREMENTS

I. THE POLICIES ARE TO CONTAIN, OR BE ENDORSED TO CONTAIN, THE FOLLOWING PROVISIONS:

Commercial General Liability and Automobile Liability Coverages

a. **"Manatee County, a Political Subdivision of the State of Florida," is to be named as an Additional Insured in respect to:** Liability arising out of activities performed by or on behalf of the Successful Proposer, his agents, representatives, and employees; products and completed operations of the Successful Proposer; or automobiles owned, leased, hired or borrowed by the Successful Proposer. The coverage shall contain no special limitation(s) on the scope of protection afforded to the COUNTY, its officials, employees or volunteers.
In addition to furnishing a Certificate of Insurance, the Successful Proposer shall provide the endorsement that evidences Manatee COUNTY being listed as an Additional Insured. This can be done in one of two ways: (1) an endorsement can be issued that specifically lists "Manatee County, a Political Subdivision of the State of Florida," as Additional Insured; or, (2) an endorsement can be issued that states that all Certificate Holders are Additional Insured with respect to the policy.
b. The Successful Proposer'S insurance coverage shall be primary insurance with respect to the COUNTY, its officials, employees and volunteers. Any insurance or self-insurance maintained by the COUNTY, its officials, employees or volunteers shall be excess of Successful Proposer's insurance and shall be non-contributory.
c. The insurance policies must be on an occurrence form.

Workers' Compensation and Employers' Liability Coverages
The insurer shall agree to waive all rights of subrogation against the COUNTY, its officials, employees and volunteers for losses arising from work performed by the Successful Proposer for the COUNTY.

II. General Insurance Provisions Applicable to All Policies

1. Prior to the execution of contract, or issuance of a Purchase Order, and then annually upon the anniversary date(s) of the insurance policy's renewal date(s) for as long as this contract remains in effect, Successful Proposer shall furnish the COUNTY with a Certificate(s) of Insurance (using an industry accepted certificate form, signed by the Issuer, with applicable endorsements, and containing the solicitation or contract number, and title or description) evidencing the coverage set forth above and naming "Manatee County, a Political Subdivision of the State of Florida" as an Additional Insured on the applicable coverage(s) set forth above.

2. If the policy contains an aggregate limit, confirmation is needed in writing (letter, email, etc.) that the aggregate limit has not been eroded to procurement representative when supplying Certificate of Insurance. In addition, when requested in writing from the COUNTY, Successful Proposer will provide the COUNTY with a certified copy of all applicable policies. The address where such certificates and certified policies shall be sent or delivered is as follows:

Manatee County, a Political Subdivision of the State of Florida
Attn: Risk Management Division
1112 Manatee Avenue West, Suite 969
Bradenton, FL 34205

3. The project's solicitation number and title shall be listed on each certificate.
4. Successful Proposer shall provide thirty (30) days written notice to the Risk Manager of any cancellation, non-renewal, termination, material change, or reduction in coverage of any insurance policies to procurement representative including solicitation number and title with all notices.
5. Successful Proposer agrees that should at any time Successful Proposer fail to meet or maintain the required insurance coverage(s) as set forth herein, the COUNTY may terminate this contract.
6. The Successful Proposer waives all subrogation rights against COUNTY, a Political Subdivision of the State of Florida, for all losses or damages which occur during the contract and for any events occurring during the contract period, whether the suit is brought during the contract period or not.
7. The Successful Proposer has sole responsibility for all insurance premiums and policy deductibles.
8. It is the Successful Proposer'S responsibility to ensure that his agents, representatives and subcontractors comply with the insurance requirements set forth herein. Successful Proposer shall include his agents, representatives, and subcontractors working on the project or at the worksite as insured under its policies, or Successful Proposer shall furnish separate certificates and endorsements for each agent, representative, and subcontractor working on the project or at the worksite. All coverages for agents, representatives, and subcontractors shall be subject to all of the requirements set forth to the procurement representative.
9. All required insurance policies must be written with a carrier having a minimum A.M. Best rating of A- FSC VII or better. In addition, the COUNTY has the right to review the Successful Proposer's deductible or self-insured retention and to require that it be reduced or eliminated.
10. Successful Proposer understands and agrees that the stipulated limits of coverage listed herein in this insurance section shall not be construed as a limitation of any potential liability to the COUNTY, or to others, and the COUNTY'S failure to request evidence of this insurance coverage shall not be construed as a waiver of Successful Proposer'S obligation to provide and maintain the insurance coverage specified.
11. Successful Proposer understands and agrees that the COUNTY does not waive its immunity and nothing herein shall be interpreted as a waiver of the COUNTY'S rights, including the limitation of waiver of immunity, as set forth in Florida Statutes 768.28, or any other statutes, and the COUNTY expressly reserves these rights to the full extent allowed by law.
12. No award shall be made until the Procurement Division has received the Certificate of Insurance in accordance with this section.

BONDING REQUIREMENTS

Bid Bond/Certified Check. By submitting a proposal, the Successful Proposer agrees should its proposal be accepted, **to execute the form of Agreement and present the same to COUNTY for approval within ten (10) calendar days after notice of intent to award**. The Successful Proposer further agrees that failure to execute and deliver said form of Agreement **within ten (10) calendar days** will result in damages to COUNTY and as guarantee of payment of same a bid bond/certified check shall be enclosed within the submitted sealed proposal in the amount of five (5%) percent of the total amount of the proposal. The Successful Proposer further agrees that in case the Successful Proposer fails to enter into an Agreement, as

prescribed by COUNTY, the bid bond/certified check accompanying the proposal shall be forfeited to COUNTY as agreed liquidated damages. If COUNTY enters into an agreement with a Successful Proposer, or if COUNTY rejects any and/or all proposals, accompanying bond will be promptly returned.

Payment and Performance Bonds. Prior to commencing work, the Successful Proposer shall obtain, for the benefit of and directed to COUNTY, a Payment and Performance Bond satisfying the requirements of Florida Statutes § 255.05, covering the faithful performance by the Successful Proposer of its obligation under the Contract Documents, including but not limited to the construction of the project on the project site and the payment and obligations arising thereunder, including all payments to Subcontractors, laborers, and materialmen. The surety selected by the Successful Proposer to provide the Payment and Performance Bond shall be approved by COUNTY prior to issuance of such Bond, which approval shall not be unreasonably withheld or delayed provided that surety is rated A- or better by Best's Key Guide, latest edition.

Failure to provide the required bonds on the prescribed form may result in Successful Proposer being deemed nonresponsive. Bonds must be in the form prescribed in Florida Statutes § 255.05, and must not contain notice, demand or other terms and conditions, including informal pre-claim meetings, not provided for in Florida Statutes § 255.05.

Bonds shall be in an amount equal to 100% of the contract price issued by a duly authorized and nationally recognized surety company, authorized to do business in the State of Florida, satisfactory to COUNTY. Surety shall be rated as "A-" or better by Best's Key Guide, latest edition. The attorney-in-fact who signs the bonds must file with the bonds, a certificate and effective dated copy of power-of-attorney. Payment and Performance Bonds shall be issued to "Manatee County, a political subdivision of the State of Florida", **within ten (10) calendar days after issuance of notice of intent to award**.

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

Furnishing Payment and Performance Bonds shall be requisite to execution of an Agreement with COUNTY. Said Payment and Performance Bonds will remain in force for the duration of this Agreement with the premiums paid by the Successful Proposer. Failure of the Successful Proposer to execute such Agreement and to supply the required bonds shall be just cause for cancellation of the award. COUNTY may then contract with the next lowest, responsive and responsible Successful Proposer or re-advertise this RFP.

Failure of COUNTY at any time to require performance by the Successful Proposer of any provisions set out in the resulting Agreement will in no way affect the right of COUNTY, thereafter, to enforce those provisions.

FORM 8, INSURANCE STATEMENT
RFQ NO. 21-TA003721CD

THE UNDERSIGNED has read and understands the insurance requirements applicable to any Agreement resulting from this solicitation and shall provide the insurances required in this RFQ within ten (10) days from the date of Notice of Intent to Award.

Proposer Name: _____ Date: _____

Signature (Authorized Official): _____

Printed Name/Title: _____

Insurance Agency: _____

Agent Name: _____ Agent Phone: _____

Return this signed statement with your proposal.

FORM 9, INDEMNITY AND HOLD HARMLESS

MANATEE COUNTY, A POLITICAL SUBDIVISION OF THE STATE OF FLORIDA

The Successful Proposer shall indemnify and hold harmless County, its officers, and employees from liabilities, damages, losses, and costs, including but not limited to reasonable attorney's fees, to the extent caused by the negligence, recklessness, or intentionally wrongful conduct of the Successful Proposer, its personnel, design professionals and other persons employed or utilized by the Successful Proposer in the performance of the Agreement, including without limitation, defects in design, or errors or omissions that result in material cost increases to County. Such indemnification shall include the payment of all valid claims, losses, and judgments of any nature whatsoever in connection therewith and the payment of all related fees and costs. County reserves the right to defend itself with its own counsel or retained counsel at Successful Proposer's expense.

Signature of Authorized Official of Proposer: _____

Title: Date: _____

Project Number and /or Name:_____

Insurance Agent: _____

Acknowledgement:

STATE OF _____

COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 20____ by _____ [FULL LEGAL NAME], who is

☐ Personally known to me
OR
☐ has produced _____ as identification.

Notary Signature _____
Print Name _____
Seal

SECTION E ATTACHMENTS

Attachment A, Scope of Services
Attachment B, Proposal Requirements
Attachment C, Technical Memorandum- Mechanical Dewatering
Attachment D, Record Drawingts- Sludge Dewatering
Attachment E, Project Site Map
Attachment F, FDEP Permit
Attachment G, Sample Agreement

ATTACHMENT A

SCOPE OF SERVICES - DESIGN CRITERIA PACKAGE

A.01 GENERAL INFORMATION AND BACKGROUND

The Lake Manatee Water Treatment Plant (WTP) currently uses sludge drying beds to receive and dry the alum sludge generated in the surface water treatment process. The current beds do not have enough capacity for the sludge generated at the plant and are a passive dewatering process that is highly dependent on weather conditions and labor intensive. The County is seeking proposals from qualified firms to design and construct a mechanical dewatering system at the Lake Manatee County Water Treatment Plant.

It is the County's expectation to contract with a qualified firm to provide the County with the design and construction inclusive of all associated engineering, permitting, and construction management services for the proposed Design-Build Project which will be constructed at the following locations, which are adjacently located:

Lake Manatee Water Treatment Plant
17915 Waterline Road, Bradenton Florida, 34212
and

Lake Manatee Sludge Drying Beds
1451 Dam Road, Bradenton, Florida, 34212

This project is for all associated site work, architectural services, engineering design, regulatory permitting services (inclusive of Manatee County Building Department permitting), construction services and startup under a single prime contract for a cost of the work plus design-builder's fee. This project will include generation of a Guaranteed Maximum Price (GMP) at an agreed upon stage of design completion.

The name of the project is: WTP Alum Sludge Dewatering System.

A.02 PROJECT RATIONALE AND BACKGROUND

Manatee County Utilities Department Engineer of Record, Carollo, completed a Technical Memorandum dated December 2019 titled “Lake Manatee WTP Sludge Drying Bed Evaluation, Mechanical Dewatering Alternatives (see Attachment C). Decant centrifuges were selected as the best technology to meet the needs of the WTP for dewatering of the alum sludge and this method shall be the basis of this solicitation, along with recommendations within the technical memorandum for rehabilitation of the existing drying beds so they can continue to serve in an auxiliary capacity.

This project shall include all items for a mechanical dewatering system to ensure the WTP can manage the amount of alum sludge produced now and into the future in an efficient, consistent and reliable manner. Components of the mechanical dewatering system shall consist of two decanter centrifuges, two gravity sludge thickeners, three homogenization tanks, centrifuge building, pumping and all associated equipment and appurtenances necessary for a complete and functional system. The system shall be sized to meet production at the maximum permitted surface water withdrawal (34.9 MGD). Phasing of the system components to cost effectively

achieve the County's objectives for current and buildout flows shall be considered by the Design-Build team.

A.03 SCOPE (MAJOR OBJECTIVES)

The Design-Build team shall provide the following, which are further described in sections below:

1. Site development and design to include location of on-site utility systems, off-site utility works, fire protection system, drainage system, building orientation, property lines, easements, setback requirements, site access, trailer storage and circulation, tank locations, and any required parking.
2. New decant centrifuge dewatering system, consisting of: (2) decanter centrifuges, (2) gravity sludge thickeners, (3) homogenization tanks, and all associated pumps and equipment necessary for a complete and functional system.
3. New building for centrifuges (approximately 6000 square feet). Building design shall consider ventilation requirements, maintenance and removal of centrifuges, employee bathrooms, fire and safety systems, sludge handling and conveyance equipment, polymer tanks, sound abatement, and aesthetics.
4. Permanent electrical power service to facility. (Note: existing mobile dewatering unit is currently supplied by generator.)
5. Electrical controls and SCADA integration following County standards.
6. Obtain Florida Department Environmental Protection (FDEP), Manatee County Building Department, and all other required permits for the proposed work to include effort, as needed, to closeout and certify such permits as complete when the project has been concluded.
7. Rehabilitation of the existing sludge drying beds to include consideration and improvement of needed chemical delivery/dump truck traffic patterns and stockpile areas.
8. Construction sequencing to maintain existing sludge dewatering operations during the project.
9. Provide a project schedule which includes considerations for other facility projects ongoing, equipment fabrication and delivery timeframe. And identifies key milestones for the project.
10. Phasing of the system components to meet County objectives with current and buildout flows.
11. Coordination and collaboration with County staff to include site visits to facilities that are similar to the County's project and how to address issues that may have happened at other similar facilities including potential solutions.
12. Coordination of periodic inspections by the centrifuge manufacturer and other major process equipment manufacturers during the project to ensure compliance with all applicable equipment delivery, storage, installation and startup guidelines and standards. The centrifuge manufacturer will certify that the process equipment and control cabinets were received, stored, installed and started up consistent and in accordance with all associated guidance and instructions.
13. Coordination with County operations staff for opening and closing of valves, interconnection of process lines and determining if plant modifications proposed to facilitate the project are adequate and acceptable. This may include replacement, upsizing or rerouting of existing selected sludge delivery pipes/valves.

14. Startup and fine tuning of system process equipment as needed to optimize performance and train operators on all components of new centrifuge system including special startup and shutdown procedures. Assist the County in developing protocol for process control testing to include a sampling plan identifying sample points, testing needs, sampling frequencies and records keeping requirements. Deliver hardcopy and electronic O&M Manuals and record drawings.

Phased Deliverables (based on Standards from A.I.A. and D.B.I.A.)

Design-build team shall deliver for County review and approval: 30% Schematic Design, 60% Design Development with Outline Specifications, 90% Construction Documents with full set of Specifications and a 100% permit set. Each deliverable shall include estimated pricing until the final GMP.

A.04 GENERAL REQUIREMENTS

Professional services for design-build should include, but may not be limited to, utility, mechanical, electrical, instrumentation and controls, and structural engineering design; survey and geotechnical testing as required; necessary permits and fees; construction engineering inspection (CEI) services; startup services and training as needed.

A.05 PLANT BACKGROUND, CONTSTRAINTS, AND STANDARDS

Plant Background

The Lake Manatee WTP (LMWTP) is located at 17915 Waterline Road in Bradenton, Florida and has both a surface water treatment and a groundwater treatment component and the surface water treatment system has a permitted capacity of 34.9 mgd annual average and 46.07 peak month. The LMWTP surface water treatment regime consists of an alum coagulation, flocculation, sedimentation process for pre-treatment of water from Lake manatee followed by filtration, disinfection, and chemical stabilization. For treatment of taste and odors, a biological treatment unit (BTU) comprised of granular activated carbon (GAC) filter media was recently installed at the head of the plant and powdered activated carbon (PAC) can also be injected into the raw water. Alum residuals, PAC, turbidity, and other materials are removed from the raw water in the pre-treatment process and are commonly referred to as water treatment residuals. These residuals from the pre-treatment process are then sent to drying beds for drying, before being hauled away to a landfill for disposal.

For an ongoing period dating back several years, the LMWTP has had issues with limited capacity in the drying beds, especially during the wet season. In order to ensure enough capacity is available for continued conveyance of residuals to the drying beds, Manatee County (County) has been pressured to haul more frequently to free capacity. This has resulted in hauling residuals with a high liquid content, which has significant costs. In addition to the limited capacity and hauling costs, the County was notified by the landfill that it would be unable to accept liquid residuals.

Refer to Technical Memorandum included as Attachment C for historical data, and Record Drawings for the existing Sludge Dewatering System included as Attachment D.

Site Conditions and Constraints
The laydown and staging area for construction should be coordinated with the County and plant staff (see Attachment E for proposed construction area).

Maintenance of flows and solids disposal are required during construction and bypass pumping shall be provided as needed. Close attention will need to be paid with the sequence of construction of the new facilities to maintain capacity with the other online sludge dewatering systems.

CODES AND STANDARDS
The WTP is regulated through FDEP. The County was issued a construction permit (FDEP Permit No. No. 0133068-1428-WC/MA- included as Attachment F) on March 23, 2021 for construction of a new submerged ultrafiltration membrane system (UF) to retrofit the existing multimedia filters serving the surface water trains at the Lake Manatee County Water Treatment Plant (LMWTP). The construction permit expiration date is March 22, 2026.

Relevant regulatory codes and standards that govern the operation and design of the facility include but are not limited to:

- Chapter 403, Florida Statutes (F.S.),
- Florida Administrative Code (F.A.C)
    - Chapter 62-4 (Permits)
    - Chapter 62-520 (Ground Water Classes, Standards, and Exemptions)
    - Chapter 62-550 (Drinking Water Standards, Monitoring, and Reporting)
    - Chapter 62-555 (Permitting and Construction of Public Water Systems)
    - Chapter 62-560 (Requirements for Public Water Systems that are out of compliance)
    - Federal Regulations 40 CFR 141 (National Primary Drinking Water Regulations)

- National Fire Protection Association (NFPA)
- National Electric Code (NEC, NFPA 70)
- Occupational Safety and Health Act (OSHA).
- National Electrical Safety Code (NESC).
- Florida Building Code, including Local County amendments.
- Florida Building Commission (FBC), latest version where applicable:
    - Florida Building Code: Building.
    - Florida Building Code: Existing Building.
    - Florida Building Code: Accessibility.
    - Florida Building Code: Test Protocols for High-Velocity Hurricane Zones.
    - Florida Building Code: Energy Conservation.
    - Florida Fire Prevention Code.
    - Florida Building Code: Fuel Gas.
    - Florida Building Code: Mechanical.
    - Florida Building Code: Plumbing.

Various other standards and codes that were not listed may apply to particular equipment. Specific equipment will have the relevant standards and codes provided in the contract specifications. Common, general standards that cover a variety of equipment that will be included in this project include:

- Underwriters' Laboratories (UL).
- American National Standards Institute (ANSI).
- National Electrical Manufacturer's Association (NEMA).
- American Society for Testing and Materials (ASTM).

A.05 PROCESS DESIGN CRITERIA

The process design criteria for the mechanical dewatering system is presented in the below tables:

Table 1 Mechanical Dewatering Process Design Criteria

Design Parameter	Units	Criteria
Solids Loading Criteria		
Peak Solids Loading at 34.9 mgd	dry-lbs/day	25,200
Average Solids Loading at 34.9 mgd	dry-lbs/day	18,000
Minimum feed Solids Concentration	%	2.0
Operational Criteria		
Operational Days	Days/week	5
Duty Cycle	Hours/day	8
Performance Criteria		
Feed Flow Rate	gpm	363
Minimum Cake Solids Concentration	%	~15

Table 2 Thickener Design Criteria

Design Parameter	Units	Criteria
Storage Criteria		
Total Targeted Storage Volume	gal	218,600
Thickener Storage Volume	gal	126,900
Thickener Storage Time	days	1.7
Loading Criteria- to be determined by the Deign-Build team to meet the design process criteria		
Sizing Criteria – Tank Dimensions to be determined by the Deign-Build team and manufacturer- to meet the design process criteria		

Table 3 Homogenization Tank Design Criteria

Design Parameter	Units	Criteria
Storage Criteria		
Total Targeted Storage Volume	gal	91,700
Homogenization Tank Volume (each)	gal	32,300
Tank Storage Time (each)	days	0.43
Loading Criteria- to be determined by the Design-Build team to meet the design process criteria		
Sizing Criteria – Tank Dimensions to be determined by the Deign-Build team and manufacturer- to meet the design criteria		

Owner Preferences

Controls Standards

The County is in the process of constructing and implementing a new system wide SCADA system; The County aims to have consistency across its water system facilities for SCADA, PLCs, and related software and hardware for instrumentation, communications, and electronics. For this project, any new control systems or communications shall be compatible and integrated into the County's newly implemented SCADA system. New hardware will be consistent with what is currently being installed system wide and at the County WTP facility currently undergoing construction. Coordination with the County instrumentation and electrical staff will be needed to identify standardized hardware that should be used. At a minimum, the control and communications implemented shall provide adequate security and allow access and report on all data for the remote operation, monitoring, and control of the equipment.

It is noted that the County desires for this system to operate without the need for a continuous operator presence at the centrifuge building. As such, the system must have integrated control system safeguards such that instrumentation output variances from prescribed limits chosen to protect the equipment and insure adequate process control will bring about the safe and orderly shutdown of the system with event alarm signaling to the WTP console.

Ancillary Equipment Preference

Ancillary equipment to the centrifuges shall be consistent with equipment used in the WTP, as well as the County's overall utility system so the County can leverage available spare parts, staff experience, and troubleshooting measures as much as possible. Coordination with the County may be required; however, the recently implemented Computerized Maintenance Management System (CMMS) and electronic operations and maintenance (EOM) site may be available to the Contractor to facilitate information gathering on existing equipment.

A.06 PROJECT MANAGEMENT AND SCHEDULE

Professional services for design-build should include, but may not be limited to, meeting minutes for Design and Construction activities, providing paperwork for direct material purchases, preconstruction services for pricing, creating a master project schedule for design, cost estimating, permitting, construction and startup services to include process optimization and operator training.

A.07 ESTIMATED PROJECT COMPLETION DATE

The estimated project completion schedule is 18 months from the project design kick-off meeting.

A.08 ESTIMATED PROJECT COST

The County has budgeted the project design and construction cost at approximately $12.2 million.

End of Attachment A

ATTACHMENT B, PROPOSAL RESPONSE

This section identifies specific information which must be contained within the Proposal response and the order in which such information should be organized. The information each Proposer provides will be used to determine those Proposers with the background, experience and capacity to perform the scope of services as stated in this RFQ and which Proposer(s) best meets the overall needs of the County. For more information on the evaluation process, refer to Section C, Evaluation of Responses.

B.01 INFORMATION TO BE SUBMITTED

The contents of each Response will be organized and arranged with tabs in the same order as listed below and with the same TAB numbers. The Response should contain sufficient detail to permit the County to conduct a meaningful evaluation. However, overly elaborate responses are not requested or desired.

B.02 RESPONSE FORMAT

A. TAB 1 - INTRODUCTION

Include the following in Tab 1 of the Response.

1. A cover page that identifies Proposer, the RFQ by title and the RFQ number.
2. An introductory letter/statement that describe your Response in summary form (limit 2 pages).
3. A table of contents.

B. TAB 2 – MINIMUM QUALIFICATION REQUIREMENTS

In Tab 2 submit the information and documentation requested that confirms Proposers meets the following minimum qualification requirement(s):

1. Must be registered with the State of Florida, Division of Corporations to do business in Florida.

   No documentation is required. The County will verify registration.

2. Proposer and/or its subcontractor(s) must possess current, valid licenses and certifications required under Florida Statute to perform services of general contractor, engineer, and architect, as is applicable to the design and construction of the WTP Alum Sludge Dewatering System.

   Submit information and documentation from the issuing agency that confirms Proposer and/or its subcontractor(s) meet the following:
   - **a. Certified under Section 489.119, Florida Statutes, to engage in contracting through a certified or registered general contractor or a certified or registered building contract as the qualifying agent; or**
   - **b. Certified under Section 471.023, Florida Statutes, to practice or to offer to practice engineering; or**
   - **c. Certified under Section 481.219, Florida Statutes, to practice or to offer to practice architecture; or**

d. Certified under Section 481.319, Florida Statutes, to practice or to offer to practice landscape architecture.

3. Proposer or its subcontractor have completed (which means that certificate of occupancy or Substantial Completion has been issued) a minimum of three (3) sludge dewatering systems projects at a potable water or non-potable water treatment facility. The three (3) qualifying projects could have been constructed using either design-bid-build, construction manager at risk, or design-build methods, so long as either the architect/engineer or the contractor for those three qualifying projects are part of the Proposer's design-build team. Provide the following information for each qualifying project.
   a) Identify who was contracted to complete the project (Proposer or subcontractor)
   b) Identify the project delivery method used (DBB, CMAR, or DB)
   c) Project name and location
   d) Client/Organization name
   e) Contact name
   f) Contact phone
   g) Contact email
   h) Project dates (Start/End)

4. Proposer Is NOT listed on the Florida State Board of Administration, Scrutinized List of Prohibited Companies.

   No documentation is required. The County will verify

5. Proposer is not on the Florida Suspended or Debarred Vendor List

   No documentation is required. The County will verify

6. Proposer is not on the Federal Convicted Vendor or Excluded Parties list (SAM/EPLS)

   No documentation is required. The County will verify

7. Proposer is not on the Florida Department of Transportation Contractor Suspended List

   No documentation is required. The County will verify

8. If Proposer is submitting as a joint venture, it must have filed the required documents with the Florida Department of Business and Professional Regulation as required by Florida Statute Section 489.119, prior to the Due Date and Time.

   If Proposer is a joint venture, provide a copy of Proposer's approved filing with the Florida Department of Business and Professional Regulation. If Proposer is not a joint venture, provide a statement to that effect.

9. Proposer has no reported conflict of interests in relation to this RFQ.

Disclose the name of any officer, director or agent who is also an employee of the County. Disclose the name of any County employee who owns, directly or indirectly, any interest in the Proposer's firm or any of its branches. If no conflicts of interests are present, Proposer must submit a statement to that affect.

C. TAB 3 – FORMS

Provide the completed and executed Forms listed below in Tab 3.
Form 1, Acknowledgement of Addenda
Form 2, Response Signature Form
Form 3, Public Contracting and Environmental Crimes Certification
Form 4, Conflict of Interest Disclosure
Form 5, Non-Collusion Affidavit
Form 6, Truth in Negotiation Certification
Form 7, Scrutinized Company Certification
Form 8, Insurance Statement
Form 9, Indemnity and Hold Harmless

D. TAB 4 - TRADE SECRETS

Pursuant to Section A.24, Trade Secrets, in Tab 4 identify any trade secret being claimed. Proposer must submit purported trade secret as follows:

1. Trade secret material must be segregated, within the applicable TAB, from the portions of the Response that are not being declared as trade secret. NOTE: Responses cannot be designated as 'Proprietary' or 'Confidential' in their entirety.
2. Proposer shall cite, for each trade secret being claimed, the Florida Statute number which supports the designation.
3. Proposer shall offer a brief written explanation as to why information claimed as trade secret fits the cited Statute.
4. Proposer shall provide an additional electronic copy of its Response that redacts all designated trade secrets.

E. TAB 5 - PROPOSER STATEMENT OF ORGANIZATION (Limit 5 pages)

In Tab 5, provide information and documentation on Proposer as follows:

1. Legal contracting name including any dba.
2. State of organization or incorporation.
3. Ownership structure of Proposer's company.
   (e.g., Sole Proprietorship, Partnership, Limited Liability Corporation, Corporation)
4. Federal Identification Number.
5. A fully completed (signed and dated) copy of Proposer's W-9.
6. Contact information for Proposer's corporate headquarters and local office (if different) NOTE: local is defined as Manatee, DeSoto, Hardee, Hillsborough, Pinellas or Sarasota counties.
   i. Address

ii. County, State, Zip
iii. Phone
iv. Number of years at this location

7. List of officers, owners and/or partners, or managers of the firm. Include names, addresses, email addresses, and phone numbers.
8. Provide supporting documentation from the certifying agent indicating Proposer is a certified Minority-owned Business Enterprise, if applicable.
9. Contact information for Proposer's primary and secondary representatives during this RFQ process to include the following information:
   i. Name
   ii. Phone
   iii. E-mail
   iv. Mailing Address
   v. County, State, Zip
10. Provide a brief summary regarding any prior or pending litigation, either civil or criminal, involving a governmental agency or which may affect the performance of the services to be rendered herein, in which the Proposer, any of its partners, employees or subcontractors is or has been involved within the last three years.
11. Provide details of any ownership changes to Proposer's organization in the past three years or changes anticipated within six months of the Due Date and Time (e.g., mergers, acquisitions, changes in executive leadership).

F. TAB 6 – RESPONDENT AND TEAM'S EXPERIENCE (Limit 20 pages)

In Tab 6, provide details of Proposer and its team's experience to include the following:

1. Provide a summary of Proposer's background, size and years in business.
2. Describe Proposer's experience in design-build projects for other government agencies, particularly those within Florida.
3. Provide Proposer's years of experience in design-build projects for sludge mechanical dewatering systems in a water or wastewater treatment facility. Note, the Owner has a special interest in any experience related specifically to centrifuges.
4. Identify and include information regarding experience and qualifications of Proposer's key staff to be assigned to the services. Include a resume for each with the name of the firm(s) for their current and previous employers, their full names, professional credentials (e.g., certifications and/or licenses), how long they have worked for their parent company, and roles and duties which the individuals will provide to the County. Include the address of their current primary office location, email address and phone number. Note: detailed resumes may be included in an appendix and will not count against the stated page limit for this section.
5. Identify the design-professional (architect or engineer) to provide services for this project, if other than Proposer, and include details of their experience with design-build projects for potable water facilities.
6. Identify the general contractor to provide services for this project, if other than Proposer, and include details of their experience with design-build projects for potable water facilities.
7. Identify any proposed sub-contractors to accomplish the work. Include the

company name, the name of the individual(s) to be assigned, and an overview of their experience and qualifications applicable to their role in the provision of design-build services for the County.

8. Describe any significant or unique accomplishments, recognition, or awards received by Proposer, its key personnel, or its subcontractors for previous similar services.
9. Provide up to five client references for design-build work performed by Proposer, who are agreeable to responding to an inquiry by the County. References should include the following information:
    a. Client name
    b. Client address
    c. Client contact name
    d. Client contact phone and fax numbers
    e. Client contact email address
    f. Brief description of work (1-2 sentences)
    g. Performance period (start/end dates)
    h. Total dollar value of contract

G. TAB 7 – APPROACH (Limit 14 pages)

In Tab 7, provide Proposer's project approach to include the following:

1. A narrative of the project approach and an explanation of how this approach meets County objectives and requirements as specified in this RFQ.
2. An explanation of Proposer's technical ability to perform all facets of the scope of services defined in Attachment A. If more than one Proposer is jointly filing a Response, details must be provided to clearly demonstrate individual roles and responsibility for all components of the project.
3. Details of implementation plan and schedule. Provide an implementation schedule for each component of services (e.g., design, demolition, construction). NOTE: Proposer must commit to a timetable of no more than 18 months for substantial completion of the project.
4. Provide a narrative of the methodology for engaging with County representatives in-the- course of performing the duties.
5. Proposer shall thoroughly explain:
    a. Its accessibility in the areas of availability for meetings, general communications, coordination, and supervision
    b. How Proposer physically plans on attending pre-scheduled meetings
    c. How Proposer plans on ensuring accessibility and availability during the term of the Agreement
6. Proposer's Risk Management and Safety Plan that includes a list of risks related to the provision of services and Proposer's proposed mitigation procedures for each item.
7. Include a detailed description of the Proposer's safety plan to control the environment of the work site during on site construction.
8. Provide sample reports Proposer has previously used on other design-build projects.
9. Proposers are encouraged to propose the use of as many environmentally preferable, sustainable, 'green' products, materials and supplies to promote a safe and healthy environment. Submit a summary of Proposer's environmental

sustainability initiatives and any products, materials or supplies that are proposed for the County's work that have documented evidence of reducing adverse effects on the environment.

10. Provide a statement on company letterhead and signed by an authorized official of Proposer attesting to its commitment to meet the County's time and budget requirements for all assigned work.
11. Submit any additional information not previously requested which Proposer believes would assist County in the evaluation of Proposer's approach to provide the required services.

H. TAB 8 - ORGANIZATIONAL STRUCTURE AND CAPACITY (Limit 12 pages)

In Tab 8, provide Proposer's project approach to include the following:

1. Identify whether or not the Proposer is a certified minority business enterprise and include a copy of the applicable document from the certifying agency.
2. Submit details of Proposer's staffing resources, at the location that will provide services to the County as well as corporately; by discipline and the number of personnel within each discipline.
3. Detail the location of the managing office and what plans will be adopted to ensure County citizens receive consideration for employment; and suppliers located within the County will be used for the acquisition of goods and services needed to perform the scope of services.
4. If Proposer's staffing resources includes sub-consultants, submit the name of the firm(s) who will perform each discipline. If more than one firm is listed for a discipline, then label which firm is the primary firm for that discipline. Firms may perform more than one discipline.
5. Submit an organizational diagram clearly identifying key personnel as well as other staffing resources who are designated to provide services to the County. For each individual in the organization diagram, include each individual's name, title, firm and indicate their functional relationship to each other.
6. If Proposer is teaming with other entities to provide the required goods and services, detail any prior similar work any two or more team members have jointly performed.
7. If a joint venture is proposed, provide an affidavit attesting to the formulation of the joint venture and provide proof of incorporation as a joint venture or a copy of the formal joint venture agreement between all joint venture parties, indicating their respective roles, responsibilities, and levels of participation in the project.
8. An explanation, in general terms, of Proposers' financial capacity to perform the scope of services. If Proposer is jointly filing a Response with other entities, details must be provided to demonstrate financial capacity of each entity.
9. Provide a statement on company letterhead and signed by a company official authorizing a County auditor and/or financial analysts access to your financial records, including all records prepared by an independent firm, or the financial records of other entities for which you have ownership interest. Such access will occur at the primary location of the Proposer, or such other location as may be agreed, for the purposes of verifying financial representations, and/or to review and assess the historical and current financial capacity of Proposer's business entity and its expected ability to meet ongoing financial obligations related to the required services, if awarded a contract. If an audit is conducted, the County's audit and/or

financial analysts will report their findings in a summary report to the Procurement Official, which will be placed in the Response files for subsequent use, review, and discussions during evaluations.

10. Disclose any ownership interest in other entities proposed for services. This ownership disclosure includes ownership by the Proposer through a parent, subsidiary or holding company or any other form of business entity. Submit entity names and the percent of ownership for each.
11. Detail Proposer and any subcontractor's current workloads and any projected changes to the workload within the next six months.
12. Provide a list of construction, design or engineering projects that have been awarded to the Proposer and any of their subcontractors by Manatee County in the past two years since July 2019. Include the following information for each:
    i. Name of the project.
    ii. Date of award.
    iii. Dollar value of the design work.
13. Provide details of Proposer's capacity to bond the project. Include a letter of intent from Proposer's bonding company which confirms Proposer's bonding capacity.
14. Submit any additional information not previously requested which Proposer believes would assist County in the evaluation of Proposer's capacity to provide the required services.

I. TAB 9 - SIMILAR COMPLETED PROJECTS (Limit 10 pages)

Provide a list of up to five design-build projects, particularly those of centrifuge sludge dewatering systems at a water or wastewater treatment facility, which Proposer has successfully completed since 2010. At least one project should be one that the proposer's design-build team has completed together. Include the following information:

a. Organization/Owner name
b. Address (County/State)
c. Project date (Start/End)
d. Proposer's role in the project (e.g., prime/lead, sub)
e. Scope of work (Brief description 1-2 sentences)
f. Total project costs

NOTE: Representative photographs and exhibits supporting the above projects are permitted as an attachment to this section.

END OF ATTACHMENT B

RFQ NO. 21-TA003721CD
ATTACHMENT C

Manatee County
Lake Manatee WTP Sludge Drying Bed Evaluation

Technical Memorandum
MECHANICAL DEWATERING ALTERNATIVES

FINAL | December 2019

carollo®

CERTIFICATE OF AUTHORIZATION NO. 8571

Manatee County
Lake Manatee WTP Sludge Drying Bed Evaluation

TECHNICAL MEMORANDUM
MECHANICAL DEWATERING ALTERNATIVES

FINAL | December 2019

Digitally signed by Jennifer Stokke Nyfennegger
Contact Info: Carollo Engineers, Inc.
Date: 2019.12.31 11:52:32-05'00'

JENNIFER NYFENNEGGER LICENSE No 72234 STATE OF FLORIDA PROFESSIONAL ENGINEER

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Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

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Abbreviations

AACE	American Association of Cost Engineers
BFP	belt filter press
BTU	biological treatment unit
BWW	backwash waste
FTW	filter-to-waste
gpm	gallons per minute
gpm/sq ft	gallons per minute per square foot
HVAC	heating, ventilation, and air conditioning
lbs/day	pounds per day
lbs/MG	pounds per million gallons
lbs/sq ft	pounds per square foot
lbs/sq ft/day	pounds per square foot per day
LMWTP	Lake Manatee Water Treatment Plant
MCC	motor control center
mgd	million gallons per day
NTU	Nephelometric Turbidity Unit
O&M	operation and maintenance
PFD	process flow diagram
PLC	programmable logic controller
psi	pounds per square inch
RA	rolling average
TENORM	technologically enhanced naturally occurring radioactive materials
TM	technical memorandum
USPR	unit solids production rate
WPF	water purification facility
WRL	washwater recovery lagoon
WRF	water reclamation facilities
WRPS	washwater recovery pump station
WTP	water treatment plant

Technical Memorandum

DEWATERING ALTERNATIVES

1.1 Introduction

Lake Manatee Water Treatment Plant (LMWTP) operates an alum coagulation, flocculation, sedimentation process for pre-treatment of water from Lake Manatee followed by filtration, disinfection, and chemical stabilization. For treatment of taste and odors, a biological treatment unit (BTU) comprised of granular activated carbon (GAC) filter media was recently installed at the head of the plant, and powdered activated carbon (PAC) can also be injected into the raw water. Alum residuals, PAC, turbidity, and other materials are removed from the raw water in the pre-treatment process and are commonly referred to as water treatment residuals. These residuals from the pre-treatment process are then sent to drying beds for drying, before being hauled away to a landfill for disposal.

For an ongoing period dating back several years, the LMWTP has had issues with limited capacity in the drying beds, especially during the wet season. In order to ensure enough capacity is available for continued conveyance of residuals to the drying beds, Manatee County (County) has been pressured to haul more frequently to free capacity. This has resulted in hauling residuals with a high liquid content, which has significant costs. In addition to the limited capacity and hauling costs, the County was notified by the landfill that it would be unable to accept liquid residuals.

To replenish drying bed capacity before the landfill stops accepting sludge and to ensure enough capacity exists for the wet season, the County procured Aspen Rentals to supply a temporary two meter belt filter press to supplement the plant's dewatering activities. See Figure 1 for a photograph of the temporary belt filter press. The temporary installation is operated by plant staff.

Figure 1 Temporary Belt Filter Press

The purpose of this technical memorandum (TM) is to evaluate potential alternatives for upgrading the residuals handling facilities at LMWTP to meet current and future water production needs through buildout. The alternatives evaluated in this TM include:

- Disposal of residuals sludge using the plant's lift station to the sewer system.
- Improvements to existing drying beds.
- Expanding the drying beds.
- Four mechanical dewatering technologies:
  - Belt filter presses (BFP).
  - Screw presses.
  - Centrifuges.
  - Rotary fan presses (RFP).

Belt filter presses and centrifuges are mechanical dewatering technologies that have been successfully used at many WTPs around the US to dewater WTP residuals. Screw presses are a newer technology for WTP residuals dewatering and are being considered more frequently for new installations. Rotary fan presses are a newer technology with typical installations being for wastewater applications. The evaluation of the rotary fan press application was added as a result of a pilot of the technology at the site on August 27th and August 28th, 2019.

Prime Solution, Inc. installed a pilot RFP system adjacent to the temporary belt filter press. The County requested Carollo Engineers, Inc. include costs for an RFP as an alternative for mechanical dewatering. Figure 2 shows the trailer mounted RFP system. The RFP tied into the mixing tank on site which was tied into the drying beds. The pilot completed six tests runs using cationic and anionic polymers. The results of the pilot are discussed further below in this document.

Figure 2 Rotary Fan Press Pilot

Additionally, a hybrid approach was considered for the mechanical dewatering alternatives, which assumes that the existing drying beds would continue to be operated with the mechanical dewatering equipment. This approach also potentially reduces the need for redundant equipment in case mechanical dewatering equipment are out of service for maintenance or repairs.

The analysis of these technologies assumes that only residuals from Sedimentation Basins A and B will be processed by the dewatering system.

1.2 Site Visits

On March 11, 2019, Carollo performed a site visit for an initial evaluation of the conditions of the drying beds. The sludge in the drying beds was observed to be very wet. To achieve better drying, sludge should be applied to each drying bed in layers (up to 18 inches deep) at a maximum rate of 4 lb dry solids/ft^2 per application. Once the solids are dry, they can be removed or another layer can be applied on top of the dried residuals, which won't rehydrate the dried residuals. Carollo also recommends independent decanting of each drying bed to speed up the dewatering process by more quickly removing the free water on top of the settled residuals sludge. The following modifications could be made to the sludge drying beds to ease the stress the drying beds are currently under and improve operations (see Figure 3 for reference):

1. Improve existing box structures by adding gates.
2. Install an additional weir box in each drying bed for independent decanting while using the existing decant channel as an overflow.

3. Alternatively, consider an adjustable weir for the sludge drying bed decant channel (requires walkway or grating on existing channel for access).

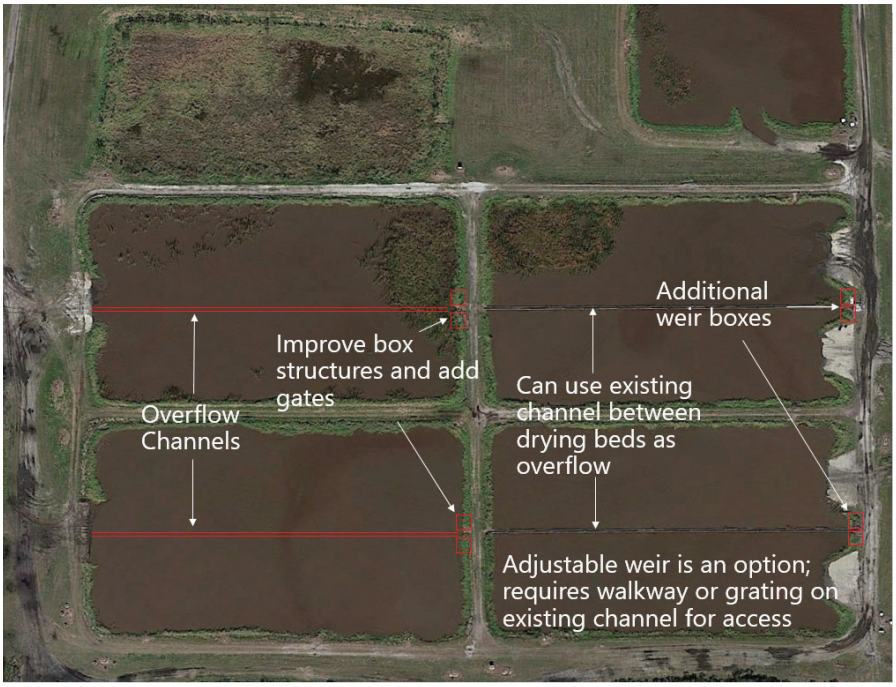


Figure 3 Suggested Drying Bed Improvements

The temporary belt filter press was recently installed at the time of the site visit, and was undergoing its initial start-up and commissioning. Polymer dose and usage was not being tracked at the time. It was also observed that the solids concentration in the sludge feed to the temporary BFP varied, as the sludge was being pumped directly from the adjacent drying bed and a backhoe bucket was being used to push wet sludge towards the submersed suction pump assembly.

Operators indicated that the sludge blanket in the sedimentation basin was typically kept between 1 and 2 feet deep, and the sludge has a low percent solids. Carollo recommended that operators keep as much solids in the sedimentation basins as they can tolerate to reduce the chance of rat holing, and send as thick of solids as possible to the drying beds.

1.3 Regulatory Review

Prior to the alternative analysis, Carollo conducted a regulatory review of the Florida Administrative Code (FAC) as it applies to water treatment, and communicated with the Florida Department of Environmental Protection (FDEP) to determine if the County would be required to take additional measures that accompany modifications to its solids residual handling facilities.

Findings of the review of the FAC revealed that there is little information and guidance for drinking water solids residuals handling facilities. Recycle provisions referenced by the FAC to the Code of Federal Regulations (CFR), 40 CFR 141,76(b), were checked and do not apply to recycling of flow from dewatering processes.

Federal regulations outlined by 40 CFR 141.51, the Chemical Contaminant Rule: Phase II/V Rules require that acrylamides cannot exceed 0.05 percent of a polymer by weight dosed at 1 mg/L. Compliance with this rule is further discussed in this document for the pertinent alternatives where it applies.

In addition to the document review, Carollo spoke with an FDEP representative over the phone on April 17, 2019 regarding modifications to the dewatering process. FDEP advised that modifications to the drying beds would not require additional permitting or liners; however, a groundwater monitoring plan would be mandatory until groundwater quality is proven to not be affected by the drying beds.

1.4 Data Analysis and Solids Generation Estimates

To develop a mass balance and solids generation estimates, daily data from 2015 through 2018 were analyzed. Surface water flow, turbidity, TOC, and chemical usage were compiled and time series graphs generated. See Appendix A for data plots used in the data analysis. A mass balance analysis was conducted with the provided raw water and finished water quality data to develop solids generation estimates. Due to the recent completed installation of the BTU, chemical doses were adjusted to account for expected reduction of PAC dose. Future water demand projections were also used to determine future solids generation.

1.4.1 Historical Data

For surface water, raw water parameters that contribute to solids generation are turbidity and TOC. Other contributors to solids generation are the chemicals added to remove turbidity and TOC from the raw water: alum, polymer, and PAC. The quantities of these influent parameters are proportional to the raw water flow, so flow was analyzed as well.

Based on the historical data, turbidity is consistently relatively low, so turbidity is a small contributor to the overall solids generation. TOC was also a minor contributor insofar that TOC itself does not contribute to solids much; however, the chemicals required to remove TOC are significant. Polymer dose was low, less than 0.2 mg/L year-round for the years the data was analyzed.

Alum dose and PAC dose are the major contributors to solids generation, as illustrated by the chemical dosing vs solids generation plots in Appendix A. Generally, a trend can be seen for each chemical and the resulting solids generation for the day. Since PAC is used on an as-needed basis for algae events in the surface water source, there are less data points to see these trends, but it is clear that higher PAC doses result in significantly higher solids generation.

Plant production or flow is the last parameter that was used for the data analysis and solids generation estimates. Since all the other parameters considered are proportional to flow (higher flows bring in more turbidity and TOC, thus requiring more chemicals to remove), a clear trend of the solids generation following the influent flow is present. See Figure 4 for the flow vs solids production graph.

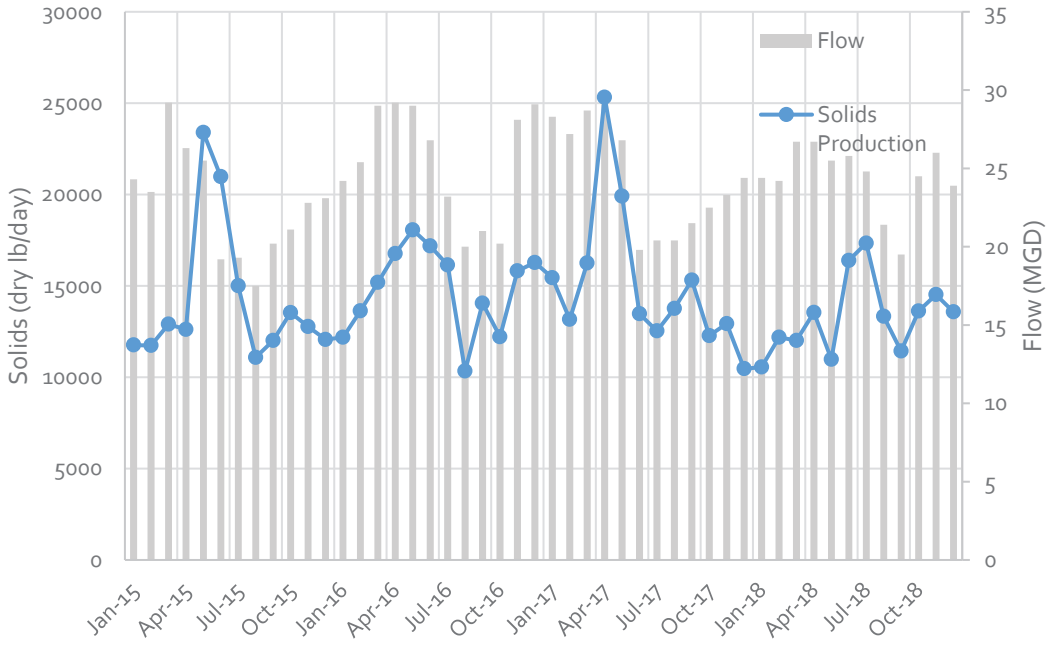


Figure 4 Plant Flow and Solids Production

1.4.2 Mass Balance and Solids Production Estimates

Data for the raw water quality and water quality downstream of the sedimentation basins (post-mix basins) were used for a mass balance calculation. The mass balance was completed by subtracting the post-mix water quality data from the raw water quality data to quantify solids removed in the sedimentation basins. Once the removal quantities and monthly averages were determined, a unit solids production rate (USPR) was calculated. USPR, in this evaluation, takes the average monthly removal quantities and monthly average flows to determine an average pounds of solids generated per million gallons treated. The USPR is calculated using the following equation:

$$USPR = 8.34 * (f * C + t * TSS + P + O + TOC)$$

Where:

USPR = Unit Solids Production Rate, lbs/MG

C = Coagulant Dosage, mg/L

f = Coagulant Factor

TS*S* = Raw Water Suspended Solids, NTU

t = Turbidity Factor

P = Polymer Dosage, mg/L

O = Other Solids Production Chemicals, mg/L

TOC = Total Organic Carbon Removed, mg/L

The coagulant factor of the above equation relates the quantity of precipitated metal coagulant with respect to the coagulant dosage. This factor depends on the type of coagulant used, and is around 0.44 when using alum. Other solids production chemicals included PAC and polymer.

Since turbidity is typically measured as the cloudiness of a fluid and quantified by light scattering, given as Nephelometric Turbidity Units (NTU), a conversion factor is required to determine an equivalent total suspended solids concentration. Typical ratios vary from 0.5 to 2:1; a ratio of 1.50:1 (mg/L:NTU) was used for this evaluation.

Typical sludge concentrations for alum sludge range from 0.25 to 1.5 percent. Testing results of the alum in the drying beds showed a range from 0.5 to 1.4 percent total solids. To be conservative, a 0.5 percent concentration was used. Figure 5 shows the estimated average daily solids generation on a monthly basis based on historical data.

1.4.3 Solids Generation Adjustments with the Biological Treatment Unit

In 2018, the BTU was completed and brought online at the LMWTP. The purpose of the BTU is to improve odor and taste issues due to algae events that have historically required large amounts of PAC to mitigate. Based on the pilot data for the BTU and PAC dose-response curves, new PAC dosages were determined based on the removal of geosmin by the BTU. Table 1 outlines the theoretical future dosing procedures as a result of the BTU based on the dose-response curves.

Table 1 New PAC Dosing Procedure

Geosmin Occurrence Rate	Theoretical PAC Dose with BTU (mg/L)	Historic Daily PAC Dose (mg/L)
50th Percentile	0	0
75th Percentile	0	6.1
91st Percentile	0	36.2
93rd Percentile	5	45.0
95th Percentile	13	57.1
99th Percentile	50	106.2
100th Percentile	100	157.1

Based on Table 1, the theoretical PAC dose was used to determine the impact of the BTU on solids generation. Where historical PAC dose was between than 36.2 mg/L and 45.0 mg/L (i.e., 91st and 93rd percentile), its dose was reduced to 5 mg/L; where historical PAC dose was PAC between 45.0 mg/L and 57.1 mg/L (i.e., 93rd and 95th percentile), its dose was reduced to 13 mg/L, and so on. The result from adjusting the PAC doses more accurately represent solids expected to be generated since PAC use is expected to decrease. Table 2 shows the adjusted solids production based on historical data compared to the estimated historical solids production. Overall, the BTU should decrease the amount of solids generated by reducing the amount of PAC required during algae blooms on Lake Manatee.

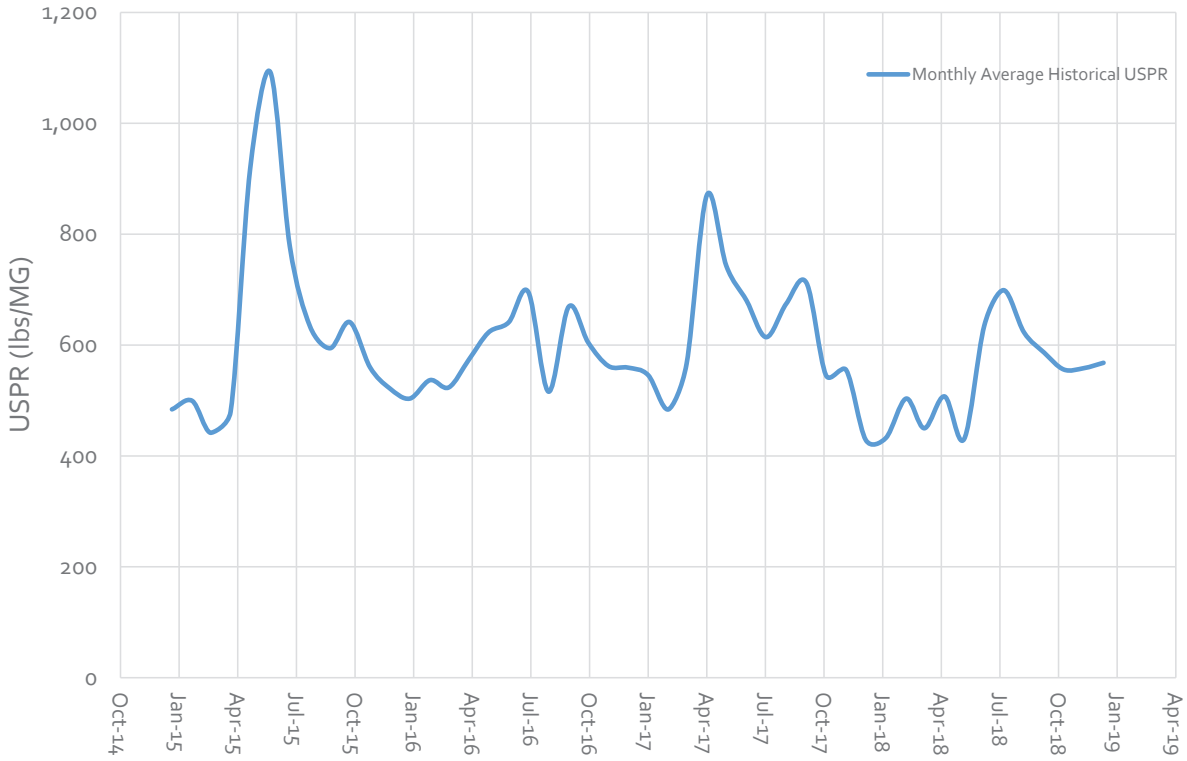


Figure 5 Historical Monthly Average USPR

Table 2 Historical and Adjusted Historical Solids Production

Statistics	Plant Flow (MGD)			Historical Solids Production (dry pounds/day)			Adjusted Historical Solids Production (dry pounds/day)		
	Daily	7-Day RA	30-Day RA	Daily	7-Day RA	30-Day RA	Daily	7-Day RA	30-Day RA
Minimum	12.15	15.97	17.46	1,400	1,500	1,900	1,400	1,500	1,900
Mean (Average)	24.35	24.35	24.34	14,000	14,000	14,000	12,800	12,800	12,800
Maximum	45.80	37.40	31.85	41,500	34,700	26,400	38,000	27,100	19,500
25th Percentile	21.46	21.89	21.79	11,300	11,600	12,000	10,800	11,100	11,400
50th Percentile	24.18	24.11	24.37	13,400	13,400	13,500	12,800	12,800	12,700
75th Percentile	27.20	27.14	26.89	15,500	15,400	15,500	14,300	14,200	14,200
90th Percentile	29.93	29.12	28.85	19,900	19,200	18,600	16,500	16,200	16,100
95th Percentile	31.39	30.27	29.31	23,500	22,600	21,200	19,500	18,600	17,600
97th Percentile	32.17	30.81	29.74	26,000	26,000	23,200	22,900	21,300	18,300
98th Percentile	33.20	31.06	30.05	29,200	28,700	24,000	24,000	23,100	18,500
99th Percentile	35.33	33.58	30.20	33,000	30,500	25,000	25,400	24,300	18,800

1.4.4 Future Solids Generation Estimates

To account for future water demands to size mechanical dewatering alternatives properly, future solids generation estimates were completed. To do so, the County asked Carollo to consider two points: demands in the year 2024 and buildout capacity of the surface water trains (34.9 MGD). Figure 6 shows that Sarasota County's contract with the County ends in 2024 and results in a significant drop in demand. This point was chosen since projected demands in 2024 will not be exceeded until 2031. The projected demands do not show the partition of source water; so, it was assumed the future water demand would be met with the same historical source supply ratio, which has been approximately 61 percent surface water and 39 percent ground water.

At the design point shown in Figure 6, surface water flows are expected to be 29.62 MGD in 2024. Solids generation estimates were completed for demands of 29.62 MGD and 34.9 MGD. It was assumed that raw water characteristics and chemical doses would be consistent with historical data. Some water is wasted during the treatment process so in order to meet demands, the actual raw water withdrawn for supply is higher than the demand. Based on historical data, 2 percent of the raw water is wasted during treatment, so the flow demands for 2024 were increased by 2 percent for solids generation calculations. To be conservative, the 90th percentile occurrence rate associated with each parameter was used, as shown in Table 3. It is typical to assume the 90th percentile or greater when establishing the design criteria for WTP solids handling processes. Resulting solids production for 29.62 MGD (30.21 MGD raw water) and 34.9 MGD is 21,900 dry-lb/d and 25,200 dry-lb/d, respectively.

Table 3 Surface Water Quality 90th Percentile Occurrence Rates

Parameter	90th Percentile Concentration or Dose(1)
Turbidity (NTU)	2.6
Alum Dose (mg/L)	143
Adjusted PAC Dose (mg/L)(2)	5
TOC (mg/L)	14.8
Polymer Dose (mg/L)	0.17

Notes:
(1) Based on 2015-2018 data.
(2) Historical PAC dose adjusted assuming BTU online (from Table 1).

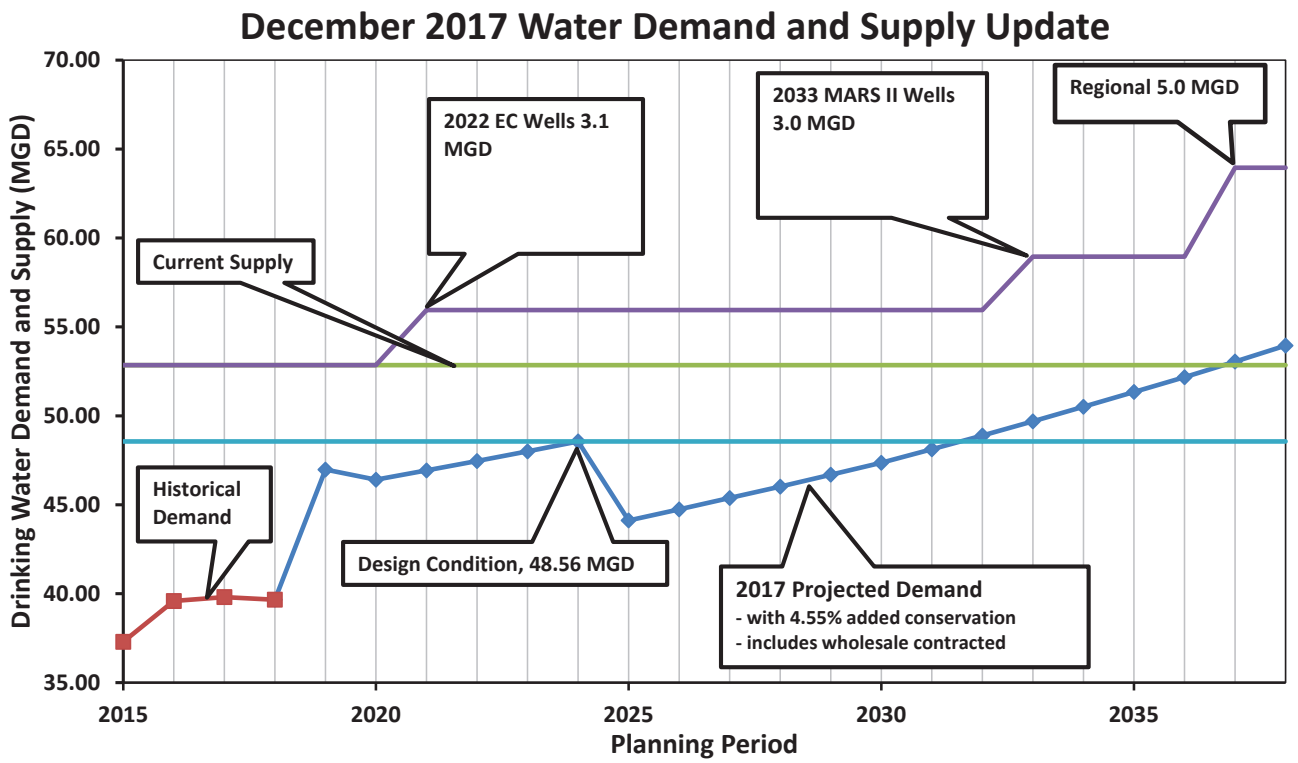


Figure 6 Water Demand Projection

1.5 Sludge Sampling Tests and Results

During the site visit, Carollo collected raw sludge from the drying beds, filtrate off the temporary belt filter press, and cake solids off the belt filter press and shipped overnight on ice to Andritz (Arlington, Texas) for testing. An additional sample of raw sludge from the drying beds was sampled on May 22, 2019. Two testing rounds were performed, the first consisted of simulating dewatering technologies performance with 90%/10% alum/lime sludge mix, and 50%/50% alum/lime sludge mix. The second test consisted of simulating the performance of dewatering technologies 100 percent alum sludge. The pilot test for the rotary fan press tested 100 percent alum sludge pulled from the drying beds.

Table 4 outlines the alum sludge characteristics from the drying beds and from the temporary BFP cake that were measured during each round of tests. Table 4 does not include test results taken during the rotary fan press pilot.

Table 4 Alum Sludge Characteristics

Sample Type	Test Results Round 1	Test Results Round 2
Sample From Drying Beds		
Total Solids (% TS @ 105°C)	1.43	0.5
Suspended Solids (% SS @ 105°C)	1.43	0.5
pH @ 20°C	5.9	6.1
Conductivity (mS/cm)	0.4	No data (ND)
Specific Gravity	1.00	ND
Ash Content (% of TS)	52.9	66.2
Volatile Solids Content (% of TS)	47.1	ND
Samples From Temporary Belt Filter Press		
Total Solids (% TS @ 105°C)	12.7	14.4
Suspended Solids Concentration in Filtrate (mg/L)	1280	ND

See Appendix B for the full sampling and testing reports including the results from the rotary fan press pilot. Table 5 summarizes the simulation results reported by Andritz .

Various polymers were also tested by Andritz to determine the best performing polymer for the alum sludge which was used for the simulations. The best performing polymers were concluded to be Polydyne A-6360 for 100 percent alum sludge and Polydyne A-6330 for the alum/lime mixtures, both are anionic polymers.

Lime sludge was blended in 10 percent and 50 percent mixtures with the alum sludge and simulated for dewatering in a BFP, centrifuge, and screw press to see if lime admixture aided in dewatering. For the 90%/10% alum/lime sludge mix, a slight drop in performance for the BFP was observed compared to the 100 percent alum sludge. In all cases, for the 50%/50% mixture, a significant decrease in polymer dose was observed and a significantly higher percent solids were achieved. However, it should be noted that adding lime sludge significantly improved the percent cake solids for each of the dewatering technologies. Table 5 summarizes the results from testing by Andritz.

Table 5 Mechanical Dewatering Simulation Results

Parameter	Alum Only	90%/10% Alum/Lime Blend	50%/50% Alum/Lime Blend
Belt Filter Press			
Total Solids (%)	18.6	17.3	28.5
Flow Throughput (gpm)	100	25	36
Solids Flow (dry-lb/hr/m)	275	460	278
Polymer Use (neat-lbs/ton TSS)	37.3	47.8	19.8
Polymer Use (active lbs/ton TSS)	10.8	13.9	5.7
Centrifuge			
Total Solids (%)	16.0-22.0	18.0-26.0	33.0-42.0
Solids Flow (dry-lb/hr)		278-694	450-1279
Polymer Use (active lbs/ton TSS)	10.6	23.1	11.5
Screw Press			
Total Solids (%)	9.9	16.6	28.8
Polymer Use (neat-lbs/ton TSS)	36.3	95.5	49.4
Polymer Use (active lbs/ton TSS)	10.5	27.7	14.3

To determine the best performing technology, the total solids achieved compared to the lowest polymer use is most important as this illustrates the most efficient process performance from a chemical use and cake hauling cost perspective. The goal is to achieve the driest cake with the least amount of polymer.

For performance comparisons, the alum only sludge tests were considered. Based on the polymer use and percent total solids achieved, the centrifuge and belt filter press outperformed the screw press. The centrifuge achieved the best percent total solids of the three alternatives, using about the same amount of polymer as the BFP. The range of total solids achieved is due to the variable spin rates and times. The BFP percent total solids achieved was about the average for the centrifuge and double the screw press with about the same amount of polymer as both. The BFP and centrifuge performed similarly. The screw press performed the worst when considering the amount of polymer required to achieve only 9.9 percent total solids. Due to the poor performance of the screw press, Andritz did not recommend it for mechanical dewatering and suggested pilot testing if that technology was chosen.

1.6 Design Criteria

The process design criteria for all mechanical dewatering alternative are presented in Table 6. Criteria were determined from solids generation estimates for the 2024 scenario (30.21 MGD) and buildout scenario (34.9 MGD) and operational hours specified by the County.

Table 6 Mechanical Dewatering Process Design Criteria

Design Parameter	Units	Criteria	Notes
Solids Loading Criteria			
Peak Solids Loading at 30.21 MGD	dry-lbs/day	21,900	Based on maximum USPR of 723 lbs/MG and a peak treatment flow rate of 30.21 mgd.
Average Solids Loading at 30.21 MGD	dry-lbs/day	15,600	Based on average USPR of 516 lbs/MG and an average treatment plant flow rate of 30.21 mgd.
Peak Solids Loading at 34.9 MGD	dry-lbs/day	25,200	Based on maximum USPR of 722 lbs/MG and a peak treatment flow rate of 34.9 mgd.
Average Solids Loading at 34.9 MGD	dry-lbs/day	18,000	Based on average USPR of 516 lbs/MG and an average treatment plant flow rate of 34.9 mgd.
Minimum Feed Solids Concentration	%	2.0	
Operational Criteria			
Operational Days	days/week	5	
Duty Cycle	hours/day	8	
Performance Criteria			
Feed Flow Rate	gpm	363	Feed flow rate assumes stream is at an average of 2 percent solids
Minimum Cake Solids Concentration	%	~15	Required to pass paint filter test for solids disposal

1.6.1 Thickening Design Criteria

The performance of mechanical dewatering is dependent on the consistency and solids concentration of the sludge being fed. A minimum feed sludge concentration of 1 percent is generally needed in order to maintain consistent mechanical dewatering operations. In order to meet the operational and performance criteria listed in Table 6 and ensure homogenous feed sludge for consistent ease of operation, it is recommended that the County add sludge thickening and homogenization tanks upstream of the mechanical dewatering units and sludge drying beds. Thickening will provide higher total solids conditions and also provide additional solids storage capacity during excessive solids production events or when dewatering equipment is offline during weekends or holidays. Thickening also reduces the total volume of the residuals sludge. For example, if the solids content of the blowdown from the sedimentation basins is 0.3 percent and a thickener improves total solids to 2 percent, the volume of water is reduced by 667 percent. Table 7 outlines the criteria for the gravity thickener.

Homogenization tank addition ensures a consistent solids concentration is being sent to the dewatering units. Table 8 outlines the criteria for the homogenization tanks. The volume of the homogenization tanks and thickener will provide up to 3 days of solids storage at 2 percent solids with continuous solids feed to them at the 50th percentile occurrence rate of solids production from the LMWTP.

Additional pumps will be needed if a thickener and homogenization tanks are installed. Pump sizing will be dependent on the mechanical dewatering present.

Table 7 Thickener Preliminary Design Criteria

Design Parameter	Units	Criteria	Notes
Loading Criteria			
Max Solids Loading	dry-lb/d/sq ft	10	Dictates thickener diameter
Max Hydraulic Loading	gpd/sq ft	300	Dictates thickener diameter
Influent Sludge Flow	mgd (gpm)	.51 (355)	Based on 50% solids production
Feed Solids Concentration	%	0.3	
Sizing Criteria			
Diameter	ft	60	
Side Water Depth	ft	12	6 feet of max sludge blanket depth
Storage Criteria			
Target Total Storage Volume	gal	218,600	3 days of storage time at 2% solids in thickener
Thickener Storage Volume	gal	126,900	Based on 6 ft sludge blanket
Thickener Storage Time	days	1.7	At 2% solids in thickener

Table 8 Homogenization Tank Preliminary Design Criteria

Design Parameter	Units	Criteria	Notes
Loading Criteria			
Influent Sludge Flow	mgd (gpm)	.07 (50.6)	Based on 50th percentile solids production
Feed Solids Concentration	%	2	
Storage Criteria			
Target Homogenization Storage Volume	gal	91,700	Remaining storage volume required to reach target total storage volume
Homogenization Tank Volume (each)	gal	32,300	
Homogenization Tank Storage Time (each)	days	0.43	
Sizing Criteria			
Diameter	ft	17	Tank dimensions set by manufacturer. Closest to design requirements.
Depth	ft	19	Tank dimensions set by manufacturer. Closest to design requirements.
Number		3	

1.6.2 Thickening Phasing

To reduce initial capital cost investments, the County may opt to phase in the thickening equipment as needed based on demands and the storage capacity desired. There are several options available to the County. Table 9 shows resulting storage capacities with the suggested phasing option and at build out for various solids loading conditions. It should be noted that if the County wishes to expand homogenization tank storage without adding a new tank, steel tanks can be expanded due to the nature of how the tanks are constructed. The concrete pad the tanks sit on should be designed with this expansion in mind if this approach is taken.

Table 9 Phasing for Thickening Equipment

Parameter	Current AADF	50th Percentile 2024	50th Percentile Buildout	90th Percentile 2024 (Phase 1)	90th Percentile Buildout
Phase 1 Equipment					
Solids Loading, dry-lb/d	12,800	15,300	18,000	21,900	25,200
No. of Thickeners	1	1	1	1	1
No. Homogenization Tanks	2	2	2	2	2
Sludge Storage Time, days	3.8	3.2	2.7	2.2	1.9
Buildout Equipment					
Solids Loading, dry-lb/d	12,800	15,300	18,000	21,900	25,200
No. of Thickeners	2	2	2	2	2
No. Homogenization Tanks	3	3	3	3	3
Sludge Storage Time, days	5.2	4.3	3.7	3.0	2.6

1.7 Alternatives Analysis

There are several dewatering options which could be used, two of which do not include the addition of mechanical dewatering and three other mechanical dewatering alternatives. Six alternatives were evaluated for this TM.

- Alternative 1 – Disposal of non-dewatered residuals sludge via the collections system through the plant lift station.
- Alternative 2 - Expanding the drying beds.
- Alternative 3 – Belt Filter Presses.
- Alternative 4 – Centrifuges.
- Alternative 5 – Screw Presses.
- Alternative 6 – Rotary Fan Presses.

There are a number of other mechanical dewatering technologies (e.g., plate and frame press, vacuum drums) that are not commonly used for mechanical dewatering at WTPs. These were excluded from detailed analysis because they do not offer significant, proven advantages to the three technologies that were evaluated for this application. For Alternatives 3-6 listed above, a gravity thickener upstream of the mechanical dewatering equipment is recommended, as described in the previous section. Based on discussion with the County, it was decided that Alternative 1 would not be considered for primary disposal of non-dewatered residuals due to various implications associated with it, discussed below in Section 1.8. Additionally, due to poor performance of the screw press during simulations and the manufacturer's apprehensiveness to recommend it as a viable dewatering option, a detailed evaluation was not completed. Therefore, the detailed alternative analysis was short listed to Alternatives 2, 3, 4, and 6.

For detailed evaluations of alternatives short listed, a phasing analysis is provided along with cost estimates for phasing and buildout. The cost estimates presented in this TM include total construction costs and total project costs. Total construction costs represent total direct costs (including a 30 percent contingency) and indirect costs including bonds and insurance, general contractor overhead, profit and risk, and sales tax. Total project costs include engineering, legal, and administration fees, as well as a 5 percent owner's reserve for change orders. Appendix C and Appendix D include a breakdown of the capital and O&M cost estimates presented in this TM.

All costs presented in this tech memo are considered Level 5 conceptual costs consistent with Estimate Classes defined by the American Association of Cost Engineers (AACE) International, which vary based on the level of design completion and include associated typical published accuracy ranges. In providing opinions of probable construction cost and schedules for potential projects, Carollo makes no warranty that the actual project costs or schedules will not vary from the Carollo's opinions, analyses, projections, or estimates.

1.7.1 Equipment Design Approach and Phasing Overview

The proposed design and phasing of installation of dewatering facilities in this analysis hinges on the assumption that the dewatering equipment will operate for 8 hours per day, 5 days per week per the County's preference. Moreover, to leverage the existing drying beds, the drying beds will be used as n+1 redundancy for all mechanical dewatering alternatives. Each alternative will have a Phase 1 and buildout condition with respective equipment requirements. Phase 1 covers the 2024 design point previously discussed. It should be noted that demands, thereby solids generation, will reduce after 2024 and are projected to stay below 2024 conditions until 2031 (refer to Figure 6 above). Consequently, the estimated equipment run times in 2024 will decrease after 2024 onwards and until demand conditions are met again in 2031.

Phase 1 equipment run times will be slightly longer than 8 hours per day, 5 days per week operation for all mechanical dewatering alternatives. The strategy to address this could be to operate 5 days per week at the slightly longer run times, or opt to process the excess sludge on the weekends. Since most landfills are only open Monday through Friday, weekend operations could require storage of dewatered cake on-site. Whichever approach is taken will require less run time than the County is currently operating the temporary BFP (12 hours per day, 7 days per week).

1.7.2 Alternative 1 - Disposal of Non-Dewatered Sludge via Collections System

Disposal of the non-dewatered sludge via the sewer collections system consists of sending the sedimentation basin blowdown directly to the plant's existing lift station to be conveyed to the wastewater treatment plant for disposal. As mentioned, it was decided that this alternative was not going to be considered for primary disposal of sludge. Implications of this as a primary means of disposal included expanding the existing plant lift station or construction of a new lift station to handle increased flows, replacement of the new 8-inch force main with a larger line to handle increased flows, potential treatment process impacts at the wastewater plant, and increased solids handling at the wastewater plant. Moving forward, the County decided to evaluate this alternative solely as an emergency alternative for mechanical dewatering installations.

Table 10 outlines the flows considered for evaluating if the existing lift station capacity could handle the dewatering flows and flows from the future Ultrafiltration Membrane process. The existing lift station has two pumps with 500 gpm capacity each.

If there are at least two BFPs, then the lift station would need to be upsized. Larger capacity pumps would need to be installed or a new wet well and third pump added. Additionally, as part of the BTU project, a new 8-inch force main was installed for the plant lift station. If two presses are in operation, velocities in the pipe would be approximately 7 fps. If more than 2 presses are operational then a hydraulic evaluation of the force main would be warranted to determine if the force main would need to be replaced.

Table 10 Lift Station Influent Flows

Source	Flow (gpm)
UF Process Waste	450
Sanitary Waste	50
Mechanical Dewatering	350-600(1)
Total	850-1100

Notes:
(1) Low end of the range corresponds with centrifuges and high end of the range corresponds with belt filter presses.

1.7.2.1 Advantages and Disadvantages

The following are the advantages of this alternative:

- Contingency for mechanical equipment failure.

The following are the disadvantages of this alternative:

- Requires new pumps for the plant lift station.
- Recommended hydraulic analysis to determine if force main needs replaced.
- Continuous or frequent discharge to the wastewater plant may be more costly than onsite handling long-term.
- Continuous or frequent discharge to the wastewater plant may stress the solids handling facilities at the wastewater plant.

1.7.3 Alternative 2 – Expansion of Drying Beds

1.7.3.1 Overview

Expansion of the drying beds is another alternative considered to provide increased dewatering capacity. To avoid similar operational issues experienced at the plant currently, it is suggested the recommended improvements to the decant and weir structures previously discussed and shown in Figure 2 would apply to any new drying bed installations in addition to the existing drying beds. New drying beds would have the same configuration as the improved existing drying beds, with decant pumps in each as well as underdrains. A groundwater monitoring plan would also be required by FDEP. Figure 7 shows the process flow diagram for the additional drying beds and Figure 8 shows a potential layout.

1.7.3.2 Additional Drying Bed Phasing

The solids loading capacity of the existing drying beds was first assessed to determine how many additional drying beds would be needed to meet current production rates. It is recommended that each drying bed is capable of holding 3 to 4 months of daily solids production to allow for proper drying. A 90-day storage time, solids loading rate of 8 lb/ft^2, and a 90th percentile occurrence rate or 16,500 dry-lb/d production was assumed to be conservative. With these assumptions, the area each drying bed should cover is 185,600ft^2. Since the plant has 5 drying beds, the total area should be 928,000 ft^2. The existing drying beds cover an approximate area of 585,000ft^2 so an additional 345,000 ft^2 is required, conservatively, which is equivalent to adding 3 new drying beds that have the same footprint as the existing ones. Development of an operating strategy to determine proper operational times for each bed and timing of the rotation of the beds is recommended.

Projected solids projections in 2024 and at the buildout flow, 34.9 MGD, were used to determine the additional drying beds needed at each design condition for potential phasing. Using the same assumptions for storage time and solids loading rate, 5 and 7 new drying beds with similar dimensions as the existing beds would be required in 2024 and at buildout, respectively.

Table 11 outlines the additional drying bed requirements for various conditions.

Table 11 Additional Drying Bed Phasing

Parameter	Current AADF	50th percentile 2024	50th percentile Buildout	90th percentile 2024 (Phase 1)	90th percentile Buildout
Solids Loading dry-lb/d	12,800	15,300	18,000	21,900	25,200
No. of Additional Drying Beds	3	3	4	5	7

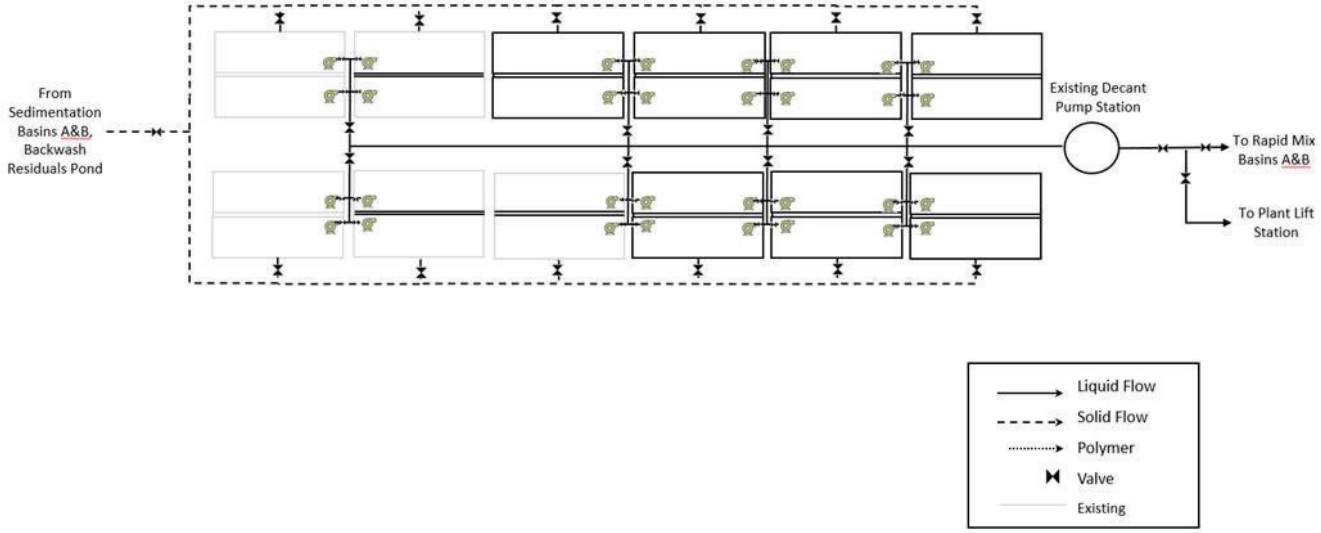


Figure 7 Additional Drying Bed Process Flow Diagram

1.7.3.3 Advantages and Disadvantages

The following are the advantages of this alternative:

- Simple construction, and operational changes to the plant dewatering process are minimal.
- Plant staff are familiar with operation of drying beds.
- Recommended improvements to drying beds will give staff better control over the drying beds' operation and conditions.

The following are the disadvantages of this alternative:

- Timing and rotation of which drying beds are operational and when to take them out of operation will be challenging.
- Vulnerable to hydraulic stresses, which may have long term operational consequences if not dealt with properly.
- Hydraulically overloading the beds for a long period of time makes recovery for proper operation difficult or impossible.
- May temporarily fix issues the plant has with dewatering but may not solve the problem in the long-term and similar issues may reoccur.
- Large footprint prevents opportunity to use County land for other purposes, such as admin buildings, expansion, etc.

1.7.3.4 Additional Drying Bed Capital Costs

Conceptual capital costs were developed for the drying beds alternative, Table 12 below, which included the following assumptions:

- Existing drying beds have had all old sludge layers removed and new sand installed.
- Recommended modifications to the existing drying beds as discussed and shown in Figure 2 above.
- Additional underdrains and decant pumps.
- Paved roads and concrete ramps for all additional drying beds.
- Four groundwater monitoring wells.

Table 12 Additional Drying Bed Estimated Costs

Cost Type	Existing Drying Bed Rehab	Phase 1	Buildout
Total Estimated Construction Costs	$690,000	$10,470,000	$12,700,000
Total Estimated Project Cost	$832,000	$12,570,000	$15,240,000

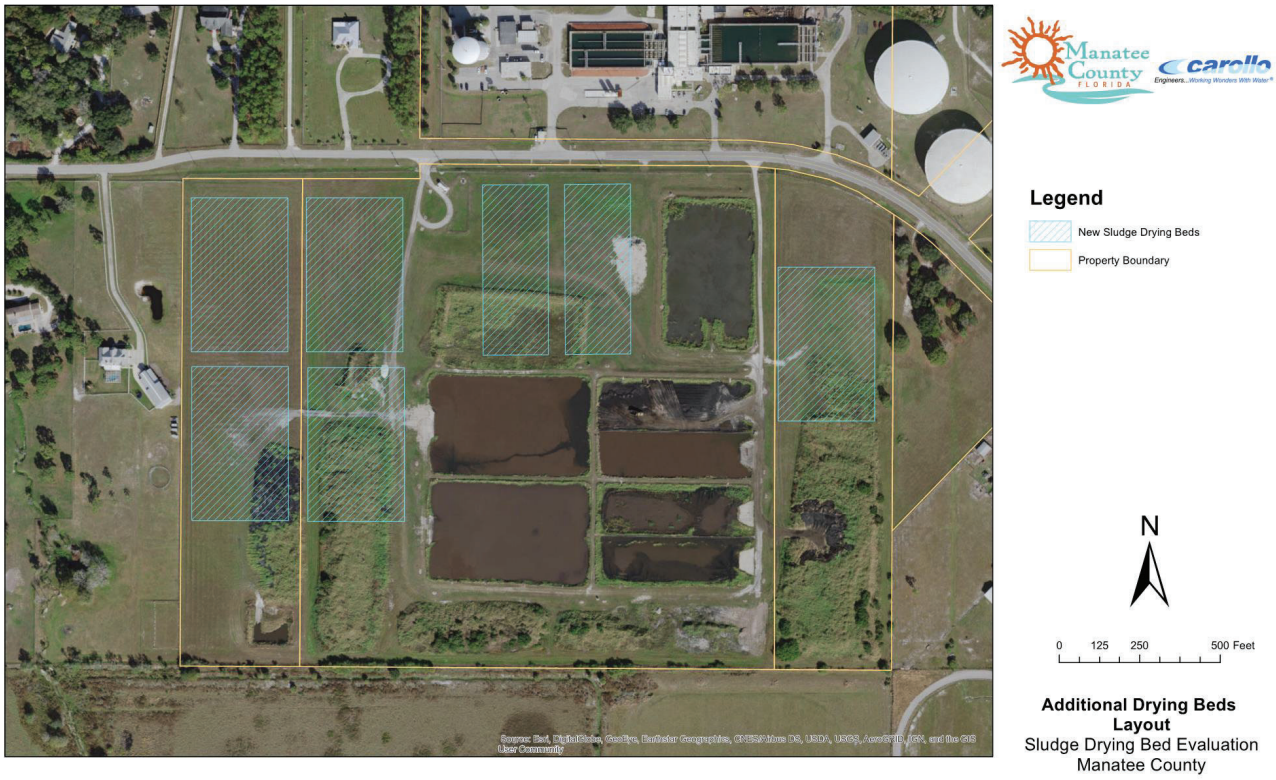


Figure 8 Additional Drying Bed Example Layout

1.7.4 Alternative 3 - Belt Filter Presses

1.7.4.1 Overview

A belt filter press typically consists of porous cloth media belts, which travel in an S-shaped path over numerous rollers of varying pressure to continuously dewater thickened residuals through a combination of gravity draining and mechanical pressure.

Residuals which have been conditioned with polymer addition are evenly fed to the gravity drainage portion of the belt filter press. After free draining water is removed, the conditioned residuals enter the zone of compaction. The rollers and belts compress the conditioned residuals for further dewatering. The roller arrangement is designed to gradually provide increased pressures and dewater the cake further. The dewatered residuals are separated from the belt by a blade and are discharged from the unit by gravity. A booster pump provides plant water to a spray-wash system, which cleans residuals left on the belts to maintain porosity.

For the LMWTP design, the filtrate and wash water will drain to the new gravity thickeners. The units and conveyance systems will be installed underneath a canopy on top of a concrete pad. Screw conveyors will collect dewatered cake from the presses and move the cake to inclined screw conveyors which transports the cake for dumping. A new lift station pump would be installed for sewer discharge.

BFPs come in a wide array of layouts and configurations. Figure 9 shows a generalized arrangement of the primary BFP components.

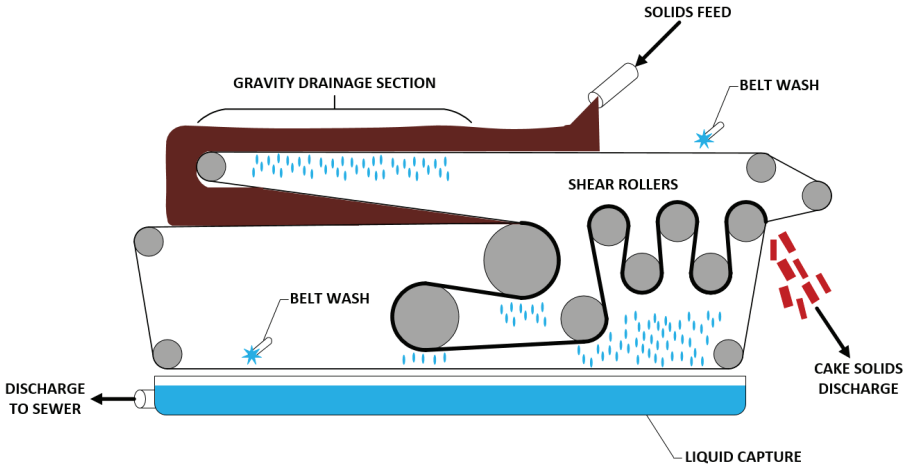


Figure 9 General Belt Filter Press Arrangement

Ancillary equipment required for BFPs include a sludge feed pump, polymer activation and injection system, and a washwater booster pump for the belt wash system. Figure 10 shows a typical BFP installation at a WTP.

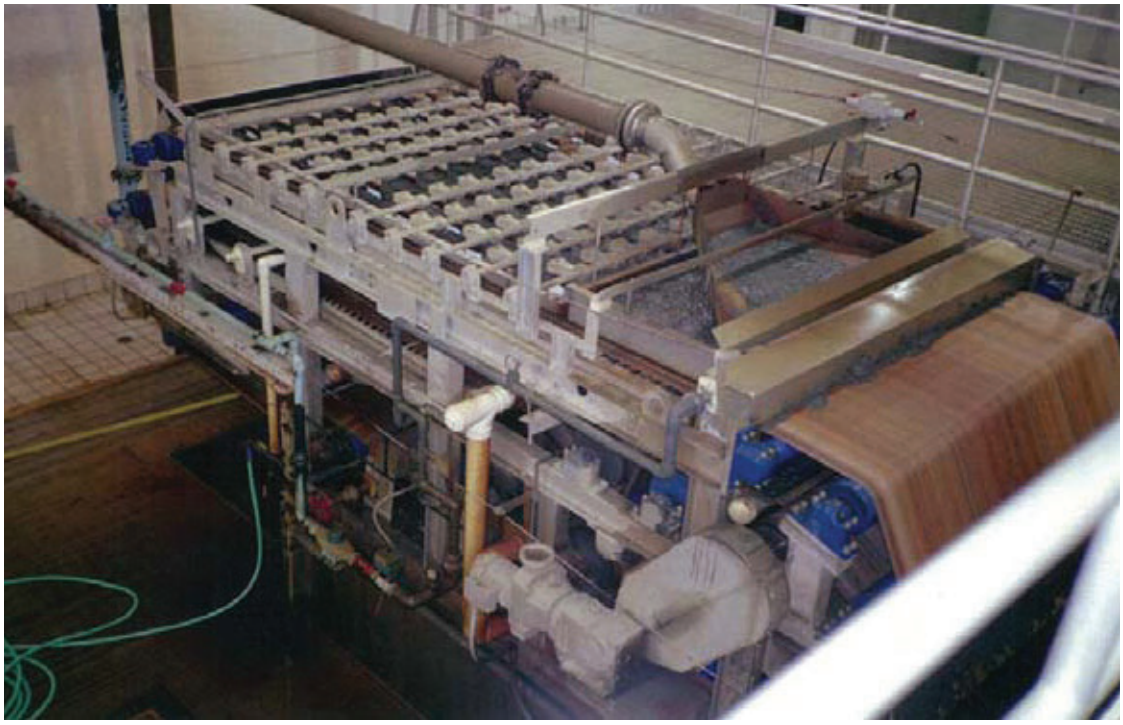


Figure 10 Belt Filter Press at a Water Treatment Plant

1.7.4.2 Belt Filter Press Configuration and Phasing

For 8 hours per day, 5 days per week operation, 3 units will need to be operational by 2024 or buildout to handle 90 percent solids production. Current annual average daily loads require 2 units in operation 5.7 hours per day, 5 days a week. Phase 1 would consist of 2 BFPs, 2 BFP feed pumps, and 2 screw conveyers. The run time of the presses would exceed 8 hours of operation but not excessively, as shown in Table 13. Table 13 outlines the estimated equipment run times at various solids production conditions. The County has mentioned flexibility in operational hours, so equipment can be operated slightly longer when required or excess sludge stored and processed on the weekend with cake storage being required if the landfill is not open. Note that the 90th percentile of production of solids will not occur on a consistent basis, so the run times shown Table 13 are conservative.

Figure 11 shows a proposed PFD for the belt filter press facilities, complete with the recommended gravity thickeners and homogenization tanks. Figure 12 shows potential BFP dewatering facilities adjacent to the drying beds.

Table 13 BFP Phasing Equipment Run Times

Parameters	Current AADF	50th Percentile 2024 (Phase 1)	50th Percentile Buildout	90th Percentile 2024 (Phase 1)	90th Percentile Buildout
Phase 1 Configuration and Run Times					
Solids Loading, Dry-lb/d	12,800	15,300	18,000	21,900	25,200
No. BFPs	2	2	2	2	2
Equipment Run Time, hours	6.0	7.1	8.4	10.2	11.8
Buildout Configuration and Run Times					
Solids Loading, Dry-lb/d	12,800	15,300	18,000	21,900	25,200
No. BFPs	3	3	3	3	3
Equipment Run Time, hours	4.0	4.8	5.6	6.8	7.9

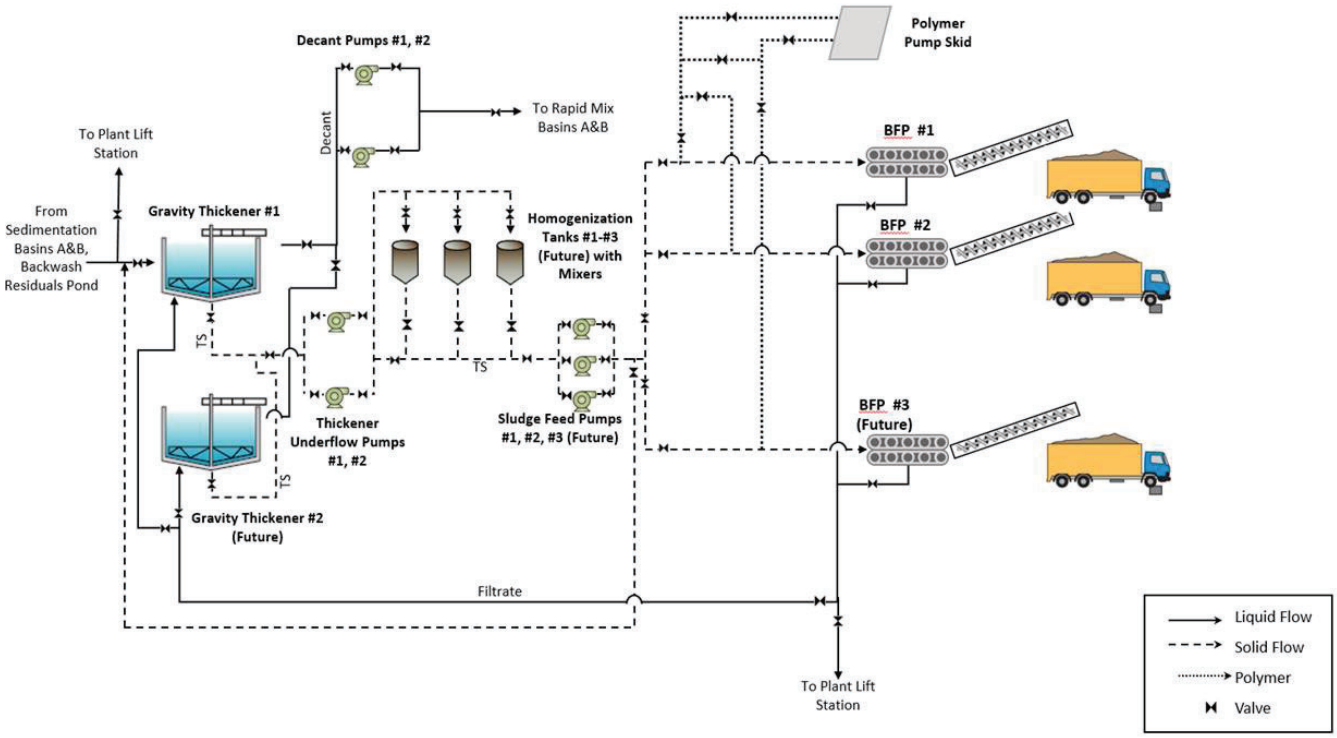


Figure 11 Belt Filter Press Process Flow Diagram

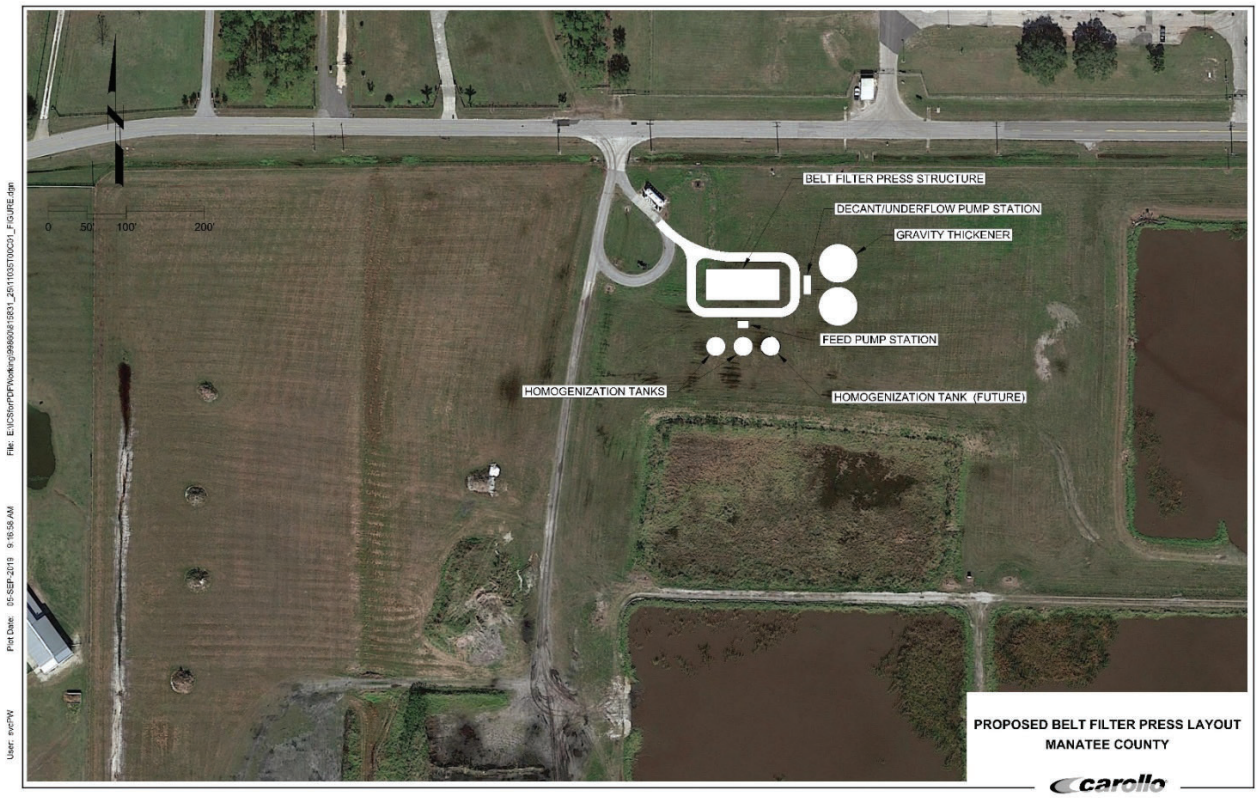


Figure 12 Belt Filter Press Facilities Layout

1.7.4.3 Advantages and Disadvantages

The following are the advantages of this alternative:

- BFPs produce little noise and vibration.
- BFPs have low power input requirements.
- BFP operation is easy to understand because all parts are visible making operator optimization and troubleshooting easier.
- Manatee County currently has 11 BFPs at its three water reclamation facilities (WRFs) so redundant spare parts are readily available.
- Experienced wastewater staff could assist in supporting the water treatment plant staff in training and startup.

The following are the disadvantages of this alternative:

- BFP belts must be replaced periodically.
- BFPs are sensitive to incoming feed characteristics.
- BFPs require more operator oversight and attention compared to centrifuges.
- BFPs can have issues with spillage when the feed sludge concentration changes or when they are not optimized.
- BFPs require a significant amount of wash water for belt spraying.
- BFPs typically require a higher polymer dose than centrifuges.
- BFPs produce the most amount of water that must be disposed of.
- BFPs have exposed mechanical components that can potentially cause injury. Safety procedures must be followed to keep personnel away from moving rollers and belts on the BFP.
- BFPs produce lower percent solids than centrifuges.

1.7.4.4 Cost Estimate

Table 14 outlines the estimated capital and annual O&M costs for Phase 1 and buildout scenarios of the BFP dewatering facility. Capital costs include costs for thickeners and homogenization tanks, a canopy for the BFPs, pumping and other associated equipment shown in Figure 10, and a new lift station pump. Costs do not include rehab of the existing drying beds previously discussed; however, it is assumed the rehab would be the same across all dewatering alternatives (see Table 12) for the costs associated with the existing drying beds rehab. O&M costs include power costs, labor, part replacement, wash water costs, polymer use based on sludge samples and testing, and hauling. Total percent solid of the cake were assumed to be 18 percent, the average expected performance per the Andritz simulations.

Table 14 Belt Filter Press Dewatering Facility Estimated Capital and O&M Costs

Cost Type	Phase 1	Buildout
Total Estimated Construction Costs	$7,080,000	$9,260,000
Total Estimated Project Cost	$9,200,000	$12,040,000
Annual O&M Costs	$732,000	$848,000

1.7.5 Alternative 4 – Centrifuges

1.7.5.1 Overview

Centrifuges use centrifugal acceleration to separate solids from liquids by means of their differing inertias and viscosities. While there are several types of industrial centrifuges, this analysis focuses on decanter centrifuges which are most commonly used in municipal water treatment applications (these are also known as solid-bowl or scroll centrifuges).

Decanter centrifuges consist of a helical screw within a cylindrical bowl that has a conical taper at one end. Generally, these are mounted horizontally; however, there are applications which use vertical configurations. The bowl and screw are driven by an external motor which rotates the two components at high speed to generate centripetal force (the bowl and screw have slightly different rotation speeds which are achieved through a series of gears). A continuous stream of residual solids is fed to the cylindrical end of the unit and travels down the center of the rotating screw until it is discharges near the center of the bowl.

The centripetal force generated by the rotating bowl separates liquids and solids into two streams (also known as the centrate and cake solids, respectively). Polymer is typically added to the feed stream prior to entering the centrifuge to further facilitate this separation. As illustrated in Figure 13, the rotating bowl moves centrate to the cylindrical side of the unit where it discharges near the feed inlet. The scroll pushes the cake solids the other way to where they exit out of the conical bowl on the opposite end.

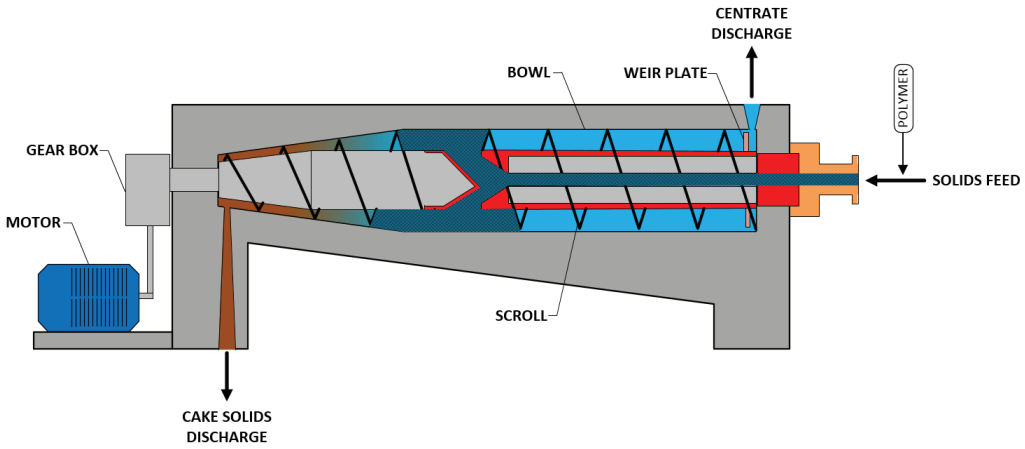


Figure 13 Decanter Centrifuge Dewatering

Cake solids will be conveyed by a screw conveyer system to a truck container for eventual hauling to the landfill. Centrate would be recycled to the gravity thickener and decant from the gravity thickener returned to the head of the plant. A new lift station pump would be installed as contingency for sewer discharge.

Ancillary equipment required for centrifuge dewatering includes a sludge feed pump, a polymer activation and injection system, bridge crane for bowl/scrowl removal and maintenance, and a conveyance system. See Figure 14 for a typical centrifuge installation.

Figure 14 Typical Centrifuge Installation

1.7.5.2 Centrifuge Configuration and Phasing

For 8 hours per day, 5 days per week operation, 1 unit will need to be operational by 2024 and 2 at buildout. One unit in operation at current AADF would be operating 6.7 hours, 5 days per week. Phase 1 could consist of a single centrifuge (that would need to run 9.4 hours in 2024), 2 centrifuge feed pumps, and 1 screw conveyer. The phasing for this equipment is up to the County's discretion regarding staffing. Phase 1 equipment run times will be slightly longer to operate 5 days per week, or the County could opt to process sludge on the weekends, with cake storage being required if the landfill is not open. See Table 15 for a summary of equipment run times at various solids loading rates.

See the proposed process flow diagram for the centrifuge operation, Figure 15. Figure 16 shows a potential layout for the centrifuge facility.

Table 15 Centrifuge Phasing Equipment Run Times

Parameters	Current AADF	50th Percentile 2024 (Phase 1)	50th Percentile Buildout	90th Percentile 2024 (Phase 1)	90th Percentile Buildout
Phase 1 Configuration and Run Times					
Solids Loading, Dry-lb/d	12,800	15,300	18,000	21,900	25,200
No. Centrifuges	1	1	1	1	1
Equipment Run Time, hours	6.7	8.0	9.4	11.5	13.2
Buildout Configuration and Run Times					
Solids Loading, Dry-lb/d	12,800	15,300	18,000	21,900	25,200
No. Centrifuges	2	2	2	2	2
Equipment Run Time, hours	3.4	4.0	4.7	5.7	6.6

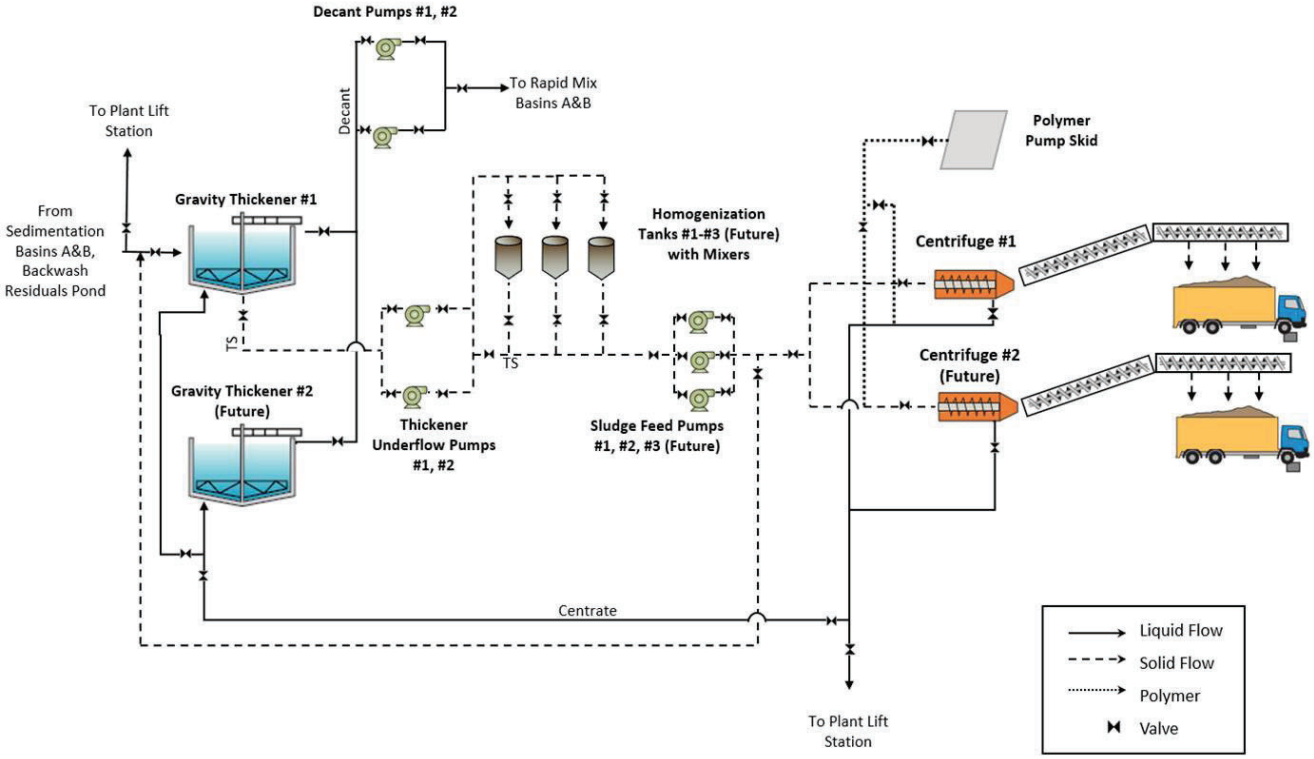


Figure 15 Centrifuge System Process Flow Diagram

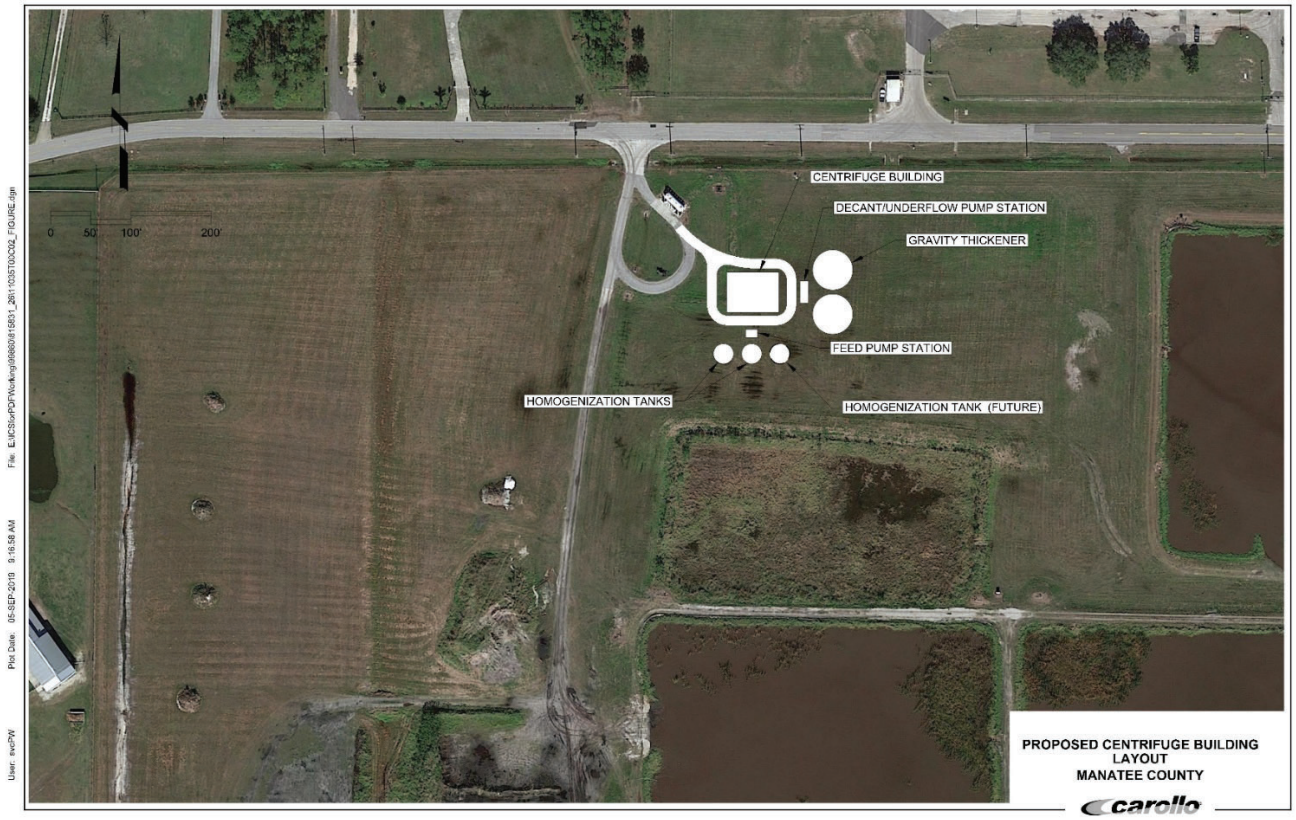


Figure 16 Centrifuge Facilities Layout

1.7.5.3 Advantages and Disadvantages

The following are the advantages of this alternative:

- Centrifuges have the smallest footprint of the proposed mechanical dewatering technologies.
- Centrifuges are less sensitive to incoming feed characteristics.
- Centrifuges have little-to-no spillage since they are enclosed.
- Centrifuges have fast startup and shutdown capabilities.
- Centrifuges require little water for operation.
- Centrifuges generally have higher cake solids than BFPs.

The following are the disadvantages of this alternative:

- Centrifuges are loud when in operation and can cause resonant vibration which must be accounted for in the structural design of the dewatering building. Operations staff would need to wear noise protection while the centrifuges are in operation.
- Centrifuge scrolls can be maintenance intensive.
- Centrifuges have higher capital costs than BFPs.
- Centrifuges require higher power input than other mechanical dewatering technologies.

1.7.5.4 Cost Estimate

Table 16 outlines the estimated capital and annual O&M costs for Phase 1 and buildout scenarios of the centrifuge dewatering facility. Capital costs include costs for thickeners and homogenization tanks, construction of a building for the centrifuges, pumping and associated equipment shown in Figure 15, and an additional lift station pump. Costs do not include rehab of the existing drying beds (see Table 12) for the existing drying bed rehab costs. O&M costs include power costs, labor, part replacement, wash water costs, polymer use based on sludge samples and testing, and hauling. Total percent solid of the cake were assumed to be 21 percent, the average expected performance per the Andritz simulations.

Table 16 Centrifuge Dewatering Facility Capital and O&M Costs

Cost Type	Phase 1	Buildout
Total Estimated Construction Costs	$7,250,000	$9,750,000
Total Estimated Project Cost	$9,430,000	$12,670,000
Annual O&M Costs	$663,000	$803,000

1.7.6 Alternative 5 - Screw Presses

1.7.6.1 Overview

Screw presses are commonly used in the pulp and paper industry, for food processing, in chemical manufacturing facilities, and at wastewater treatment plants. However, they are considered an emerging dewatering technology for WTPs. These units consist of a slow-moving helical screw inside a cylindrical screen. The screw flights gradually decrease spacing from one end to the other. Residuals are fed at the bottom of one end of the unit and begin to dewater via gravity through the screen. The mixture is moved along the length of the screw by means of its rotational motion. Pressure gradually increases as the screw flights become narrower along this path and water is forced through the screen and falls by gravity into a collection trough. As illustrated in Figure 17, some manufacturer's screw presses are placed on an angle so the capture water flows back to the inlet side of the unit where it is then discharged through a pipe. Dewatered solids are discharged from the elevated end of the unit, opposite the influent feed. Pneumatic cylinders at the discharge end of the unit are used to adjust the backpressure applied to the cone. Similar to the other mechanical dewatering technologies discussed in this TM, the polymer is added to the feed stream to promote better liquid/solid separation.

Ancillary equipment required for screw presses includes a sludge feed pump, a polymer mixing and injection system, and a compressed air system for the pneumatic pressure cylinders (as well as to serve as a supply to pneumatic tools throughout the facility), and conveyance system. Due to the large footprint of the screw presses, provisions must be made to be able to remove them or install them inside the building they are housed in. This often includes using crane through a roof hatch if placed in a building.

As discussed in Section 1.5 Sludge Testing and Results, the screw press performed the worst compared to the centrifuge and BFP based on Andrtiz's bench-scale test results. For example, test results indicated that a screw press would require about twice the polymer dose as a BFP. Also, due to its poor performance during bench testing, Andritz recommended pilot testing at the plant to confirm it would be a feasible technology for dewatering LMWTP residuals. For these reasons, this technology was not further considered in this evaluation.

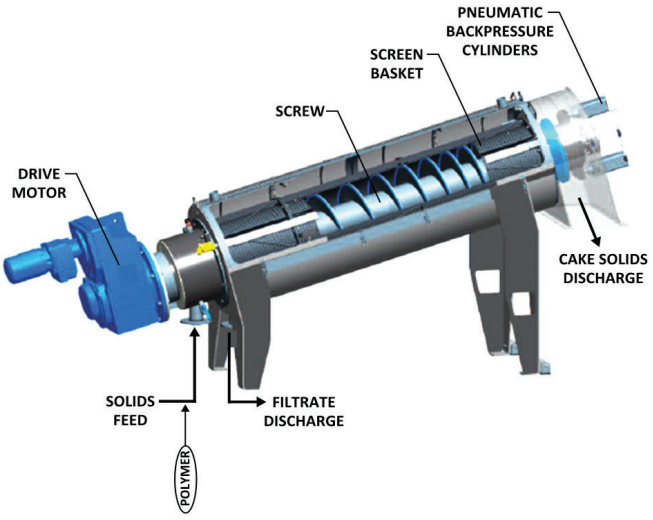


Figure 17 Screw Press Dewatering

1.7.7 Alternative 6 – Rotary Fan Press

1.7.7.1 Overview

During the evaluation of the technologies above, the County had the opportunity to pilot a rotary fan press on a trailer which pulled solids out of the existing drying beds, similar to the temporary belt filter press installation on site. After which, the County requested Carollo Engineers to complete an evaluation of the rotary fan press as an additional dewatering alternative.

A rotary fan press vendor visited the LMWTP on August 26 – 28, 2019 to demonstrate a small pilot unit. This technology offers relatively low energy costs (similar to BFP) and lower washwater usage compared to a BFP. However, its installation base is low at WTPs and capital costs can be higher than BFPs and centrifuges. Three of the seven trials at the plant used cationic polymer; it should be noted that use of cationic polymer is not acceptable in this application (as discussed in Section 1.8). The vendor was notified of this and continued the rest of the trials using anionic polymers. Due to potential scalability issues, the County should conduct additional pilot testing to demonstrate a full-size (48" diameter filter screen) unit. During the pilot test, LMWTP staff should collect parallel samples for both the rental BFP cake and rotary fan press cakes (while dewatering the same feed sludge) and measure accurately the polymer dosing and percent solids recovery for both.

Rotary fan presses are a dewatering technology most commonly used in wastewater applications and dewaters by use of a pressure differential between filter screens with use of an adjustable restrictor gate arm to adjust the pressure within the unit's annular space, where the feed solids are held. Figure 18 shows a typical rotary fan press, similar to the pilot installation the County had on site.

Rotary fan presses consist of filter screens, a helical screw, and a restrictor gate arm at the cake discharge point contained in a case that resembles that of a centrifugal pump. Filter screens are mounted on either side of the unit so an annular space is created to allow solids to travel through the unit and filtrate to discharge through the filter screens. A continuous stream of residual solids is fed through the bottom of the unit and a screw turns to advance the solids to the discharge point. The gate restrictor arm is used at the discharge point to adjust the pressure in the unit by slowing or increasing the discharge flow of cake. Restricted cake flow causes a backpressure which increases the pressure differential on either sides of the filter screens, causing the filtrate to escape through filter screens while capturing the dewatered solids.

Polymer is typically added to the feed stream prior to entering the unit to further facilitate this separation. The filter screens slowly rotate, less than 1 rpm, and have a constant stream of wash water to clean them and prevent clogging.

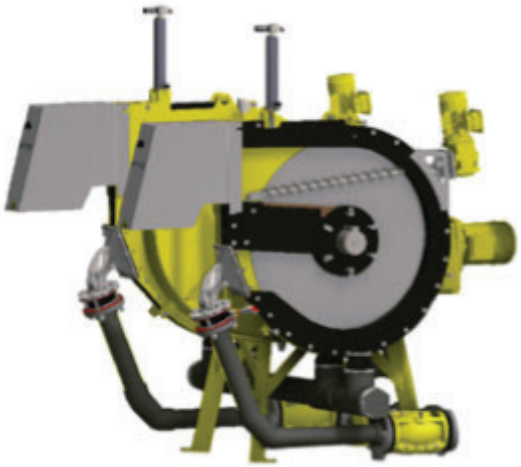


Figure 18 Rotary Fan Press (Prime Solution, 2019)

Cake solids will be conveyed by a screw conveyer system to a truck container for eventual hauling to the landfill. Filtrate would be recycled to the gravity thickener and decant from the gravity thickener returned to the head of the plant. A new lift station pump would be installed as contingency for sewer discharge.

Ancillary equipment required for rotary fan press dewatering includes sludge feed pump, a polymer activation and injection system, bridge crane for removal and maintenance, and a conveyance system. See Figure 19 for a large rotary fan press installation.

Figure 19 Rotary Fan Press Installation (Madisonville, KY, West Side WWTP)

For 8 hours per day, 5 days per week operation, three units will need to be operational by 2024 and four units are needed at buildout. Two units in operation at current AADF would be operating 7.8 hours, 5 days per week. Phase 1 could consist of a two rotary fan presses (that would need to run 11.1 hours in 2024 during 90 percent solids production rates). Three units at the 2024 average solids production rate results in 7.4 hours of operation, 5 days per week. The phasing for this equipment is up to the County's discretion regarding staffing. See Table 17 for a summary of equipment run times at various solids loading rates.

Table 17 Rotary Fan Press Phasing Equipment Run Times

Parameters	Current AADF	50th Percentile 2024 (Phase 1)	50th Percentile Buildout	90th Percentile 2024 (Phase 1)	90th Percentile Buildout
Phase 1 Configuration and Run Times					
Solids Loading, Dry-lb/d	12,800	15,300	18,000	21,900	25,200
No. RFPs	3	3	3	3	3
Equipment Run Time, hours	5.2	6.3	7.4	8.9	10.3
Buildout Configuration and Run Times					
Solids Loading, Dry-lb/d	12,800	15,300	18,000	21,900	25,200
No. RFPs	4	4	4	4	4
Equipment Run Time, hours	3.9	4.7	5.5	6.7	7.7

1.7.7.2 Advantages and Disadvantages

The following are the advantages of this alternative:

- RFPs have a smaller footprint.
- RFPs have little-to-no spillage since they are enclosed.
- RFPs have low power demands.
- RFPs are relatively quiet and could be installed outside and not require noise abatement.

The following are the disadvantages of this alternative:

- RFP installations are not as widely used as BFP and centrifuges, and existing installations are more commonly wastewater applications.
- RFPs have higher capital costs than the other dewatering technologies.
- RFPs require much higher polymer doses to achieve similar cake solids as BFPs and centrifuges.
- RFPs are sensitive to incoming feed characteristics.
- RFPs require two to three times more washwater than a centrifuge.
- RFPs fans can blind and reduce dewatering performance.
- RFPs do not scale up as easily as BFPs or centrifuges for larger solids handling applications.

1.7.7.3 Cost Estimate

Table 18 outlines the estimated capital and annual O&M costs for Phase 1 and buildout scenarios of the rotary fan press dewatering facility. Capital costs include costs for thickeners and homogenization tanks, construction of a building for the rotary fan presses, pumping and associated equipment, and an additional lift station pump. Costs do not include rehab of the existing drying beds (see Table 12) for the existing drying bed rehab costs. O&M costs include power costs, labor, part replacement, wash water costs, polymer use based on sludge samples and testing, and hauling. Total percent solids of the dried cake was assumed to be 16 percent, reflective of the rotary fan press pilot results.

Table 18 Rotary Fan Press Dewatering Facility Capital and O&M Costs

Cost Type	Phase 1	Buildout
Total Estimated Construction Costs	$9,670,000	$14,000,000
Total Estimated Project Cost	$11,600,000	$16,800,000
Annual O&M Costs	$1,000,000	$1,180,000

1.8 Ultrafiltration Membranes and Polymer Use

Construction has recently started for installation of a new membrane ultrafiltration system at the plant. Membrane performance can be inhibited due to fouling, which can be exacerbated by polymer overdosing or using the wrong kind of polymer. Ultrafiltration membranes have a negative surface charge, so it is paramount that polymer used for pretreatment is not cationic, or positively charged, to minimize fouling due to polymer infusion in the membrane pores. Decant from dewatering processes will contain residual polymer that is not captured in the dewatered cake. Since the County's preference is to return decant to the rapid mix basins upstream of the membranes, the polymer used for mechanical dewatering must be nonionic or anionic. Polymer type and concentrations are important to ensure the membrane warranty stipulations are not violated and membranes performance is not negatively impacted, as per the warranty clauses provided by the plant's (future) membrane filtration system manufacturer:

> *"Nonionic or anionic polymer will be dosed as necessary prior to promote settling after rapid mix. Typical polymer dose is 0.15 to 0.20 mg/L. The proposed membrane product shall be compatible with water treatment polymers (up to 0.5 mg/L as product dosed upstream of the sedimentation process) necessary for the pretreatment process."*

It should be noted that due to these concerns with membrane performance, industry standard practice is to not recycle centrate or filtrate upstream of membranes and to dispose of decant from mechanical dewatering operations (e.g., to the sewer). Mechanical dewatering alternatives discussed in this document include provisions for sending decant to the sewer.

Based on communication with the membrane manufacturer, if the polymer used in pretreatment was also used for dewatering, there would be no concern with the type of polymer. However, the County has tested their pretreatment polymer on the temporary BFP operation and concluded it performed poorly, so a new polymer for dewatering would need to be coordinated with the membrane manufacturer if any of the decant/filtrate is recycled.

Estimated polymer concentrations were determined for the dewatering alternatives. The basis of the calculations consisted of the calculated solids generation at each design condition, an assumed percent solids achieved with dewatering based on simulations from Andritz, and polymer doses used during those simulations. Concentration of the polymer in the filtrate/centrate being sent to the thickener was first determined. Flows were calculated from the solids generations estimates and expected 2 percent solids from thickening. From there, the cake yield from dewatering was assumed for each dewatering alternative based on simulations from Andritz. The difference in total solids before and after dewatering allowed for filtrate/centrate flows to be estimated and polymer concentrations were calculated from the expected doses. Dilution from the additional flows from wash water was taken into account and 50 percent removal of polymer in dewatered cake was assumed. Fifty percent removal from the dewatered solids was based on acrylamide grab samples collected in June 2019 from the BFP showing 50 percent removal. It should be noted that acrylamide was used as a surrogate for polymer; actual polymer concentrations are difficult to quantify. Polymer concentrations were then calculated with dilution from the thickener and additional 25 percent of polymer removal was assumed due to recapture in the thickener. The resulting polymer concentrations at this point were further diluted due to the plant influent flow in the rapid mix basin.

At the 2024 and buildout scenarios, returned polymer concentrations in the recycled decant from the thickener were calculated and expected to be approximately 0.5 to 0.7 mg/L in the rapid mix basins for both BFPs and centrifuges. Historically, high polymer doses have been about 0.2 mg/L for pretreatment, so the combined residual polymer concentration in the process water in the rapid mix basin could be as high as 0.9 mg/L, exceeding the membrane manufacturer's warranty that stipulates a maximum polymer concentration of 0.5 mg/L. Due to this and various factors associated with full-scale implementation, it’s not known for sure at this time what the residual dewatering polymer recycle stream concentration will be from the dewatering process.

Emulsion type dewatering polymer that is delivered in totes or bulk includes mineral oil, generally at a ratio of 30 percent polymer and 70 percent mineral oil. Another dewatering polymer type that could be used is dry polymer. Dry type polymer is delivered in 1,000-pound super sacks or 50-pound bags in a spherical or dry flake format. Since dry polymer is up to 98 percent polymer, the neat or as product dose fed would be less than the emulsion type. The overall active polymer dose would be the same for emulsion type or dry type polymers. Using a dry type polymer would allow a higher as product dose and could potentially keep the residual return polymer to a minimum. The drawback to dry type polymers is that they are more prone to overdosing. If there was an overdose event with the dewatering polymer, there still could be an issue with impacting the membranes. If filtrate/centrate is returned to the head of the plant instead of being sent to sewer, it would be important for the dewatering polymer dosing to be closely monitored to maintain compliance with the membrane warranty stipulations. A potential strategy could be to discharge all or a portion of the filtrate/centrate flow to the sewer as a safety buffer, to keep residual polymer concentrations upstream of the membranes well below 0.5 mg/L.

Since the approximated polymer concentrations are at or above the warranty limit, a potential strategy to minimize polymer return without full sewer discharge would be to discharge at least half of the filtrate/centrate from mechanical dewatering. At buildout, these flows during the expected operational hours would be approximately 138,000 – 277,000 gpd for the BFPs and 72,000 – 143,000 gpd for the centrifuges at a 90th percentile occurrence rate (note: the upper range indicates full sewer discharge). On average, discharge flows for filtrate/centrate would be 98,000 – 197,000 gpd and 51,000 – 102,000 gpd for the BFPs and centrifuges, respectively. The suggested plant lift station capacity improvements included in each alternative's cost estimate would be sufficient to achieve these flows.

Polymer calculations and mechanical dewatering operations were calculated on an 8-hour basis, so the polymer concentrations in return are higher than if discharged over a longer period of time. Another potential strategy is a waste equalization tank to store filtrate/centrate to allow return to the head of the plant or lift station over a 24-hour period versus an 8-hour period. This could achieve reduction in polymer return dose to ~0.2-0.3 mg/L (assuming no overdosing of polymer). However, the implications and costs of waste equalization were not evaluated in this document.

The County previously inquired about options of post treatment for the filtrate/centrate to remove polymer. This practice is uncommon and would require further investigation to determine viable options. Viability and costs associated with filtrate/centrate treatment were not evaluated in this document.

From a regulatory perspective, there are maximum doses of dewatering polymers that can be used for plants that recycle their filtrate/centrate streams. Maximum doses of dewatering polymer are certified by the NSF. The specific max NSF dose is specific for each manufacturer's polymer, and is typically either 1 ppm or 3 ppm. In addition, both dry type and emulsion type dewatering polymers contain acrylamides, which is also regulated and is generally factored by the NSF into their max certified dose. Per Code of Federal Regulations 40 CFR 141.51, acrylamides in finished potable water cannot exceed 0.05 percent of a polymer by weight dosed at 1 mg/L (0.5 parts per billion). For this study, an analysis was performed to confirm that the LMWTP would be in compliance when using dewatering polymer and recycling the filtrate/centrate to the head of the plant. The current rental BFP is using a polymer that is NSF certified for a max dose of 3 ppm. For this polymer, the maximum amount of dewatering polymer that could be used per day would be around 750 lb/d and 870 lb/d, for 2024 and buildout respectively. Based on the lab test results that estimated dewatering polymer doses required for LMWTP residuals dewatering, only 410-470 lb/d of polymer would be required. So, recycling filtrate/centrate would be permissible based on NSF max allowed doses.

Due to industry practices, unknowns associated with the actual polymer concentrations in full-scale decant/filtrate, potential for overdosing events during operation of mechanical dewatering equipment, and membrane warranty implications, it is recommended that the County have the ability and plan to dispose of all centrate/filtrate from mechanical dewatering to the sewer.

1.9 Summary

In this document, six mechanical dewatering alternatives were discussed, of which four were short listed for evaluation as potential solutions for the issues faced with the existing sludge drying beds. General concerns that apply to any future potential dewatering strategies include applicable regulatory requirements and polymer use and effects on the future membrane filters. Based on discussion with FDEP, there are no additional actions the County would need to take if existing drying beds were rehabilitated, or if new dewatering facilities were constructed.

Design criteria used to size thickening and dewatering alternatives were driven by the demands posed from 2024 and buildout capacity of the surface water treatment train, 34.9 MGD. A mass balance was developed and solids generation estimates completed based on the past four years of historical data (2015-2018). The historical 90th percentile was chosen as the design criteria for solids generation, and future solids generation estimates used to size alternatives accordingly. Using a 90th percentile level for design is a common approach that provides an appropriate level of conservancy for the design. Designing for the historical maximum solids loading is generally not practical nor cost effective. Estimated solids generation at the 90th percentile occurrence in 2024 and buildout are 21,900 dry-lb/d and 25,200 dry-lb/d, respectively.

Mechanical dewatering equipment is sensitive to changes in sludge characteristics, so thickening for any mechanical dewatering operations is recommended to remove sludge variability. Each dewatering alternative was then more closely examined. Samples were taken from the drying beds and temporary BFP installation and tested by Andritz. Simulations of each mechanical dewatering alternative were completed with the samples to give an idea for how each may perform. Bench testing showed that a screw press may not be a viable mechanical dewatering technology. Similarly, a RFP pilot was on site for two days and results from the pilot can be seen in Appendix B. In short, it performed similarly to the BFP with average cake solids of 16 percent, but used more polymer than a centrifuge or BFP would.

BFP, centrifuge, and RFP equipment was sized based on 8 hours per day, 5 days per week operation, to process 90 percent occurrence rate of solids production at buildout. Current AADF solids generation is approximately 12,800 dry-lb/d. Estimated solids generation and demands for 2024 will not be exceeded until 2031 due to a drop off in water demand after 2024. Equipment configurations were determined for 2024 and buildout, with run times provided for each condition. Costs were determined for Phase 1 (2024 condition) and buildout and are summarized for each condition in Table 19.

Dewatering polymer residual concentrations in recycled flows from the dewatering process were also estimated based on an emulsion polymer application. NSF standards regarding maximum polymer dose would not be violated under the future conditions discussed. However, polymer concentrations outlined by the membrane manufacturer's warranty would be exceeded if alternative wasting strategies are not adopted, so discharge of partial or full centrate/filtrate flow to the sewer would be required. Alternatively, a waste equalization tank of 550,000 gallons for BFPs and 150,000 gallons for centrifuges could be used. A dry polymer application would reduce the neat polymer dose, thereby reducing the polymer concentration in the recycled water; however, dry polymer carries a higher risk of overdosing and would still not reduce polymer levels sufficiently.

It is industry practice to dispose of residuals process flows that contain residual dewatering polymer. Data is limited to confirm the long-term impacts of recycling this flow. Thus, it is recommended that the County have the ability and plan to dispose the centrate/filtrate from mechanical dewatering to the sewer.

Table 19 Dewatering Alternatives Cost Estimate Summary

Cost Type	Phase 1	Drying Bed Rehab	Buildout
Belt Filter Press			
Total Estimated Construction Costs	$7,080,000	$690,000	$9,260,000
Total Estimated Project Cost	$9,200,000	$832,000	$12,040,000
Annual O&M Costs	$724,000	-	$860,000
Net Present Value(1)	-	-	$23,530,000
Centrifuge			
Total Estimated Construction Costs	$7,250,000	$690,000	$9,750,000
Total Estimated Project Cost	$9,430,000	$832,000	$12,670,000
Annual O&M Costs	$658,000	-	$807,000
Net Present Value	-	-	$23,086,000
Additional Drying Beds			
Total Estimated Construction Costs	$10,470,000	$690,000	$12,700,000
Total Estimated Project Cost	$12,570,000	$832,000	$15,240,000
Annual O&M Costs	$529,000	-	$627,000
Net Present Value	-	-	$27,678,000
Rotary Fan Press			
Total Estimated Construction Costs	$9,670,000	$690,000	$14,000,000
Total Estimated Project Cost	$11,600,000	$832,000	$16,800,000
Annual O&M Costs	$1,000,000	-	$1,180,000
Net Present Value	-	-	$32,441,000

Notes:
(1) Net present value is based on a 20-year life cycle and 3% real discount rate.

1.10 Conclusions and Recommendations

Of the alternatives analyzed, the BFP and Centrifuge options are the best alternatives for dewatering improvements at the LMWTP. It is recommended that with either alternative, that the ability to discharge flow or decant from the mechanical dewatering units to the sewer is provided. Costs for each alternative reflect the addition of a new lift station pump for this reason. Improvements to the existing drying beds to include better control structures is recommended for all mechanical dewatering alternatives. Rehab costs of the drying beds are provided and were developed assuming the County completed emptying and replacement of the sand media in the drying beds.

Construction costs for new drying beds are much higher than the mechanical dewatering alternatives. In addition, the drying beds operations are sensitive to weather conditions and to being hydraulically overloaded during normal operations. The number of additional drying beds would be significant which further complicates timing of the drying bed rotation. Moreover, the footprint of the drying beds would take up a significant portion of the property and remove the possibility for the County to reserve the land for other uses. It is recommended that mechanical dewatering is used instead of constructing additional drying beds.

Construction costs for a RFP facility are also significantly higher than the other alternatives. Coupling the high costs with low percent solids yield versus high polymer doses shown by the pilot testing, RFP performance is not as effective and estimated costs are higher than the other mechanical dewatering alternatives.

Belt filter presses are a viable alternative for dewatering improvements. Capital costs are the lowest compared to the other alternatives and the units can be placed under a canopy since noise abatement is not a concern with this technology. BFPs have a lower O&M cost to operate when considering part and equipment maintenance and power consumption; however, the hauling costs and washwater costs offset the typically cheaper O&M costs between this and the centrifuge. Achieving a higher total solids content in the dewatered cake would reduce annual O&M costs, roughly $25k per percent solids captured.

Staff oversight is higher than other mechanical dewatering alternatives, and overflows and spills are possible, especially with the significant amount of washwater required. Capacity of the force main would be a concern at buildout if direct sewer discharge must occur due to the significant washwater flows. BFPs are an open process and a prone to splashing, compared to centrifuges. If direct staff oversight is a concern, it can be done remotely if cameras are installed at the presses. Existing BFP installations at the County's WRFs use this method of oversight. Wastewater staff experience with the BFP operation may be a resource for WTP staff for startup, training, and troubleshooting. Eleven installations of BFPs at the WRFs also ensure sufficient spare part availability.

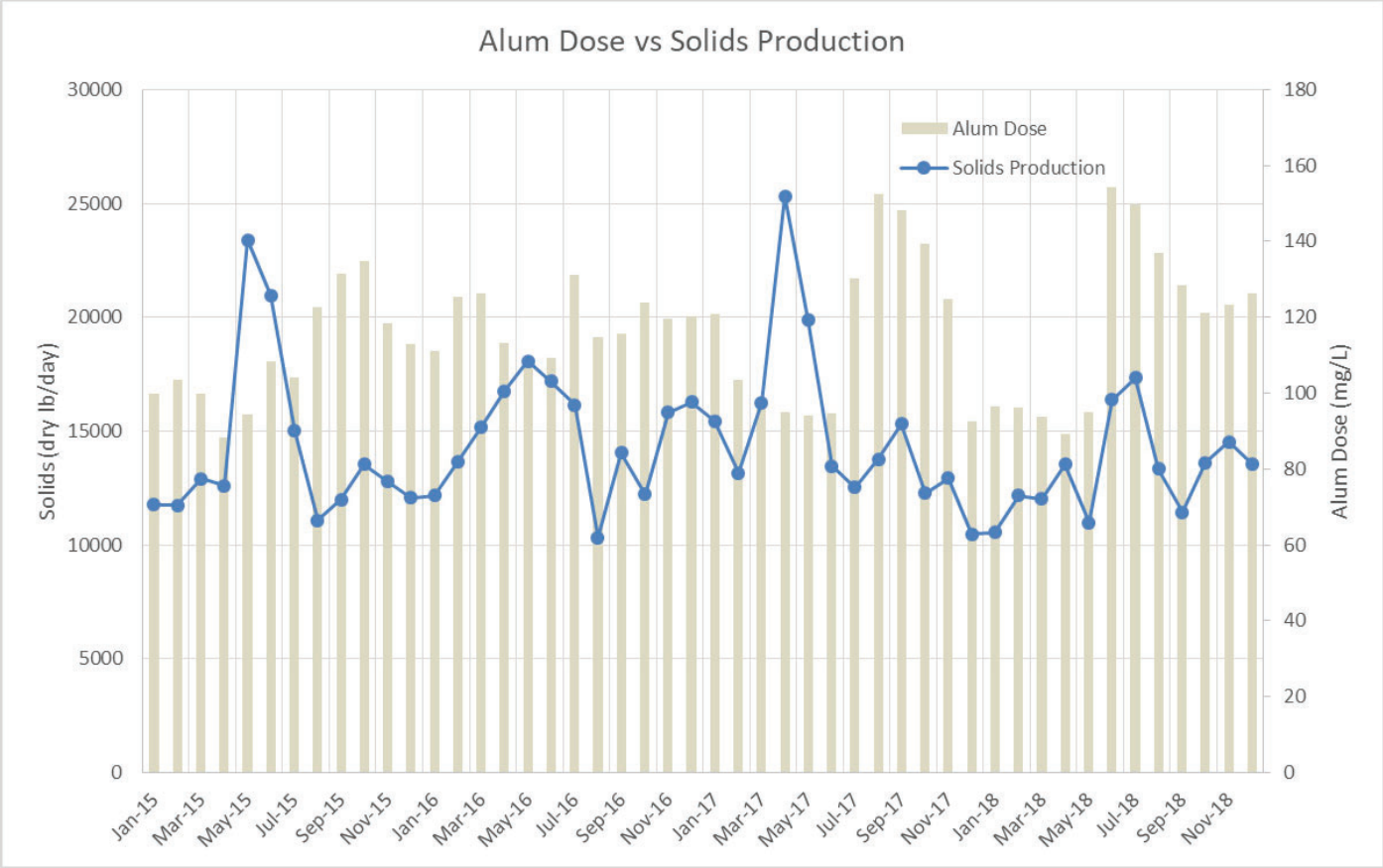
Centrifuges are another viable alternative for mechanical dewatering. Centrifuges typically achieve a dryer cake than BFPs and typically require more polymer, however testing by Andritz showed that the BFP and centrifuge had similar results. Greater yield in dryness is reflected by the lower O&M costs for the centrifuge due to the decreased hauling and water requirements. Centrifuges do not require a significant amount of water to operate, so disposal to the plant lift station is less of a concern. Major O&M items for the centrifuge, such as rebalancing, require the equipment to be sent back to the manufacturer so the County would need to have a backup unit or have the ability to discharge sludge to the drying beds. Electrical demand is much higher for a centrifuge and the centrifuges would need to be housed in a building due to the noise levels.

Staff operating the centrifuge would need noise protection; however, staff visits to the equipment would be minimal since centrifuges can be monitored remotely. Torque and operational parameters from the centrifuge equipment can be monitored via SCADA to indicate abnormalities during operation that would require operator input or maintenance.

Per these evaluations, mechanical dewatering with BFPs or centrifuges is recommended as the preferred option for improving dewatering at the LMWTP. Either BFPs or centrifuges will be the appropriate technology with the final selection based on the County's preferences with respect to upfront capital costs, O&M, operator preferences, and staffing. Special attention will need to be paid to either dewatering option regarding recycled flows to the process water upstream of the new membranes so that the manufacturer's warranty is not voided. Discharge of filtrate/centrate to the sewer as a safety buffer would more safely ensure compliance with the warranty conditions.

Appendix A

PLOTS


Alum Dose vs Solids Production
Alum Dose
Solids Production
Solids (dry lb/day)
Alum Dose (mg/L)
30000
25000
20000
15000
10000
5000
0
180
160
140
120
100
80
60
40
20
0
Jan-15
Mar-15
May-15
Jul-15
Sep-15
Nov-15
Jan-16
Mar-16
May-16
Jul-16
Sep-16
Nov-16
Jan-17
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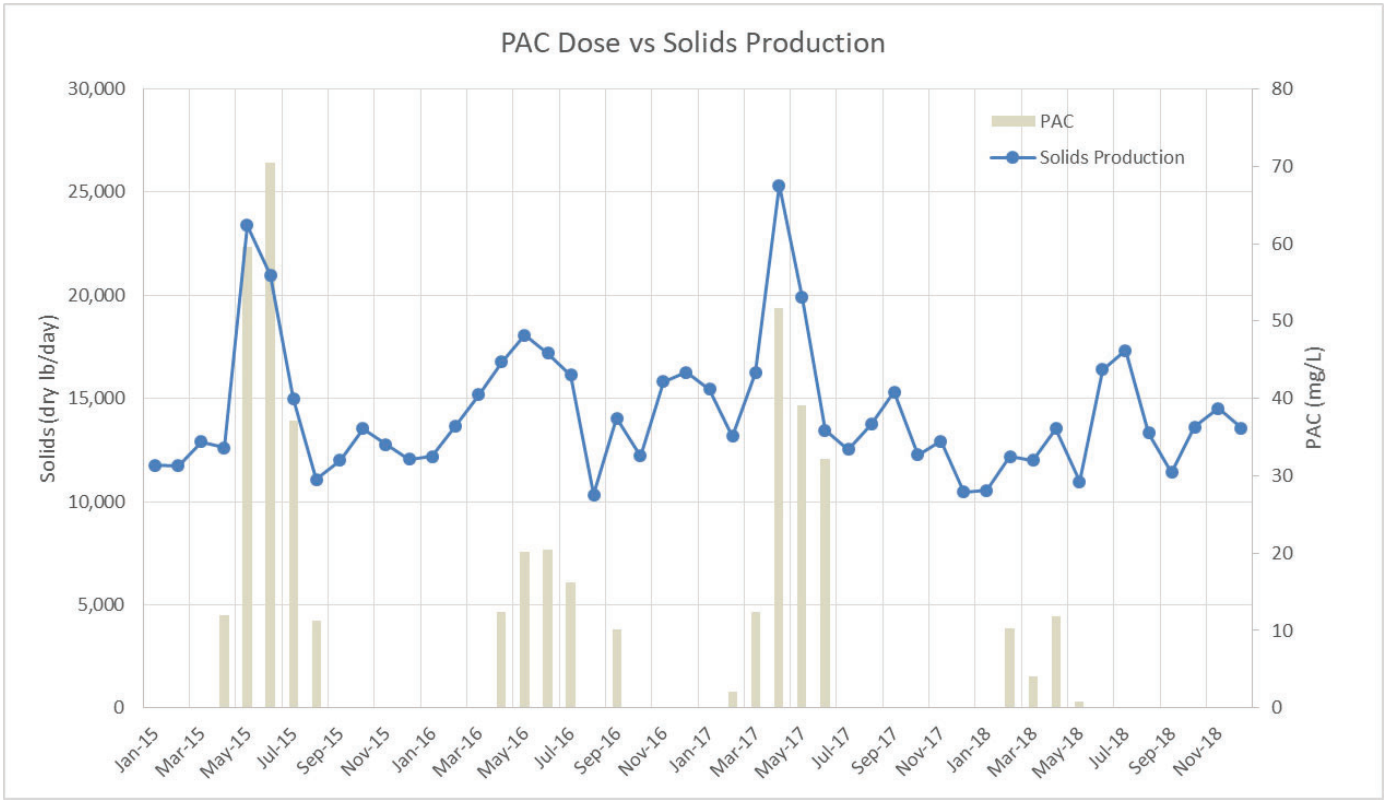
Jul-18
Sep-18
Nov-18


PAC Dose vs Solids Production
Solids (dry lb/day)
PAC (mg/L)
PAC
Solids Production
30,000
25,000
20,000
15,000
10,000
5,000
0
80
70
60
50
40
30
20
10
0
Jan-15
Mar-15
May-15
Jul-15
Sep-15
Nov-15
Jan-16
Mar-16
May-16
Jul-16
Sep-16
Nov-16
Jan-17
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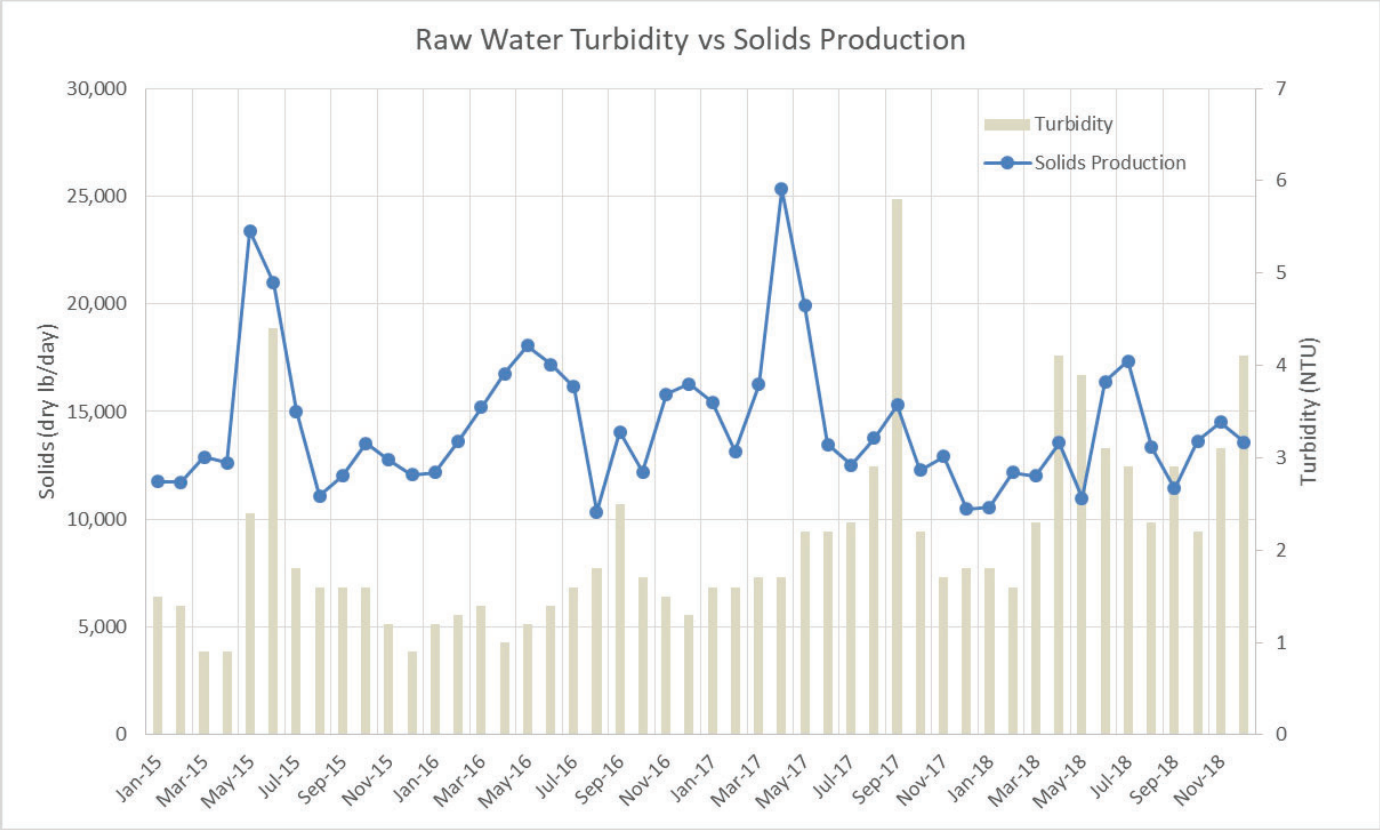
Sep-18
Nov-18


Raw Water Turbidity vs Solids Production
Turbidity
Solids Production
Solids (dry lb/day)
Turbidity (NTU)
30,000
25,000
20,000
15,000
10,000
5,000
0
7
6
5
4
3
2
1
0
Jan-15
Mar-15
May-15
Jul-15
Sep-15
Nov-15
Jan-16
Mar-16
May-16
Jul-16
Sep-16
Nov-16
Jan-17
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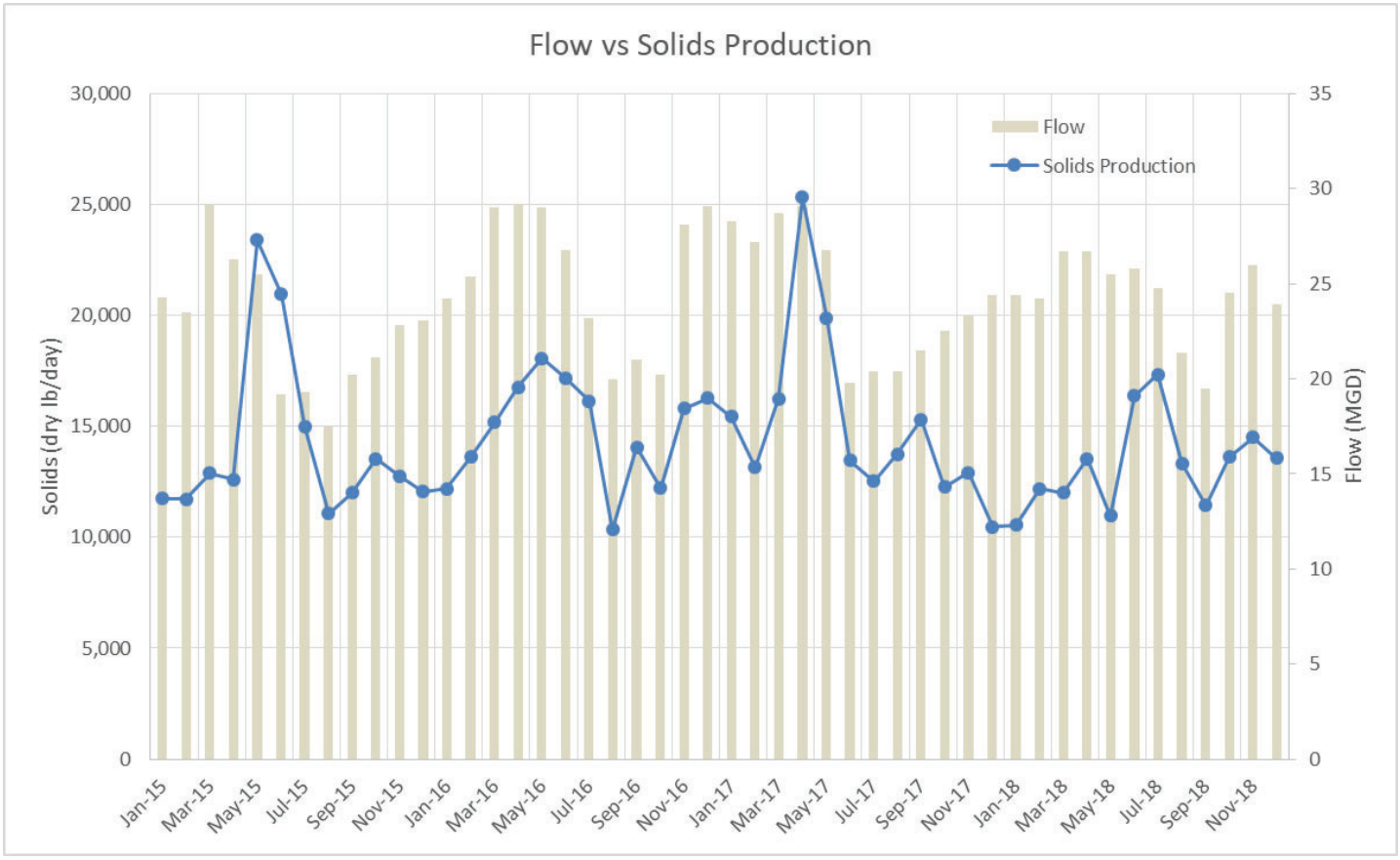
Sep-18
Nov-18


Flow vs Solids Production
Flow
Solids Production
Solids (dry lb/day)
Flow (MGD)
30,000
25,000
20,000
15,000
10,000
5,000
0
35
30
25
20
15
10
5
0
Jan-15
Mar-15
May-15
Jul-15
Sep-15
Nov-15
Jan-16
Mar-16
May-16
Jul-16
Sep-16
Nov-16
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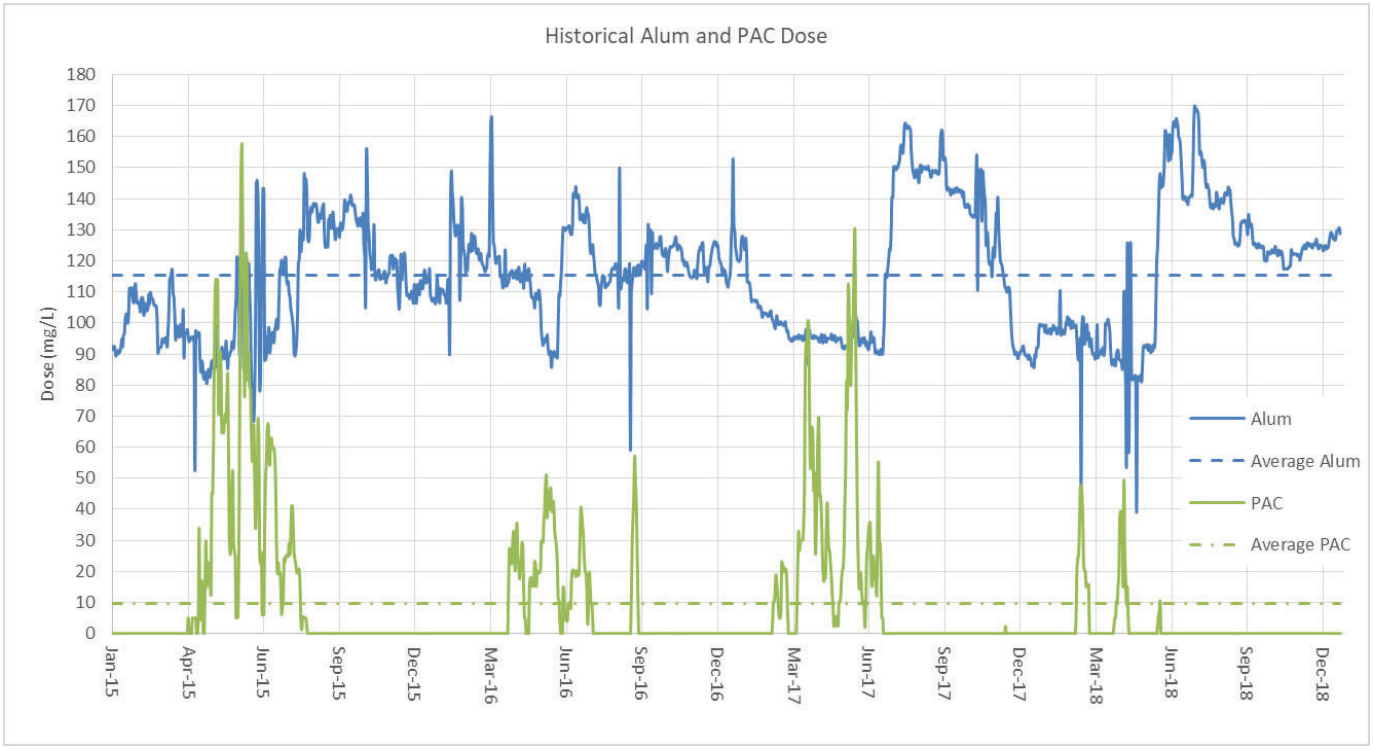
Nov-18


Historical Alum and PAC Dose
Dose (mg/L)
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170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
Jan-15
Apr-15
Jun-15
Sep-15
Dec-15
Mar-16
Jun-16
Sep-16
Dec-16
Mar-17
Jun-17
Sep-17
Dec-17
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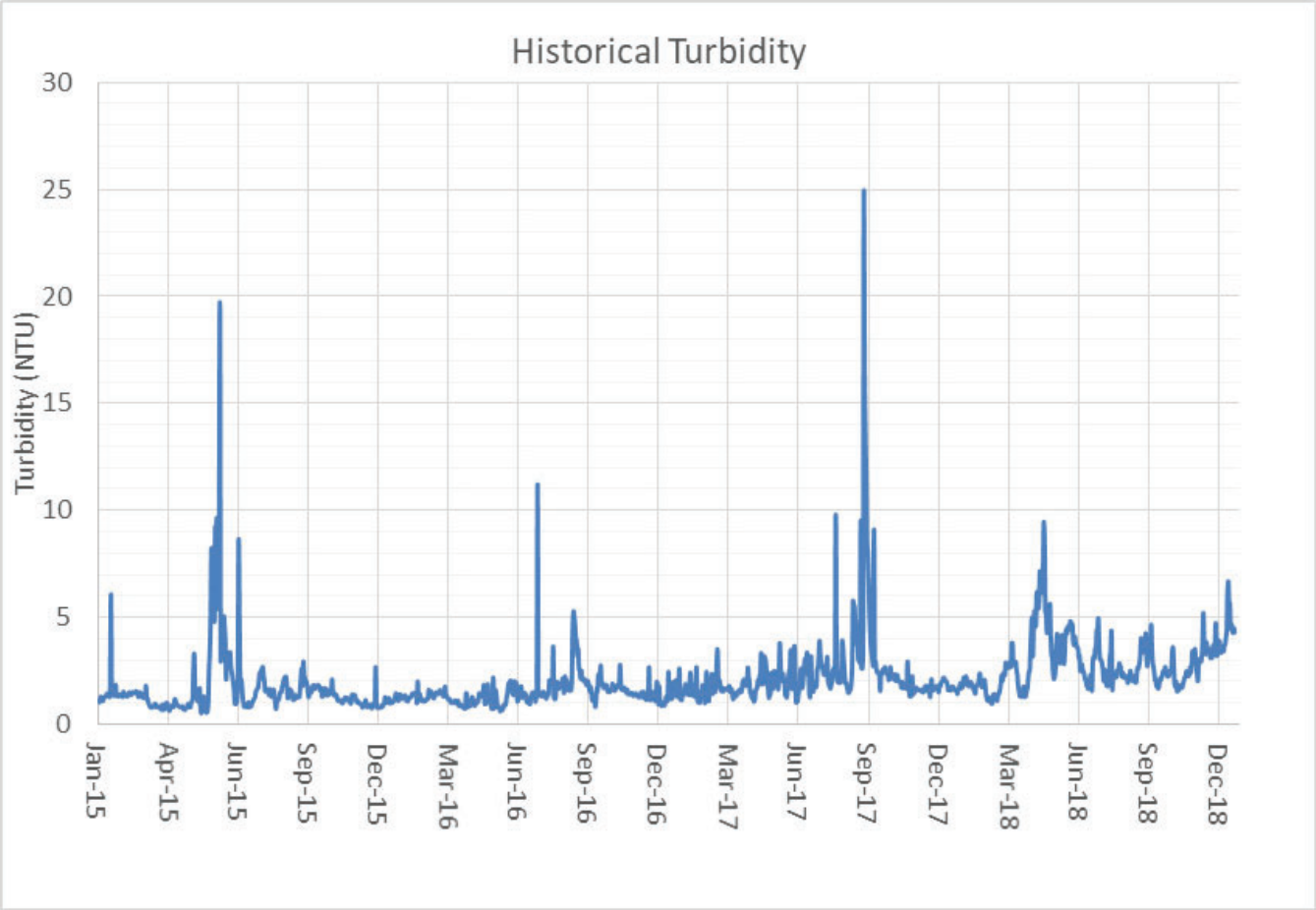
Jun-18
Sep-18
Dec-18
Alum
Average Alum
PAC
Average PAC


Historical Turbidity
Turbidity (NTU)
30
25
20
15
10
5
0
Jan-15
Apr-15
Jun-15
Sep-15
Dec-15
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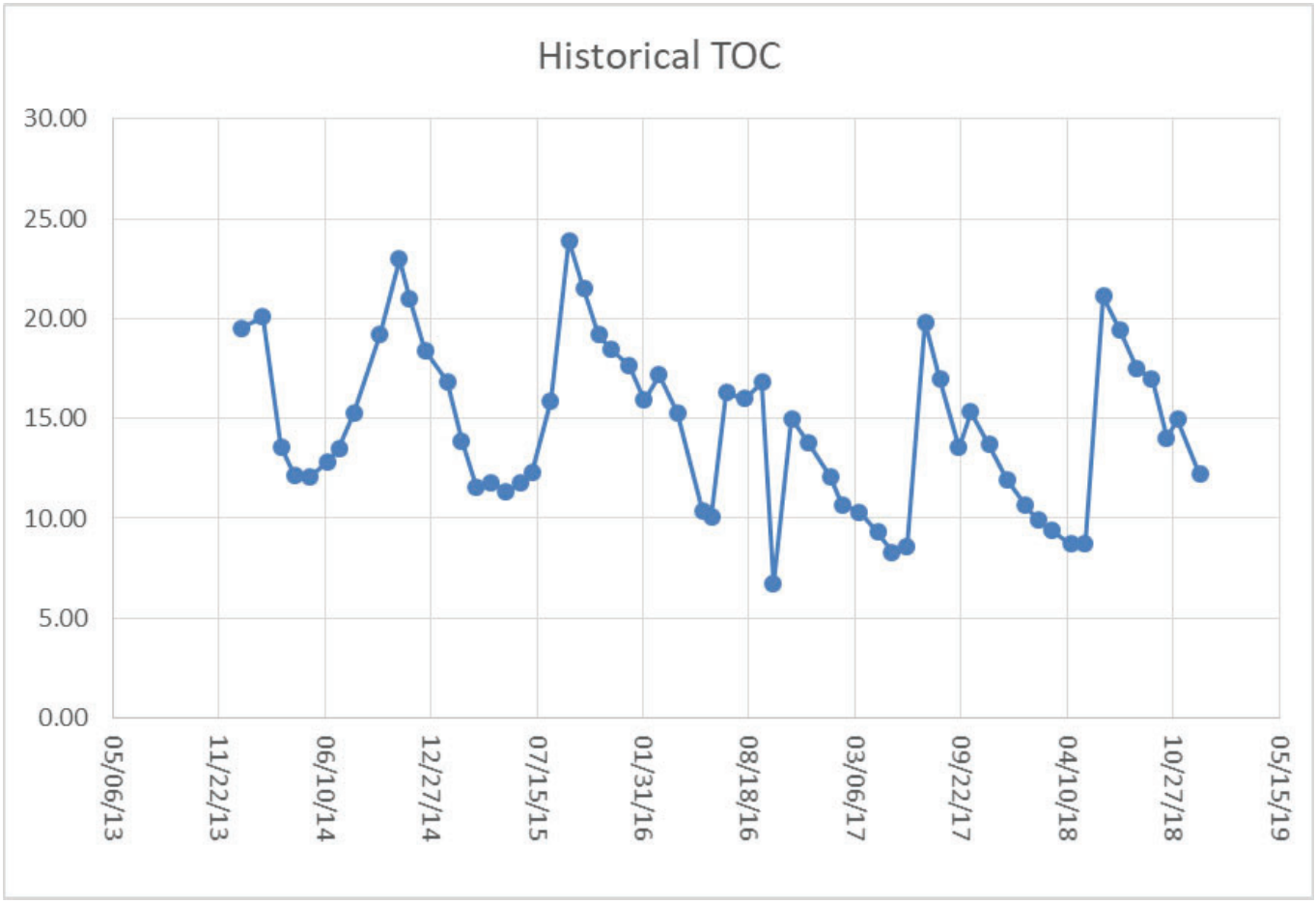
Sep-17
Dec-17
Mar-18
Jun-18
Sep-18
Dec-18


Historical TOC
30.00
25.00
20.00
15.00
10.00
5.00
0.00
05/06/13
11/22/13
06/10/14
12/27/14
07/15/15
01/31/16
08/18/16
03/06/17
09/22/17
04/10/18
10/27/18
05/15/19

Appendix B

TEST REPORTS

Laboratory Report

MANATEE COUNTY, FL

Report No.: L-14000
Application: 2997-0017
Product Home's: 502, 527, 546
Product Group's: 4417, 4418
Division: 41

Date Report Issued: April 12, 2019
Date Sample Received: March 14, 2019
Author: Brandon Parker
Copy: SoRelle, Hausegger

Plant Name: Manatee Water Treatment Plant
Attention: Mr. Kyle Ward
Address: 1810 1st Street
City, State Zip: Bradenton FL 34208
Phone: 941-708-6350

ANDRITZ Rep: Enviro Sales of Florida
Attention: Mr. Chuck Hlavach
Address: 1101 U.S. 27 South
City, State Zip: Sebring, FL 33870
Phone: 941-915-4861
Email: chuck@envirosalesofflorida.com

ANDRITZ Separation Technologies Inc.
Attention: Mr. Bruce SoRelle
Address: 1010 Commercial Blvd. S.
City, State Zip: Arlington, TX 76001
Phone: 817-266-9732
Email: bruce.sorelle@andritz.com
Website address: www.andritz.com

ENGINEERED SUCCESS

TABLE OF CONTENTS

ANDRITZ LABORATORY REPORT

COMPANY	:	Manatee Water Treatment Plant Bradenton, FL
SAMPLE TYPE	:	Aluminum Sulfate Sludge Lime Sludge
DATE	:	April 12, 2019

1. Introduction:

Seven (7) gallons of aluminum sulfate sludge, two (2) gallons of lime sludge, cake, and filtrate samples were received in the ANDRITZ Arlington, TX laboratory from the Manatee Water Treatment Plant (WTP) in Bradenton, FL on March 14, 2019. The samples were sent in for a dewatering evaluation for Belt Filter Press (BFP), Centrifuge, and Screw Press (SP) technologies. The customer had requested to blend the lime sludge into the aluminum sulfate sludge at 10 % and 50 % blends.

The facility has a design flow of 84 million gallons per day (mgd) and averages at approximately 30 mgd. There are two (2) separate treatment trains utilized at the plant, one in which surface water is treated with aluminum sulfate and another in which groundwater is treated with lime. The plant is currently blending the aluminum sulfate and lime sludge produced and temporarily dewatering it with a mobile 2.0m Belt Filter Press (BFP). Typically, the plant will send their sludge to drying beds.

2. Objectives:

The specific objectives of these laboratory tests were to:

2.1 Analyze the physical properties of the samples received.

a. Aluminum Sulfate Sludge
b. Lime Sludge
c. Cake and Filtrate
d. Blended Sludge (10% lime addition & 50% lime addition)

2.2 Select an effective polymer for dewatering the blended sludge.

2.3 Conduct Belt Filter Press (BFP) simulations with the blended sludge.

a. 10% Lime Sludge Addition
b. 50% Lime Sludge Addition

2.4 Conduct Centrifuge spin-down tests with the blended sludge.

a. 10% Lime Sludge Addition
b. 50% Lime Sludge Addition

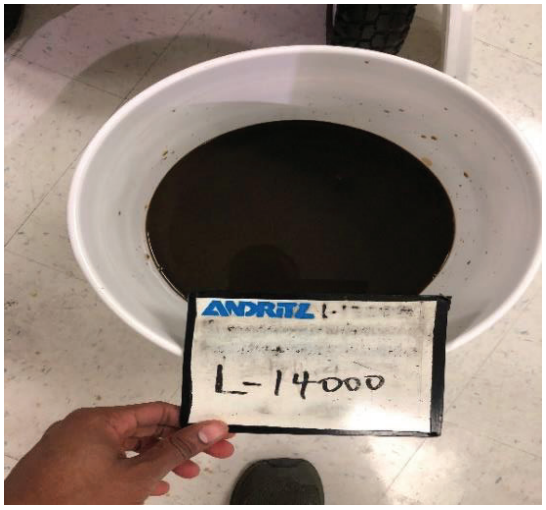
2.5 Conduct Screw Press (SP) simulations with the blended sludge.

a. 10% Lime Sludge Addition
b. 50% Lime Sludge Addition

3. Conclusions:

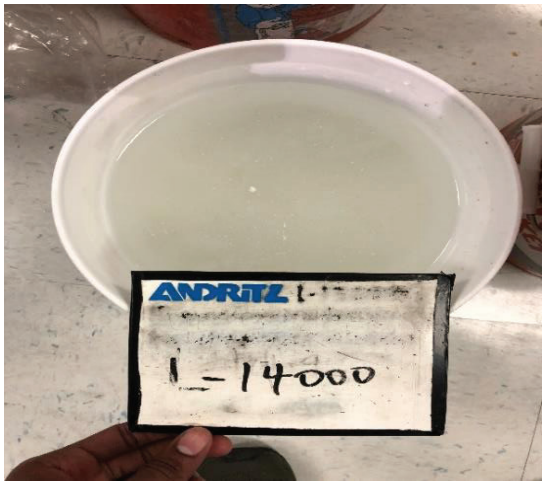
The results of laboratory testing indicated that:

3.1a The aluminum sulfate sludge sample contained 1.43 % Total Solids (TS) and Total Suspended Solids (TSS). The ash content of the sludge was at 52.9 % of TS. The Capillary Suction Time (CST) was at 57 seconds and the conductivity was at 0.4 mS/cm. When spun at 1,000 – 4,000 G's for 5 minutes the plug solids contained 2.4 – 4.1 %TS and had a spin-down volume of 55.2 – 32.9 %. The sludge had a small particle size with 50 % of the sludge being 17.3 microns or smaller.



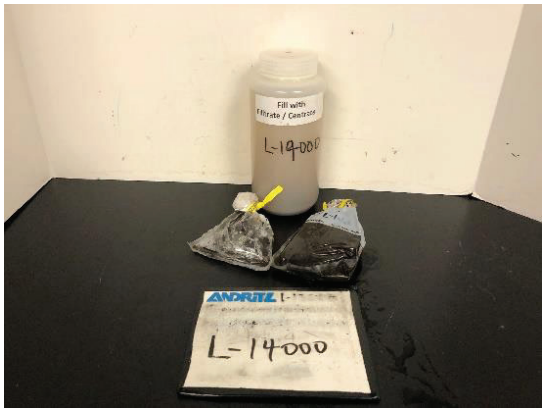
Aluminum Sulfate Sludge as Received

3.1b The lime sludge sample contained 11.0 %TS and TSS. The ash content of the sludge was at 98 % of TS. The CST was short at 8 seconds and the conductivity was at 0.3 mS/cm. When spun at 1,000 – 4,000 G's for 5 minutes the plug solids contained 52.9 – 59.2 %TS and had a spin-down volume of 13.9 – 12.0 %. The sludge had a small particle size with 50 % of the sludge being 14.5 microns or smaller.



Lime Sludge as Received

3.1c The cake sample contained 12.7 %TS and the filtrate sample contained 1280 mg/l. It was not specified what the lime/alum sludge blend ratio was at the time of sampling, however, based on these samples the BFP on-site is likely achieving a > 90% capture rate.



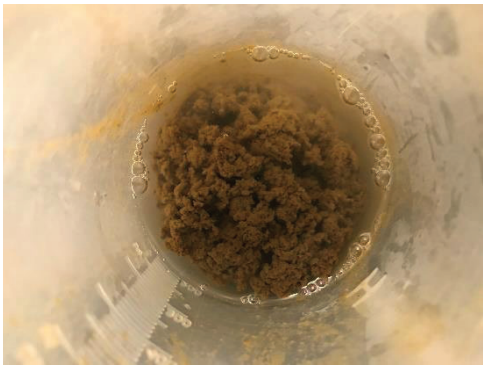
Cake and Filtrate Samples as Received

3.1d The lime sludge was added into the aluminum sulfate sludge at 10 % and 50 % mixes by dry solids weight. For the 10 % lime addition the feed solids contained 1.57 %TS and for the 50% addition 2.53 %TS.

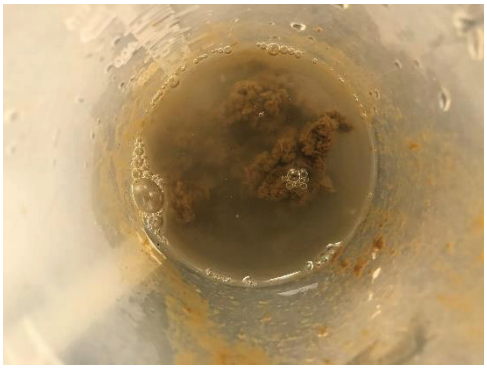
3.2 All polymer evaluations were conducted with the blended sludge samples at 10 % lime sludge addition or 50% lime sludge addition by dry solids weight. Multiple potable emulsion polymers were evaluated with these blended sludge samples. The most effective polymer was determined to be Polydyne A-6330. Depending on percent lime sludge addition and technology evaluated, the optimum dosage rate ranged from 5.7 – 27.7 active lbs/ton TSS. It was observed that higher percentages of lime sludge added into the alum sludge resulted in lower polymer dosage rates for each technology evaluated.

10% Lime Sludge: A-6330 at 13.9 active lbs/ton TSS

10% Lime Sludge: A-6330 at 27.7 active lbs/ton TSS



50% Lime Sludge: A-6330 at 5.7 active lbs/ton TSS



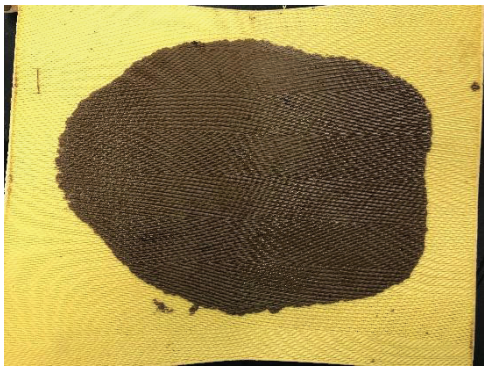
50% Lime Sludge: A-6330 at 14.3 active lbs/ton TSS

3.3 Belt Filter Press (BFP) simulation tests were conducted with the blended sludge samples. The ANDRITZ 1.0m SMX®-S8 BFP was effective at dewatering the sludge at varying throughput conditions. It was observed that higher percentages of lime sludge added into the alum sludge resulted in higher cake dryness and increased throughput.

3.3a At 10 % lime addition cake dryness of 17.3 – 14.3 %TS was achieved in the laboratory. Simulated throughputs ranged from 35 – 88 gpm, and meter (278 – 694 dry lbs/hr, m). Polydyne A-6330 was utilized at 13.9 active lbs/ton TSS.

BFP Cake

3.3b At 50 % lime addition cake dryness of 28.5 – 26.5 %TS was achieved in the laboratory. Simulated throughputs ranged from 36 – 101 gpm, and meter (460 – 1279 dry lbs/hr, m). Polydyne A-6330 was utilized at 5.7 active lbs/ton TSS.



BFP Cake

3.4 Centrifuge spin-down tests were conducted with the sludge samples. The sludge dewatered effectively at the varying G-Forces tested. Higher G-Forces and longer retention times resulted in higher cake dryness values achieved in the laboratory. It was observed that higher percentages of lime sludge added into the alum sludge also resulted in higher cake dryness.

3.4a At 10 % lime addition cake dryness of 18 – 26 %TS was achieved in the laboratory. Polydyne A-6330 was utilized at 23.1 active lbs/ton TSS.

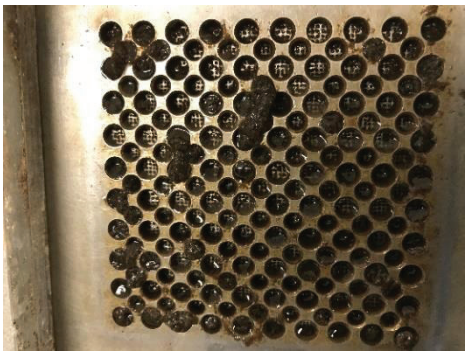
Centrifuge Spin-Down Cakes

3.4b At 50 % lime addition cake dryness of 33 – 42 %TS was achieved in the laboratory. Polydyne A-6330 was utilized at 11.5 active lbs/ton TSS.

Centrifuge Spin-Down Cakes

3.5 Screw Press (SP) simulations were conducted with the sludge samples. The sludge samples extruded some in the low pressure zones of the SP simulation, which indicates a lower achievable capture rate and pressure sensitive sludge. ANDRITZ recommends conducting on-site pilot testing to confirm results if SP technology is selected. The lack of coarse solids in the sludge and the lime sludge's settle-ability may negatively affect the SP performance during pilot testing.

3.5a At 10% lime addition cake dryness of 16.6 %TS was achieved in the laboratory. Polydyne A-6330 was utilized at 27.7 active lbs/ton TSS.



Extrusions on SP Screens

3.6b At 50 % lime addition cake dryness of 28.8 %TS was achieved in the laboratory. Polydyne A-6330 was utilized at 14.3 active lbs/ton TSS.

Extrusions on SP Screens

4. Analysis Results and Observations

4.1 Sample Analysis Results, Table 1

Sample Type	Alum Sludge	Lime Sludge
Total Solids* (%TS @ 105ºC)	1.43	11.0
Suspended Solids** (%SS @ 105ºC)	1.43	11.0
Plug Solids (%TS, @ 1000 G's and 5 min)	2.4	52.9
Plug Solids (%TS, @ 2000 G's and 5 min)	2.8	54.7
Plug Solids (%TS, @ 3000 G's and 5 min)	3.7	58.0
Plug Solids (%TS, @ 4000 G's and 5 min)	4.1	59.2
Spin Down Volume (%, 1000 G's, 5 min)	55.2	13.9
Spin Down Volume (%, 2000 G's, 5 min)	42.3	13.3
Spin Down Volume (%, 3000 G's, 5 min)	33.8	12.8
Spin Down Volume (%, 4000 G's, 5 min)	32.9	12.0
pH @ 20°C	5.9	10.0
Conductivity (mS/cm)	0.4	0.3
Specific Gravity	1.00	1.07
Solids Specific Gravity (Calculated)	1.00	2.40
Ash Content of Total Solids*** (% of TS)	52.9	98.0
Volatile Solids Content*** (% of TS)	47.1	2.0
Capillary Suction Time (sec)	57.2	8.2

Standard Methods:

***2540B Total Solids, ****2540D Total Suspended Solids, *****Fixed and Volatile Solids**

Sample Type	Alum Sludge		Lime Sludge	
Screened Solids:		Description		Description
+30 Mesh Fraction (% of SS)	<0.1	Low Solids	<0.1	Low Solids
30 x 50 Mesh Fraction (% of SS)	<0.1	Low Solids	<0.1	Low Solids
50 x100 Mesh Fraction (% of SS)	0.9	Low Solids	<0.1	Low Solids
100 x 140 Mesh Fraction (% of SS)	0.7	Low Solids	<0.1	Low Solids
140 x 230 Mesh Fraction (% of SS)	<0.1	Low Solids	<0.1	Low Solids
230 x 325 Mesh Fraction (% of SS)	<0.1	Low Solids	<0.1	Low Solids
-325 Mesh Fraction (% of SS)	98.4		>99	
Sludge Volume Index (SVI ml/g)	71		3	
Settled Solids (1000 ml @ 30 min)	1000		350	
Color	Brown		White	
Odor	Odorless		Light Musty	
BFP Cake Total Solids* (%TS @ 105°C)	12.7		-	
BFP Filtrate Suspended Solids** (mg/l)	1280		-	

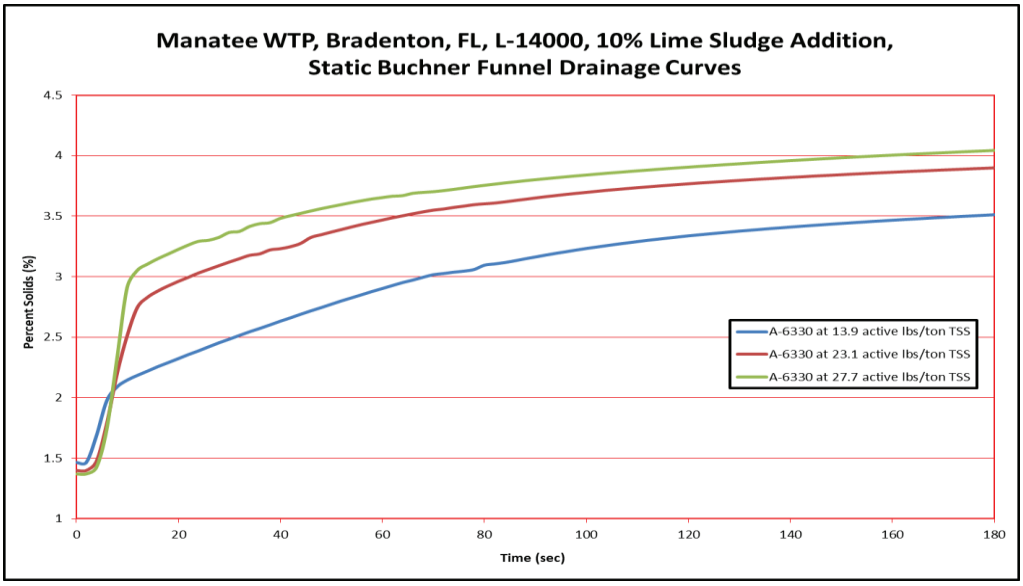
Standard Methods:

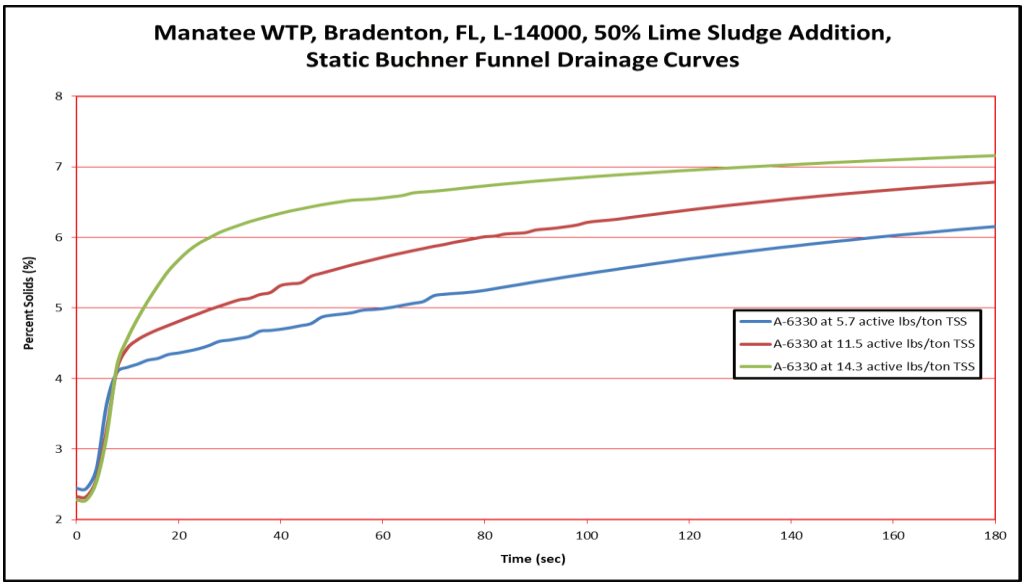
***2540B Total Solids, ****2540D Total Suspended Solids, *****Fixed and Volatile Solids**

5. Polymer Testing and Observations

5.1 Emulsion Polymers Tested, Table 2

Polydyne	A-6330, A-6360, A-210P, C-6210
BASF	E30
Solenis	A-3040LTR





6. Belt Filter Press Test Results and Observations

6.1 Laboratory BFP Test Results, Table 3

Blend Type	10% Lime Sludge Addition		
BFP Type	1.0m SMX®-S8 BFP		
Test Number	1	2	3
Recommended Polymer	A-6330		
Makeup Polymer Dilution (%)	0.5		
Neat Polymer Dosage (lbs/ton TSS)	47.8		
Active Polymer Dosage (lbs/ton TSS)	13.9		
Recommended Belt Type	6093		
Throughput (lb TSS/hr)	278	467	694
Throughput (GPM)	35	59	88
Belt Speed (FPM)	5	10	15
Cake Thickness (mm)	8	8	8
Cake Solids (%TS)	17.3	14.5	14.3
Anticipated Capture Rate (%SS ± 1)	95		

Laboratory BFP Test Results, Table 4

Blend Type	50% Lime Sludge Addition		
BFP Type	1.0m SMX®-S8 BFP		
Test Number	1	2	3
Recommended Polymer	A-6330		
Makeup Polymer Dilution (%)	0.5		
Neat Polymer Dosage (lbs/ton TSS)	19.8		
Active Polymer Dosage (lbs/ton TSS)	5.7		
Recommended Belt Type	6093		
Throughput (lb TSS/hr)	460	867	1279
Throughput (GPM)	36	69	101
Belt Speed (FPM)	5	10	15
Cake Thickness (mm)	8	8	8
Cake Solids (%TS)	28.5	26.9	26.5
Anticipated Capture Rate (%SS ± 1)	95		

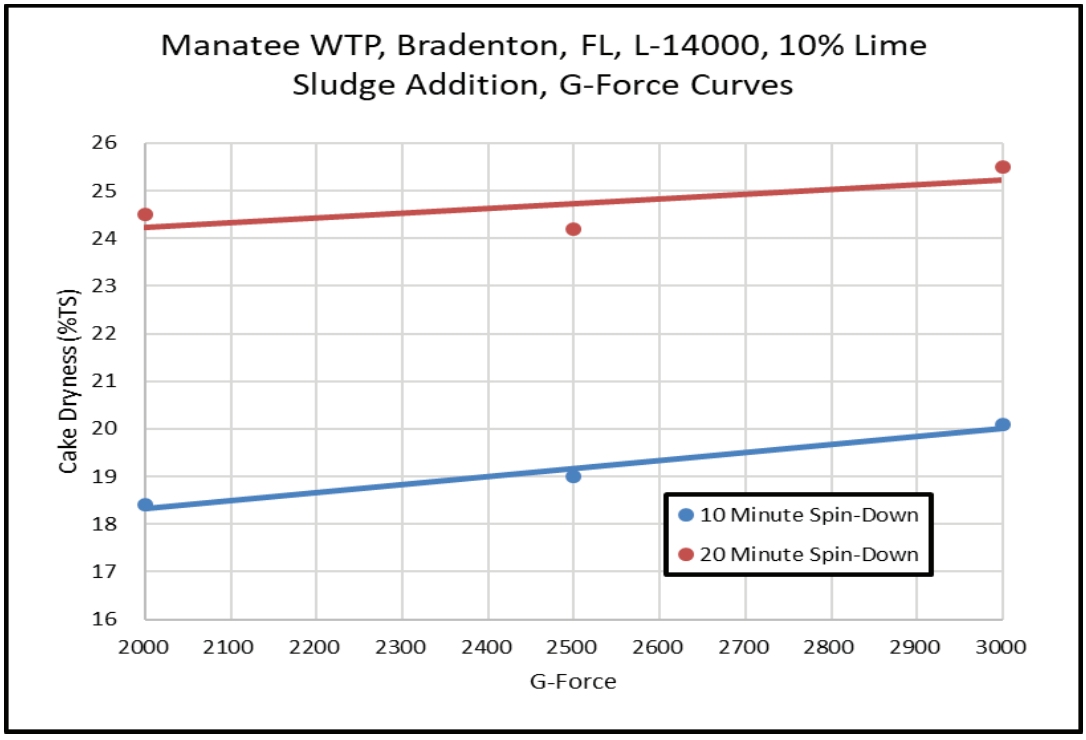
7. Centrifuge Test Results and Observations

7.1 Laboratory Centrifuge Test Results, Table 5

10% Lime Sludge Addition						
Spin Time (Minutes)	G Force	Type of Test	Polymer Type	Polymer Dosage Rate (active lbs/ton)	Plug Solids (%TS)	Anticipated Cake Solids (%TS)
5	3000	Glass Tube	None	None	4.0	20 – 26
5	3000	Glass Tube	A-6330	23.1	6.2	
10	3000	Screen	A-6330	23.1	20.1	
15	3000	Screen	A-6330	23.1	23.0	
20	3000	Screen	A-6330	23.1	25.5	
Anticipated Capture Rate ≥ 95						

Laboratory Centrifuge Test Results, Table 6

10% Lime Sludge Addition G-Force						
Spin Time (Minutes)	G Force	Type of Test	Polymer Type	Polymer Dosage Rate (active lbs/ton)	Plug Solids (%TS)	Anticipated Cake Solids (%TS)
10	2000	Screen	A-6330	23.1	18.4	18 – 26
10	2500	Screen	A-6330	23.1	19.0	
10	3000	Screen	A-6330	23.1	20.1	
20	2000	Screen	A-6330	23.1	24.5	
20	2500	Screen	A-6330	23.1	24.2	
20	3000	Screen	A-6330	23.1	25.5	
Anticipated Capture Rate ≥ 95						

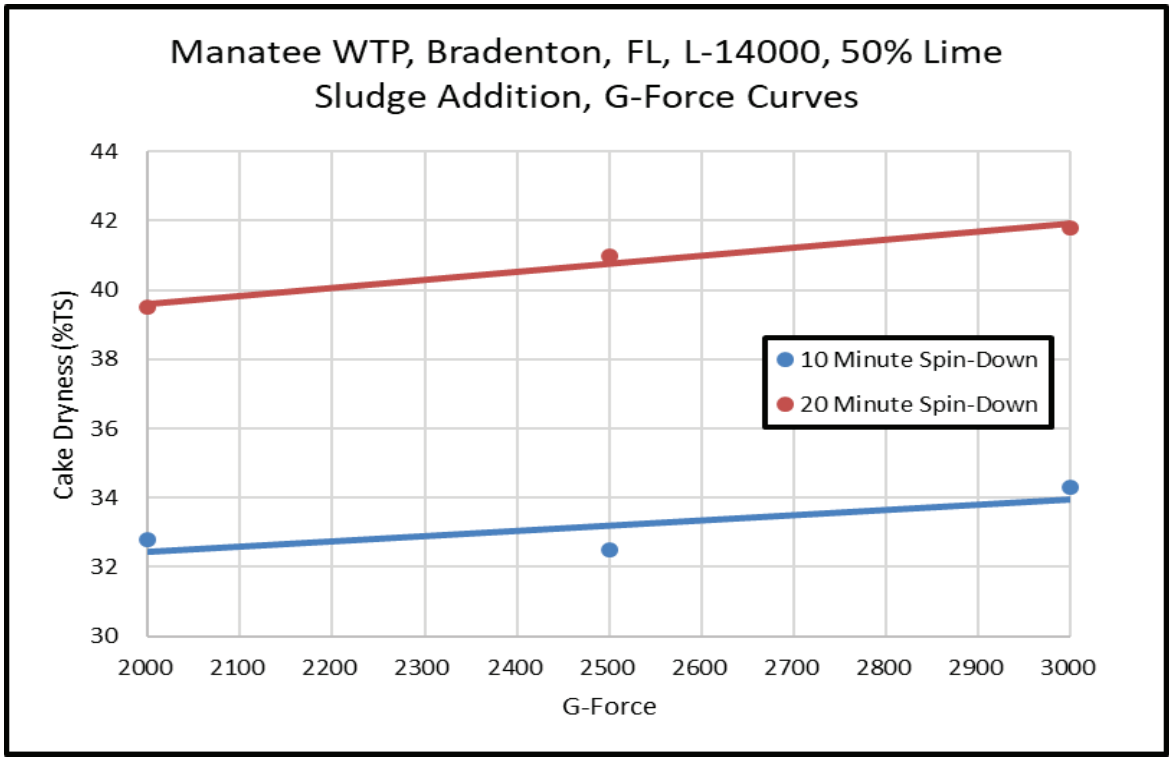


Laboratory Centrifuge Test Results, Table 7

50% Lime Sludge Addition						
Spin Time (Minutes)	G Force	Type of Test	Polymer Type	Polymer Dosage Rate (active lbs/ton)	Plug Solids (%TS)	Anticipated Cake Solids (%TS)
5	3000	Glass Tube	None	None	9.2	34 - 42
5	3000	Glass Tube	A-6330	11.5	12.8	
10	3000	Screen	A-6330	11.5	34.3	
15	3000	Screen	A-6330	11.5	38.3	
20	3000	Screen	A-6330	11.5	41.8	
Anticipated Capture Rate ≥ 95						

Laboratory Centrifuge Test Results, Table 8

50% Lime Sludge Addition G-Force						
Spin Time (Minutes)	G Force	Type of Test	Polymer Type	Polymer Dosage Rate (active lbs/ton)	Plug Solids (%TS)	Anticipated Cake Solids (%TS)
10	2000	Screen	A-6330	11.5	32.8	33 - 42
10	2500	Screen	A-6330	11.5	32.5	
10	3000	Screen	A-6330	11.5	34.3	
20	2000	Screen	A-6330	11.5	39.5	
20	2500	Screen	A-6330	11.5	41.0	
20	3000	Screen	A-6330	11.5	41.8	
Anticipated Capture Rate ≥ 95						



8. Screw Press Test Results and Observations

8.1 Laboratory Screw Press Test Results, Table 9

Blend Type	10% Lime Sludge	50% Lime Sludge
Recommended Polymer	A-6330	
Makeup Polymer Concentration (%)	0.5	
Polymer Dosage (Neat lbs/ton TSS)	95.5	49.4
Polymer Dosage (Active lbs/ton TSS)	27.7	14.3
Maximum Applied Pressure (psia)	15	
Total Time (min)	20	
Cake Thickness (mm)	10	10
Cake Solids (%TS)	16.6	28.8
Anticipated Capture Rate (%SS)	87 – 93	

9. Summary:

The sludge samples were effectively dewatered with BFP and Centrifuge technology at multiple blend ratios in the laboratory. Screw Press (SP) technology was effective in the laboratory, however, pilot testing is recommended if this technology is selected. It was observed that a higher percentage of lime sludge resulted in overall lower polymer dosage rates and higher cake dryness with each technology evaluated.

Attached are photographs of the screen analysis, Particle Size Distribution reports and lab sample data sheets for reference and comparison.

10. Sample Disposition

The remaining untested sludge will be disposed in accordance with local regulations.

Report Prepared by : Brandon Parker
Title : Process Engineer

BP/sk
Attach.

Copies of this report have been distributed to the following:

Original +1cc/ Lab
1 cc/ Bruce SoRelle
Sig Hausegger
Job 1571

11. Attachments

11.1 Photographs – Alum Sludge

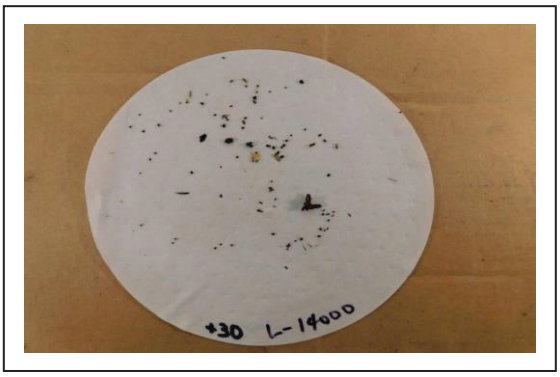


Photo #1: +30 Mesh Fraction

Photo #2: 30X50 Mesh Fraction

Photo #3: 50X100 Mesh Fraction

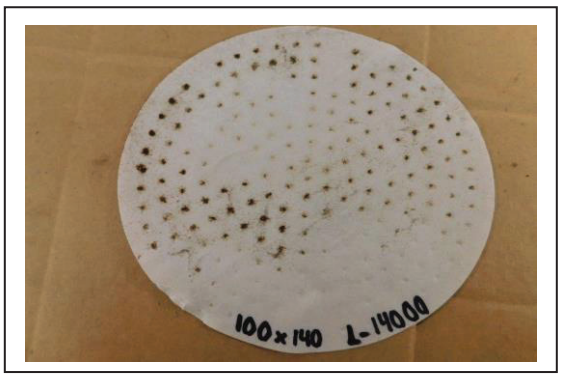


Photo #4: 100X140 Mesh Fraction

11.2 Particle Size Distribution – Alum Sludge

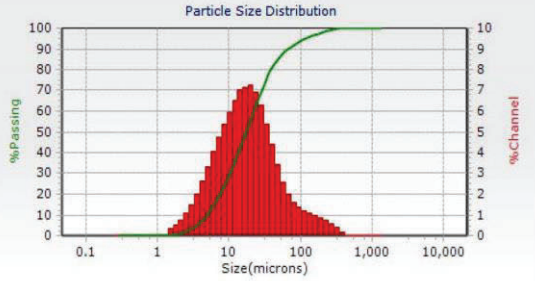
Microtrac — Total Solutions in Particle Characterization

- Particle Size Analysis -

C:\Microtrac\FLEX 11.0.0.3\Databases\Andritz 2.MDB

-Tabular Data -

Size(um)	%Chan	%Pass	Size(um)	%Chan	%Pass
1408	0.00	100.00	3.27	1.47	4.07
1184	0.00	100.00	2.750	1.06	2.60
995.6	0.00	100.00	2.312	0.73	1.54
837.2	0.00	100.00	1.945	0.49	0.81
704.0	0.00	100.00	1.635	0.32	0.32
592.0	0.00	100.00	1.375	0.00	0.00
497.8	0.00	100.00	1.156	0.00	0.00
418.6	0.16	100.00	0.972	0.00	0.00
352.0	0.42	99.84	0.818	0.00	0.00
296.0	0.55	99.42	0.688	0.00	0.00
248.9	0.72	98.87	0.578	0.00	0.00
209.3	0.87	98.15	0.486	0.00	0.00
176.0	0.99	97.28	0.409	0.00	0.00
148.0	1.08	96.29	0.344	0.00	0.00
124.5	1.19	95.21	0.2890	0.00	0.00
104.7	1.35	94.02			
88.00	1.61	92.67			
74.00	2.00	91.06			
62.23	2.59	89.06			
52.33	3.41	86.47			
44.00	4.38	83.06			
37.00	5.39	78.68			
31.11	6.27	73.29			
26.16	6.94	67.02			
22.00	7.26	60.08			
18.50	7.15	52.82			
15.56	7.01	45.67			
13.08	6.51	38.66			
11.00	5.94	32.15			
9.25	5.36	26.21			
7.78	4.75	20.85			
6.54	4.07	16.10			
5.50	3.34	12.03			
4.62	2.62	8.69			
3.89	2.00	6.07			



- Measurement Info -

Title	
-Manatee WTP Alum Sludge	
Identifiers	
-L-14000	
-60us	
Database Record	1301
Run Number	Avg Of 2
Date	4/2/2019
Time	4:14 PM
Acquired Date	4/2/2019
Acquired Time	4:14 PM
Serial Number	S5553
Sample Cell ID	2420
Calculated Data	
Above Residual	0
Below Residual	0
Loading Factor	0.0431
Transmission	0.945
RMS Residual	0.461%
Recalculation Status	
DB-Meas : . Original :	

-SOP Info-

ALUM SLUDGE(*)	
Timing	
Setzero Time	30 (sec)
Run Time	30 (sec)
Number of Runs	2
Multi-Run Delay	0 (min)
Delay First Meas.	Disabled
Analysis	
Alum Sludge	
Refractive Index	1.58
Transparency	Transp
Shape	Irregular
WATER	
Refractive Index	1.33
Options:	
Filter	Enabled
Analysis Gain	Default(2)
Analysis Mode	S3000/3500
Perspective	
Progression	Standard
Distribution	Volume
Upper Edge(um)	1408
Lower Edge(um)	0.243
Residuals	Disabled

Summary	
Data	Value
MV(um):	31.83
MN(um):	3.19
MA(um):	11.18
CS:	5.37E-01
SD:	19.72
Mz:	23.25
si:	27.59
Ski:	0.610
Kg:	2.010

Percentiles	
%Tile	Size(um)
10.00	4.97
20.00	7.56
30.00	10.35
40.00	13.53
50.00	17.29
60.00	21.96
70.00	28.34
80.00	38.84
90.00	67.19
95.00	120.8

Peaks Summary		
Dia(um)	Vol%	Width
17.29	100	39.44

FLEX
11.0.0.3

- Notes -

Sample System(Wet)	
Number of Rinses	3
Flow Rate (%)	75%
Deaeration Cycles	0
Ultrasonic Power (W)	25 W
Ultrasonic Time (sec)	30 S

Particle Size Distribution – Lime Sludge

Microtrac — Total Solutions in Particle Characterization

- Particle Size Analysis -

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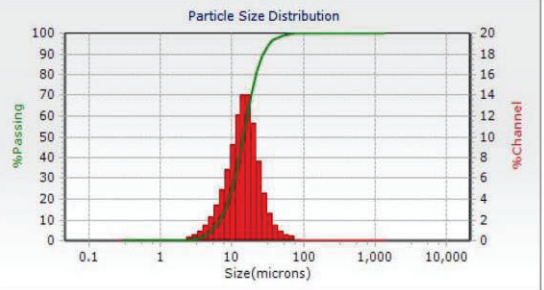
-Tabular Data -

Size(um)	%Chan	%Pass	Size(um)	%Chan	%Pass
1408	0.00	100.00	3.27	0.57	0.95
1184	0.00	100.00	2.750	0.38	0.38
995.6	0.00	100.00	2.312	0.00	0.00
837.2	0.00	100.00	1.945	0.00	0.00
704.0	0.00	100.00	1.635	0.00	0.00
592.0	0.00	100.00	1.375	0.00	0.00
497.8	0.00	100.00	1.156	0.00	0.00
418.6	0.00	100.00	0.972	0.00	0.00
352.0	0.00	100.00	0.818	0.00	0.00
296.0	0.00	100.00	0.688	0.00	0.00
248.9	0.00	100.00	0.578	0.00	0.00
209.3	0.00	100.00	0.486	0.00	0.00
176.0	0.00	100.00	0.409	0.00	0.00
148.0	0.00	100.00	0.344	0.00	0.00
124.5	0.00	100.00	0.2890	0.00	0.00
104.7	0.00	100.00			
88.00	0.16	100.00			
74.00	0.43	99.84			
62.23	0.61	99.41			
52.33	0.94	98.80			
44.00	1.54	97.86			
37.00	2.65	96.32			
31.11	4.60	93.67			
26.16	7.64	89.07			
22.00	11.31	81.43			
18.50	14.02	70.12			
15.56	14.06	56.10			
13.08	12.10	42.04			
11.00	9.28	29.94			
9.25	6.81	20.66			
7.78	4.89	13.85			
6.54	3.41	8.96			
5.50	2.26	5.55			
4.62	1.44	3.29			
3.89	0.90	1.85			



- Measurement Info -

Title	
Manatee WTP	
Identifiers	
-L-14000	
-60us	
Database Record	1295
Run Number	Avg Of 2
Date	4/2/2019
Time	4:00 PM
Acquired Date	4/2/2019
Acquired Time	4:00 PM
Serial Number	S5553
Sample Cell ID	2420
Calculated Data	
Above Residual	0
Below Residual	0
Loading Factor	0.0257
Transmission	0.960
RMS Residual	0.476%
Recalculation Status	
DB Meas : : Original :	

-SOP Info-

CALCIUM CARBONATE(*)	
Timing	
Setzero Time	30 (sec)
Run Time	30 (sec)
Number of Runs	2
Multi-Run Delay	0 (min)
Delay First Meas.	Disabled
Analysis	
Calcium Carbonate	
Refractive Index	1.68
Transparency	Transp
Shape	Irregular
WATER	
Refractive Index	1.33
Options:	
Filter	Enabled
Analysis Gain	Default(2)
Analysis Mode	S3000/3500
Perspective	
Progression	Standard
Distribution	Volume
Upper Edge(um)	1408
Lower Edge(um)	0.243
Residuals	Disabled

Summary	
Data	Value
MV(um):	16.29
MN(um):	5.94
MA(um):	11.95
CS:	5.02E-01
SD:	7.44
Mz:	15.29
si:	8.00
Ski:	0.2596
Kg:	1.191

Percentiles	
%Tile	Size(um)
10.00	6.82
20.00	9.12
30.00	11.01
40.00	12.74
50.00	14.46
60.00	16.31
70.00	18.47
80.00	21.47
90.00	26.93
95.00	33.56

Peaks Summary		
Dia(um)	Vol%	Width
14.46	100	14.87

FLEX

11.0.0.3

- Notes -

Sample System(Wet)	
Number of Rinses	4
Flow Rate (%)	70%
Deaeration Cycles	0
Ultrasonic Power (W)	30 W
Ultrasonic Time (sec)	60 S

11.3 Lab Sample Data Sheets

Laboratory Report

MANATEE COUNTY, FL

Report No.: L-14065
Opportunity No.: 3116191
Application: 2997-0017
Product Home: 502, 527, 546
Product Group: 4417, 4418
Division: 41

Date Report Issued: June 5, 2019
Date Sample Received: May 23, 2019
Author: Daniel Osagie
Copy: Hausegger, SoRelle

Manatee Water Treatment Plant
Mr. Kyle Ward
1810 1st Street
Bradenton FL 34208
941-708-6350

ANDRITZ Rep.: Enviro Sales of Florida
Mr. Chuck Hlavach
1101 U.S 27 South
Sebring, FL 33870
941-915-4861
chuck@envirosalesofflorida.com

ANDRITZ Separation Inc.
Mr. Bruce SoRelle
1010 Commercial Blvd S.
Arlington, TX 76001
817-266-9732
bruce.sorelle@andritz.com
www.andritz.com

ENGINEERED SUCCESS

TABLE OF CONTENT

ANDRITZ LABORATORY REPORT

COMPANY	:	Manatee County Florida Bradenton, FL
PROJECT	:	Manatee Water Treatment Plant
SAMPLE TYPE	:	Aluminum Sulfate Sludge
DATE	:	June 5, 2019

1. Introduction:

Five (5) gallons of sample were received in the Andritz laboratory from the Manatee Water Treatment Plant (WTP) in Bradenton, FL on May 23, 2019. The sample was sent in for dewatering evaluation using Screw Press (SP), Belt Filter Press (BFP) and Centrifuge technologies. Two (2) sludge samples were recieved earlier in March 2019; an alum sludge sample and a lime sludge sample. Both samples were blended together and evaluated for dewaterability using the three (3) technologies stated above. The current sample is expected to be evaluated as a stand-alone sludge without blending with lime.

The facility has a design flow rate of 84 million gallons per day (mgd) and averages at approximately 30 mgd. There are two (2) separate water treatment trains at this plant; the first treats surface water using aluminum sulfate, the second treats groundwater using lime. The plant currently blends the aluminum sulfate and lime sludge produced and dewaters it with a mobile BPF. A cake and a filtrate sample from this BFP were also recieved in the ANDRITZ labortory. The cake was 14.4 %TS and filtrate was 0.014 %TSS.

2. Objectives:

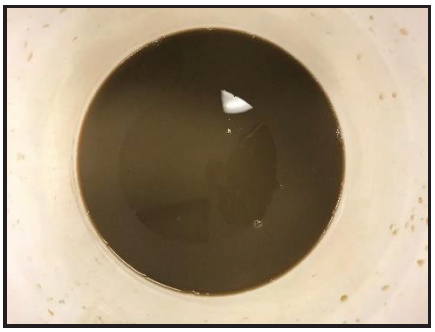
The specific objectives of these laboratory tests were to:

1. Analyze the sample as received for physical properties.
2. Select an effective polymer for dewatering the alum sludge.
3. Conduct Belt Filter Press (BFP) simulations on the sample.
4. Conduct Centrifuge spin-down tests on the sample.
5. Conduct Screw Press (SP) simulations on the sample.

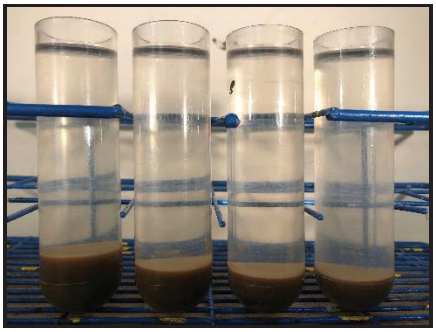
3. Conclusions:

The results of laboratory testing indicated that:

1. The sample was brown in color and odorless. It contained 0.5 % Total Solids (TS) and 0.5 % Total Suspended Solids (TSS). The ash content was 66.2 %TS. The pH of the sample was 6.1. When spun at 1000 – 4000 G's for 5 minutes, the sample produced plug solids from 2.4 – 4.4 %TS and solids volumes of 18.6 – 8.7 %. A particle size analysis showed that the sludge sample contained very fine solids with 95 % of the particles being less than 40 microns.

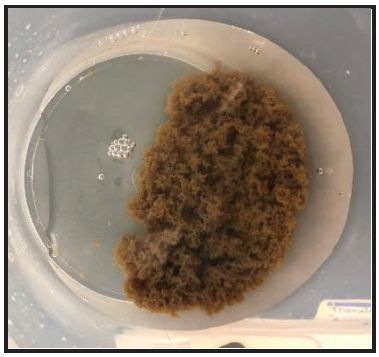


Sample as recieved



Sample spundown at 1000 – 4000 G's respectively

2. Polymer evaluations were conducted using potable grade emulsion polymers.

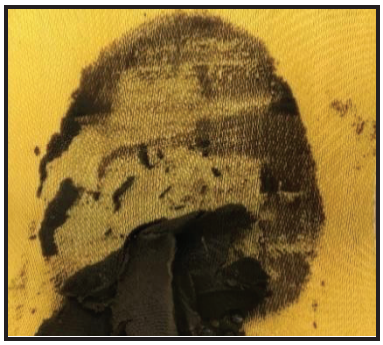


Sample conditioned with A6360

3. Belt Filter Press (BFP) simulation was conducted on the sample using the Lab scale simulator. Sludge extrusion through the weaves of the BFP was observed. A low flowrate and beltspeed were employed in order to minimize the extrusion. The BFP formed a thin, sticky cake that was difficult to doctor off the belt. The cake produced was 18.4 %TS.

Extrusion through Belt Filter

BFP Cake



Doctored BFP cake

4. Centrifuge spin-down tests were conducted on the sludge samples. The sludge dewatered effectively at the varying G-Forces tested. Higher G-forces and longer retention times resulted in higher cake dryness. Cake dryness between 17 – 22 %TS were achieved.

5. Screw Press (SP) technology proved to be a diffiult option for dewatering the sample. Heavy extrusion was observed through the screens. Higher pressures could not be applied due to the extrusion. The SP produced a cake that was 9.9 %TS and cannot be recommended for this sludge.

SP test showing heavy extrusion

4. Analysis Results and Observations

4.1 Sample Analysis Results, Table 2

Lab Sample Number	L-14065	L-14000	
Date Recieved	5/23/19	3/14/19	
Total Solids* (%TS @ 105°C)	0.5	1.4	
Suspended Solids** (%SS @ 105°C)	0.5	1.4	
Plug Solids (%TS, @ 1000 G's and 5 min)	2.4	2.4	
Plug Solids (%TS, @ 2000 G's and 5 min)	3.2	2.8	
Plug Solids (%TS, @ 3000 G's and 5 min)	4.3	3.7	
Plug Solids (%TS, @ 4000 G's and 5 min)	4.4	4.1	
Spin Down Volume (%, 1000 G's, 5 min)	18.6	55.2	
Spin Down Volume (%, 2000 G's, 5 min)	14.3	42.3	
Spin Down Volume (%, 3000 G's, 5 min)	11.9	33.8	
Spin Down Volume (%, 4000 G's, 5 min)	8.7	32.9	
pH	6.1	5.9	
Conductivity (µS/cm)	246	366	
Specific Gravity	1.0	1.0	
Solids Specific Gravity (Calculated)	1.0	1.0	
Ash Content of Total Solids*** (% of TS)	62.2	52.9	
Volatile Solids Content*** (% of TS)	37.2	47.1	
Capillary Suction Time (sec)	33.4	57.2	
Screened Solids:			Description
+30 Mesh Fraction (% of SS)			Low Solids
30 x 50 Mesh Fraction (% of SS)			Low Solids
50 x100 Mesh Fraction (% of SS)			Low Solids
100 x 140 Mesh Fraction (% of SS)			Low Solids
140 x 230 Mesh Fraction (% of SS)			Low Solids
230 x 325 Mesh Fraction (% of SS)			Low Solids
-325 Mesh Fraction (% of SS)			
Sludge Volume Index (SVI ml/g)	183	71	
Settled Solids (1000 ml @ 30 min)	1000	1000	
Color	Brown	Brown	
Odor	None	None	

EPA Standard Methods:

***1684 Total Solids, ****160.2 Total Suspended Solids, *****Fixed and Volatile Solids**

4.2 Observations and Comments

- The current sample contained approximately one-third (⅓) the amount of Total Solids as the previous sample. Spin-down volumes at each G-force for the current sample also reflect a similar trend.
- Ash content was higher on the current sample compared with the older sample.

5. Polymer Testing and Observations:

5.1 Polymers Tested, Table 2

Polydyne	A210P, A6320, A6330, A6360
Solenis	A3040LTR

6. Belt Filter Press Test Results and Observations:

6.1 Laboratory BFP Test Results, Table 3

Lab Sample Number	L-14065	L-14000	
Lime Concentration	0% Lime	10% Lime	50% Lime
Recommended Polymer	A6360	A6360	A6360
Makeup Polymer Dilution (%)	0.5	0.5	0.5
Neat Polymer Dosage (lbs/ton TS)	37.3	47.8	19.8
Active Polymer Dosage (lbs/ton TS)	10.8	13.9	5.7
Recommended Belt Type	GSM 6093	GSM 6093	GSM 6093
BFP Type	1.0m SMX®-S8		
Throughput (lb TS/hr)	275	278	460
Throughput (GPM)	100	25	36
Solids Capture (%SS)	~ 85	95	95
Belt Speed (FPM)	5	5	5
Cake Thickness (mm)	2	8	8
Cake Solids (%TS)	18.6	17.3	28.5

6.2 Comments and Observations:

- The thin cake produced was as a result of the significant extrusions through the weaves of the belt filter, a high flowrate, and a limited amount of sludge sample available for the test. At a lower flowrate and higher amount of Feed Solids a thicker cake can be achieved.

7. Centrifuge Test Results and Observations:

7.1 Laboratory Centrifuge Test Results, Table 4

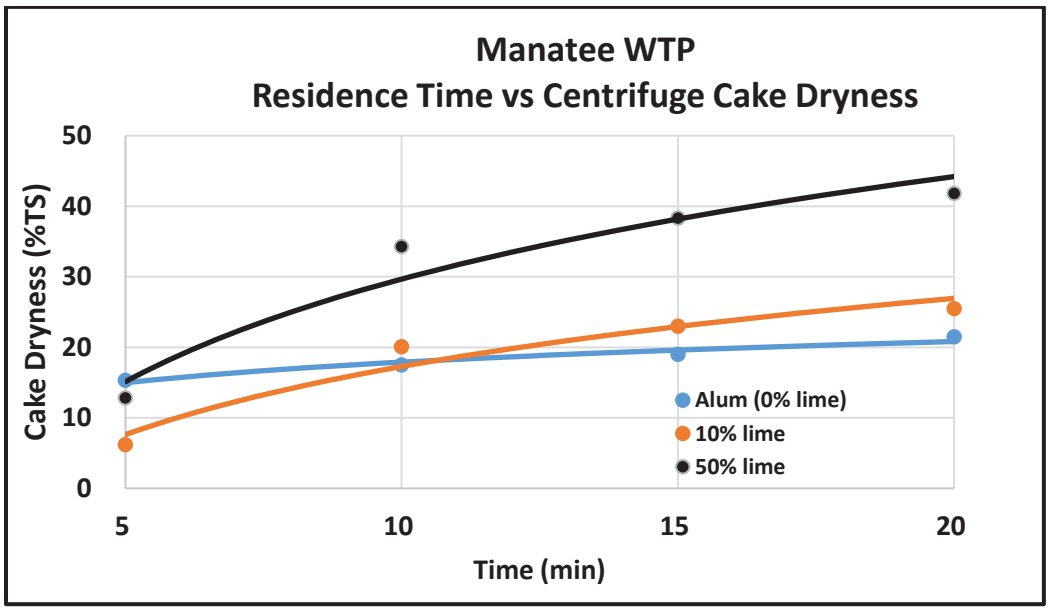
L-14065 Alum Sludge (0% Lime)						
Spin Time (Minutes)	G Force	Type of Test	Polymer Type	Polymer Dosage Rate (active lbs/ton)	Plug Solids (%TS)	Anticipated Cake Solids (%TS)
5	3000	Screen	A6360	10.6	15.3	17 – 22
10	3000	Screen	A6360	10.6	17.5	
15	3000	Screen	A6360	10.6	19.0	
20	3000	Screen	A6360	10.6	21.5	

Table 5

L-14065 Alum Sludge (0% Lime) (G-Force Variation)						
Spin Time (Minutes)	G Force	Type of Test	Polymer Type	Polymer Dosage Rate (active lbs/ton)	Plug Solids (%TS)	Anticipated Cake Solids (%TS)
10	2000	Screen	A6360	10.6	16.3	16 – 22
10	2500	Screen	A6360	10.6	17.1	
10	3000	Screen	A6360	10.6	17.5	
20	2000	Screen	A6360	10.6	20.2	
20	2500	Screen	A6360	10.6	21.0	
20	3000	Screen	A6360	10.6	21.5	

Table 6

				L-14065	L-14000	
Spin Time (Minutes)	G Force	Type of Test	Polymer Type	Alum Sludge (0% Lime)	Alum Sludge (10% Lime)	Alum Sludge (50% Lime)
5	3000	Screen	A6360	15.3	6.2	12.8
10	3000	Screen	A6360	17.5	20.1	34.3
15	3000	Screen	A6360	19.0	23.0	38.3
20	3000	Screen	A6360	21.5	25.5	41.8



7.2 Observations and Comments

- As observed from the graph above, at higher lime blend ratios the residence time has a greater effect on cake dryness. For the alum sludge sample which contained no lime (L-14065), residence time had a lower effect on cake dryness. This means that with increasing lime concentration, a change in flowrate to the centrifuge may affect the cake dryness more significantly.

8. Screw Press Test Results and Observations:

8.1 Laboratory Screw Press Test Results, Table 6

Lab Sample Number	L-14065	L-14000	
Lime Concentration	0% Lime	10% Lime	50% Lime
Recommended Polymer	A6360	A6360	A6360
Makeup Polymer Concentration (%)	0.5	0.5	0.5
Polymer Dosage (Neat lbs/ton Ts)	36.3	95.5	49.4
Polymer Dosage (Active lbs/ton Ts)	10.5	27.7	14.3
Maximum Applied Pressure (psia)	1	15	
Total Time (min)	20	20	
Solids Capture (%SS)	< 60	87 – 93	
Cake Thickness (mm)	3	10	10
Cake Solids (%TS)	9.9	16.6	28.8

8.2 Observations and Comments

- Heavy extrusion was observed at a very low pressure. Higher pressures could not be applied to the sludge leading to the low cake dryness produced.

9. Summary:

The sludge sample was very low on Total Solids (%TS) content. At 0.5 %TS, L-14065 contained one-third the amount of Total Solids content as L-14000, a sample recieved earlier in the lab.

For the stand-alone alum sludge with no lime addition, centrifuge technology proved the most effective of all three (3) technologies evaluated. The BFP worked as well; however, the technology may be ineffective at higher flowrates. Furthermore, BFP cake produced was difficult to doctor and solids capture rate was low. The SP technology is not feasible for dewatering the alum sludge as is.

Blending the sample with lime would improve dewaterability across all three (3) technologies evaluated. The effects of blending the alum sludge with lime are detailed in a previous lab report (L-14000).

10. Sample Disposal:

The remaining untested sludge will be disposed in accordance with local regulations.

Attached are photographs of the lab sample data sheets and particle size distribution for reference and comparison.

Report Prepared by : Daniel Osagie
Title : Process Engineer

DO/sk

Attach.

Copies of this report have been distributed to the following:

Original +1cc/ Lab
1 cc/ Bruce SoRelle
Sig Hausegger

11. Attachments:

11.1 Lab Sample Data Sheets

PLEASE CHECK ALL BOXES THAT APPLY

1) Plant Influent

Design Flow (MGD):_____ Average Flow (MGD):_____
Average Inlet NTU: 2.08 Inlet NTU Range:_____
Average Inlet %SS:_____ Inlet %SS Range:_____

Water Source

- ☐ River
- ☑ Lake
- ☑ Reservoir
- ☐ Groundwater
- ☐ Saltwater
- ☐ Other_____

2) Headworks

- ☐ Fine Screen
- ☐ Coarse Screen (Trash Rack)
- ☐ Microstrainer
- ☐ Other_____

N/A

3) Treatment

- ☐ Ferric Chloride
- ☐ Ferric Sulfate
- ☑ Aluminum Sulfate
- ☐ Poly-Aluminum Chloride (PAC)
- ☐ Lime
- ☐ Sodium Aluminate
- ☑ Activated Carbon
  - ☑ Powder ☐ Granular
  - Activated Carbon in sludge (% of Total Solids) Used during algae events, N/A currently.
- ☐ Other_____

temporary for now

4) Sludge Dewatering

- ☑ Belt Filter Press
- ☐ Centrifuge
- ☐ Vacuum Filter
- ☐ Plate and Frame
- ☑ Drying Bed
- ☐ Other / None_____

Throughput (Dry Tons/day) ~16,000 lb ≈ 8 tons
(Gallons per minute) 400 gpm per the flowmeter which may be inaccurate.
Discharge Solids (%TS)_____

Polymer Type ☑ Emulsion ☐ Dry ☐ Mannich
Polymer Name_____
Polymer Dosage (lbs/ton)_____

Chemical Addition prior to Polymer injection

- ☐ Ferric
- ☐ Lime
- ☐ Alum
- ☐ None
- ☐ Other_____

No polymer used typically for drying beds. Current polymer is unknown.

Purpose for Laboratory Evaluation (please check): SEE ATTACHED REPORT FOR REFERENCE.

- ☐ Preparation for Demonstration Testing
- ☐ Performance Evaluation for Existing Installation ANDRITZ Job #_____
- ☑ Performance Evaluation for Sales Quotation
- ☐ Other_____

Testing Objectives: ☑ Screw Press

Equipment to be tested: ☑ Belt Filter Press ☑ Centrifuge ☐ Gravity Belt Thickener

Sludge Flow Rate (GPM):_____ Dry Tons Per Day:_____

Discharge Solids (%TS):_____ Operating Hours Per Week:_____

Additional Objectives:_____

_____

Hazardous Materials:

Hazardous or Non-hazardous: OSHA - EPA - DOT.

If Hazardous the following must be completed or sample will not be received:

- Prior notification to authorized ANDRITZ Laboratory personnel 45 days before sample shipment.
  (Per EPA CFR 40 Regulations)
- MSDS supplied.
- List hazardous components and relative concentration and/or Chemical Analysis Data if available

_____

_____

I acknowledge that the information provided above is truthful and accurate to the best of my knowledge.

Name: Kyle Ward Title:_____

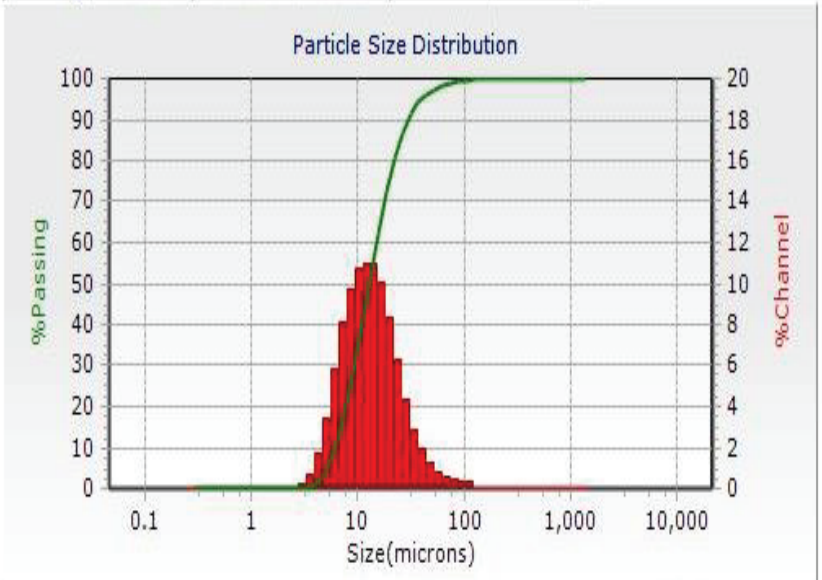
Signature: Kyle Ward Date: 5/22/19

11.2 Particle Size Distribution

Summary Data | Tabular Data | Notes/Warnings | Raw Data | Setzero

Summary		Percentiles		Size Percent		Peaks Summary		
Data	Value	%Tile	Size(um)	Size(um)	%Tile	Dia(um)	Vol%	Width
MV(um):	16.47	10.00	6.23			12.8	100	16.75
MN(um):	6.69	20.00	7.79					
MA(um):	11.18	30.00	9.30					
CS:	5.37E-01	40.00	10.93					
SD:	8.37	50.00	12.80					
		60.00	14.98					
Mz:	14.64	70.00	17.71					
si:	9.38	80.00	21.65					
Ski:	0.445	90.00	29.35					
Kg:	1.286	95.00	39.52					

Units of Measure: microns Notation: STD
SW Version: 11.0.0.3



Bar->Line
Large->Small
Restore Graph
Keep
Retained

%Chan

Distribution: Volume Progression: Standard %Passing

Microtrac
Total Solutions in Particle Characterization

PRIME SOLUTION ROTARY FAN PRESS® PILOT TESTING REPORT FOR SLUDGE DEWATERING

Manatee County WTP
(Bradenton, FL)

Testing Date(s): August 27th – August 28th, 2019

PRIME SOLUTION

DEWATERING PERFORMANCE SIMPLIFIED

Prime Solution, Inc.
610 S. Platt Street
Otsego, MI 49078
(269) 694-6666
www.psirotary.com

Table of Contents

Key Information:

Plant Site:	Manatee WTP 17915 Waterline Rd. Bradenton, FL 34212
Plant Contact:	Mr. Thomas Bruenen Utilities Water Maintenance Superintendent
Prime Solution Sales Representative:	The GK Solution Mr. Gion Leone 352-566-4016 G.Leone@TheGKSolution.com
Testing Date(s):	August 27th – August 28th, 2019
Prime Solution Pilot Equipment:	RFP2.0-24S Rotary Fan Press 2.0
Application Type:	Municipal
Sludge Type:	Surface Water Treatment
Process Type:	ALUM Sludge
Sludge Age:	0 – 3 Years
Feed Solids:	0.61% TS
Volatile Solids:	46.2% TVS
Dry Cake Solids Range:	**14.4 – 18.2% TS**
Averaged Dry Cake Solids:	**16.4% TS**
Averaged Capture Rate:	98.4% TSS
Averaged Active Polymer Usage:	49.51 lbs/dry ton
Averaged Press Energy Usage:	0.49 kW
Lab(s):	Prime Solution, Inc.
Prime Solution Regional Sales Manager:	Mr. Joe Dendel (616) 540-0500 Joe@psirotary.com
Report Prepared By:	Mrs. Randi Yeaman (269) 694-6666 ryeaman@psirotary.com
Report #:	PR190910-1

Pilot Summary:

On-site pilot testing was performed by Prime Solution, Inc. on August 27th – August 28th, 2019 for the Manatee County WTP. The purpose of the pilot test was to determine the dewaterability of the Municipal ALUM Surface Water Treatment Sludge that is produced at the Plant. The results listed in this report confirm that the Rotary Fan Press 2.0 can effectively dewater the sludge produced at the Plant.

The Rotary Fan Press operated consistently over the two (2) day trial period with a total number of seven (7) samples pulled at various sludge flow rates. All samples were collected and tested by Prime Solution. The cake solids ranged in dryness from 14.4 – 18.2% TS during the testing period with excellent capture rates averaging 98.4% TSS.

Piloting Equipment Description:

The mobile pilot unit that was used for the testing is a full-scale Prime Rotary Fan Press® Model #RFP2.0-24S including all of the necessary equipment to condition the sludge/slurry, pump the filtrate back to the plant and transfer the dewatered cake solids for disposal.

➢ RFP2.0-24S Rotary Fan Press (2.0)	➢ In-Line Grinder
➢ PrimeBlend Emulsion Polymer System	➢ Flocculator Assembly
➢ Rotary Lobe Sludge Feed Pump	➢ Folding Sludge Cake Conveyor
➢ Wash Water Booster Pump	➢ Central Operator Control Panel
➢ Filtrate Pump w/ Float Control	➢ Chemical Feed System

The Prime Rotary Fan Press® operates using the low differential pressure between the incoming conditioned sludge and the outgoing sludge cake combined with the very slow (<1 rpm) rotational motion of the two (2) filter screens to advance the sludge through the press. As the conditioned sludge enters the annular space between the filter screens a pressure differential develops within the press where the liquid portion of the conditioned sludge seeks to the path of least resistance through the filter screens. The remaining solids are collected inside the annular space between the filter screens which advance towards the discharge end of the press. At the discharge end of the press, an adjustable restrictor gate arm slows down the advancing solids forming a “cake” plug. As the plug builds within the restriction discharge area, it pushes towards the inside walls of the filter screens and the slow rotation/friction of the filter screens continuously moves the cake solids past the restrictor gate arm to be discharged for disposal or further processing. Operation of the Prime Rotary Fan Press® can either be continuous or intermittent depending on your application. Clean-up is a simple push of a button which will automatically run the wash cycle.

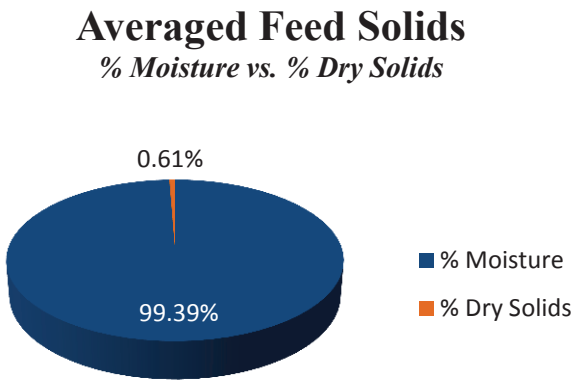
Pilot Testing Results:

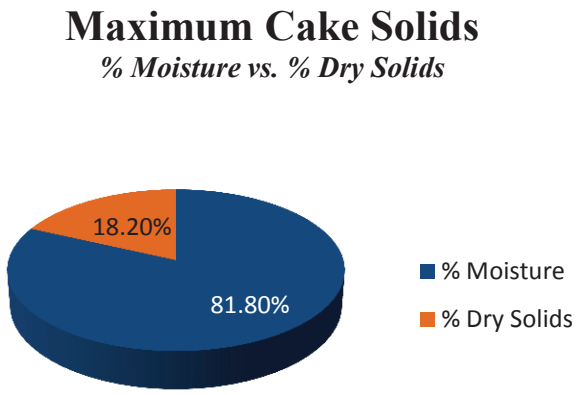
The Rotary Fan Press was on-site Manatee County WTP for two days (August 27th – August 28th, 2019) and operated at varying flow rates, polymer types and polymer dosages. Day one, August 27th, was used as set up. Then the next day several samples were taken of the sludge cake/filtrate and split with the plant for analysis. Using different polymers at different concentrations showed varying results, which was noted on the last day the mixing energy used to blend the polymer with the sludge had an equal effect on the cake solid dryness.

Results Overview:
Sludge flow ranged 1.67 – 1.91 gpm/ft², Feed solids were 0.61% TS, Solids loading ranged 5.10 – 5.81 lbs/hr/ft², Averaged cake solids were 16.4% TS, Capture rates averaged 98.4% TSS, Averaged press energy was 0.49 kW & pH Level was 6 for the testing period.

Polymer Consumption:
Drawing the sludge into the Rotary Fan Press system and at the suction side of the pump, the diluted/blended polymer was added to the incoming sludge where it was mixed in-line to form a stable floc before entering the dewatering channel(s) of the Rotary Fan Press. The averaged polymer dosage for the pilot testing was 49.51 active lbs/dry ton.

The Table On The Following Page Details The Following:
Date and time of sample collection, Rotary Fan Press operating parameters: press speed %, energy usage (press kW), inlet and gate pressures, polymer results, sludge processing flow (gpm/ft²), feed solid concentration (% TS), solids loading (lbs/hr/ft²), cake solids (%TS) and capture rate (mg/L & %TSS).





Pilot Testing Results Continued:

Plant: Manatee County WTP

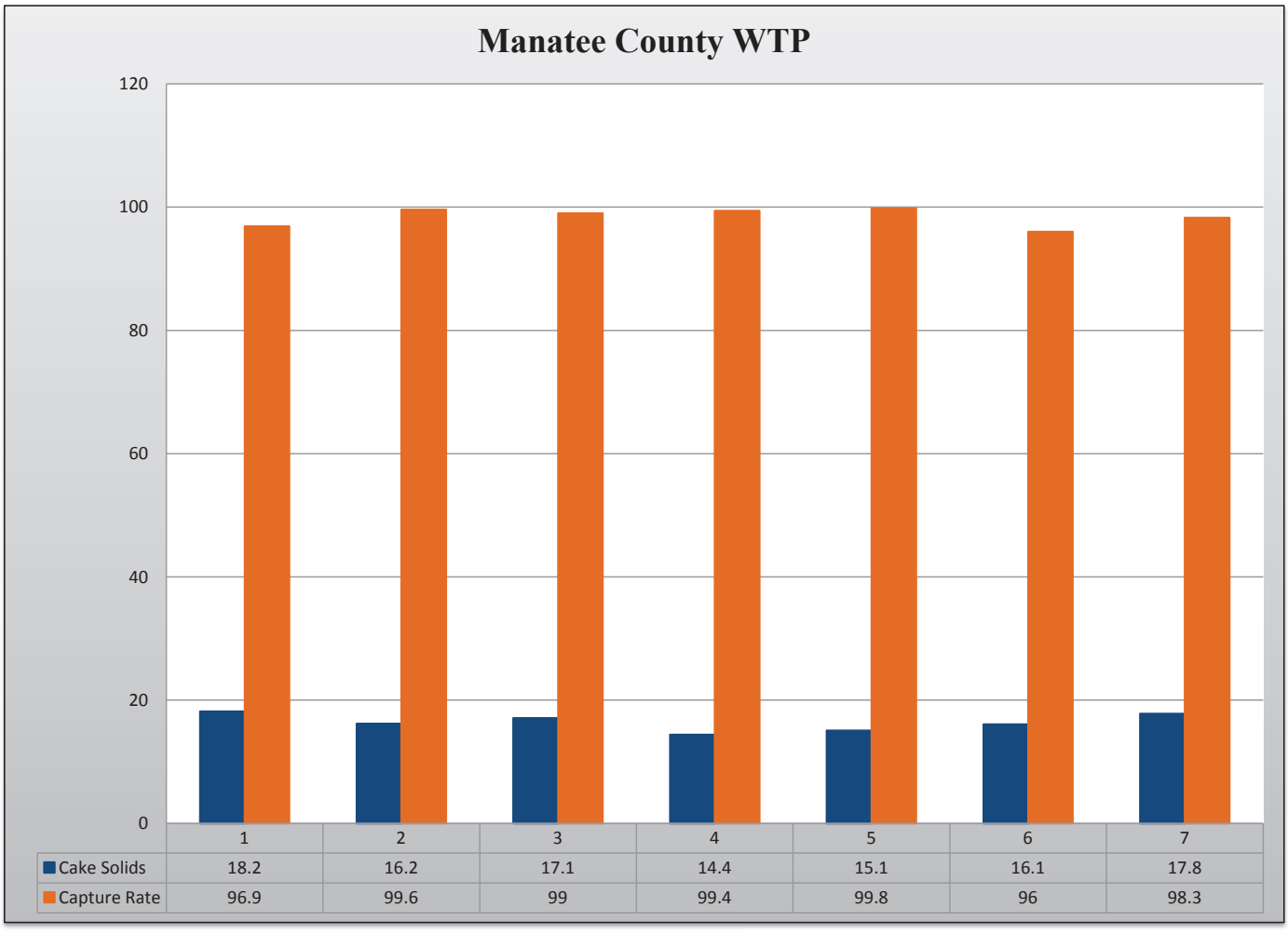
Sludge Type: Municipal

Process: ALUM Surface Water Treatment

Base Model Pilot Equipment: RFP2.0-24S – Rotary Fan Press (2.0)

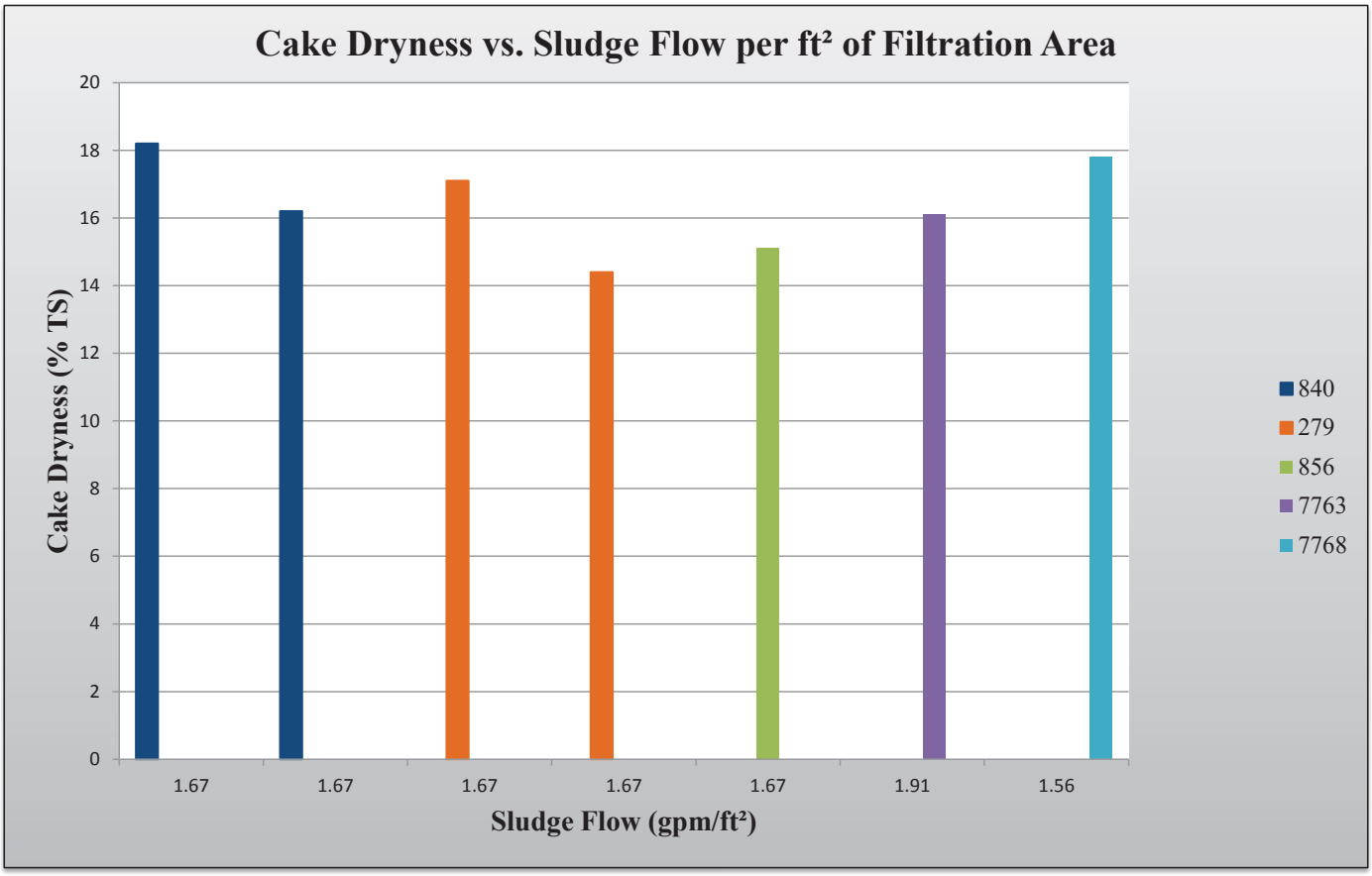
Sampling			Rotary Fan Press						Polymer						Results					
Run #	Date	Time	Model Type	Filt. Area ft²	Press Speed %	Press Energy kW	Inlet PSI	Gate PSI	Type	Neat Flow gph	Dil. Water gpm	Conc. %	Act. %	Active lbs/d.t.	Sludge Flow gpm/ft²	Feed Solids %TS	Solids Loading lbs/hr/ft²	**Cake Solids %TS**	Capture Rate mg/L	Capture Rate %TSS
1	8/28	8:56	RFP2.0 -24S	4.2	30	0.49	3.18	14	840	0.207	1	0.34	40	67.4	1.67	0.61	5.10	**18.2**	190	96.9
2	8/28	10:12	RFP2.0 -24S	4.2	35	0.49	2.95	10	840	0.101	1	0.17	40	32.6	1.67	0.61	5.10	**16.2**	26	99.6
3	8/28	10:48	RFP2.0 -24S	4.2	30	0.49	2.64	15	279	0.207	1	0.34	40	67.4	1.67	0.61	5.10	**17.1**	64	99.0
4	8/28	11:00	RFP2.0 -24S	4.2	30	0.49	2.74	13	279	0.207	1	0.34	40	67.4	1.67	0.61	5.10	**14.4**	38	99.4
5	8/28	11:15	RFP2.0 -24S	4.2	30	0.49	2.73	13	856	0.101	1	0.17	40	32.6	1.67	0.61	5.10	**15.1**	14	99.8
6	8/28	11:30	RFP2.0 -24S	4.2	30	0.49	2.54	13	7763	0.138	1	0.23	40	45.0	1.67	0.61	5.10	**16.1**	246	96.0
7	8/28	11:45	RFP2.0 -24S	4.2	30	0.49	2.60	13	7768	0.101	1	0.12	40	34.2	1.91	0.61	5.81	**17.8**	102	98.3

Pilot Testing Results Continued:

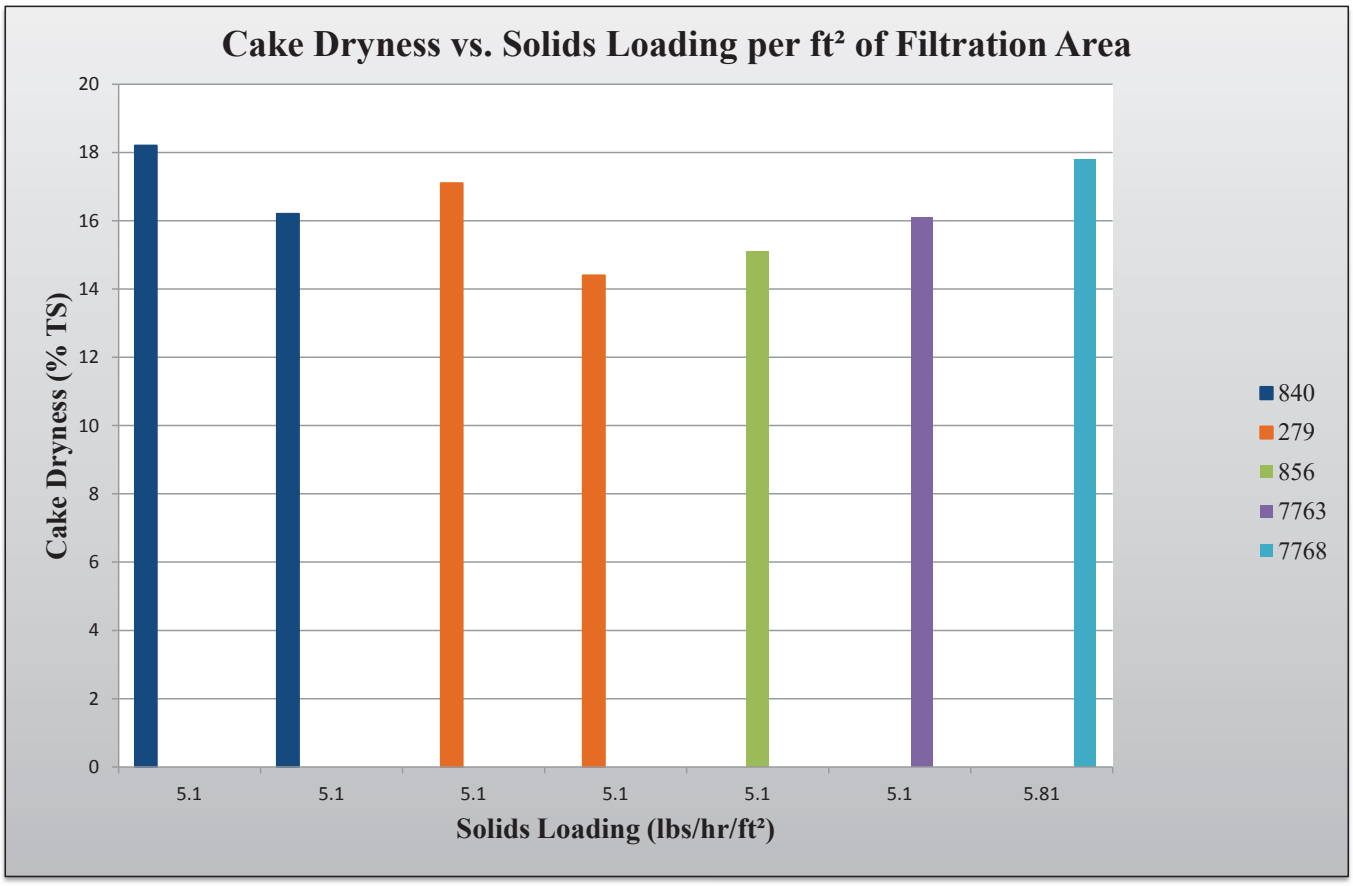


	1	2	3	4	5	6	7
Cake Solids	18.2	16.2	17.1	14.4	15.1	16.1	17.8
Capture Rate	96.9	99.6	99	99.4	99.8	96	98.3

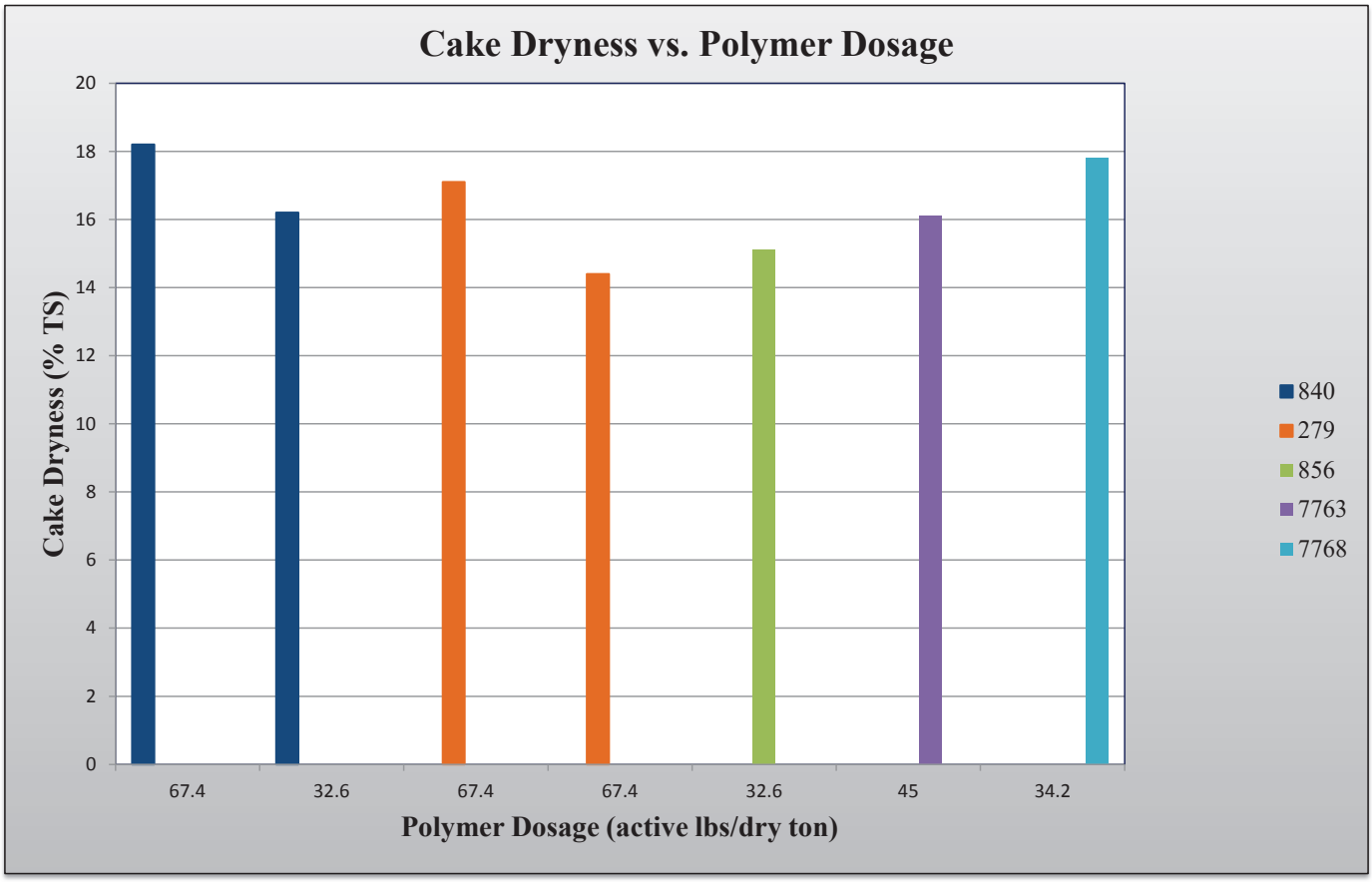
Pilot Testing Results Continued:



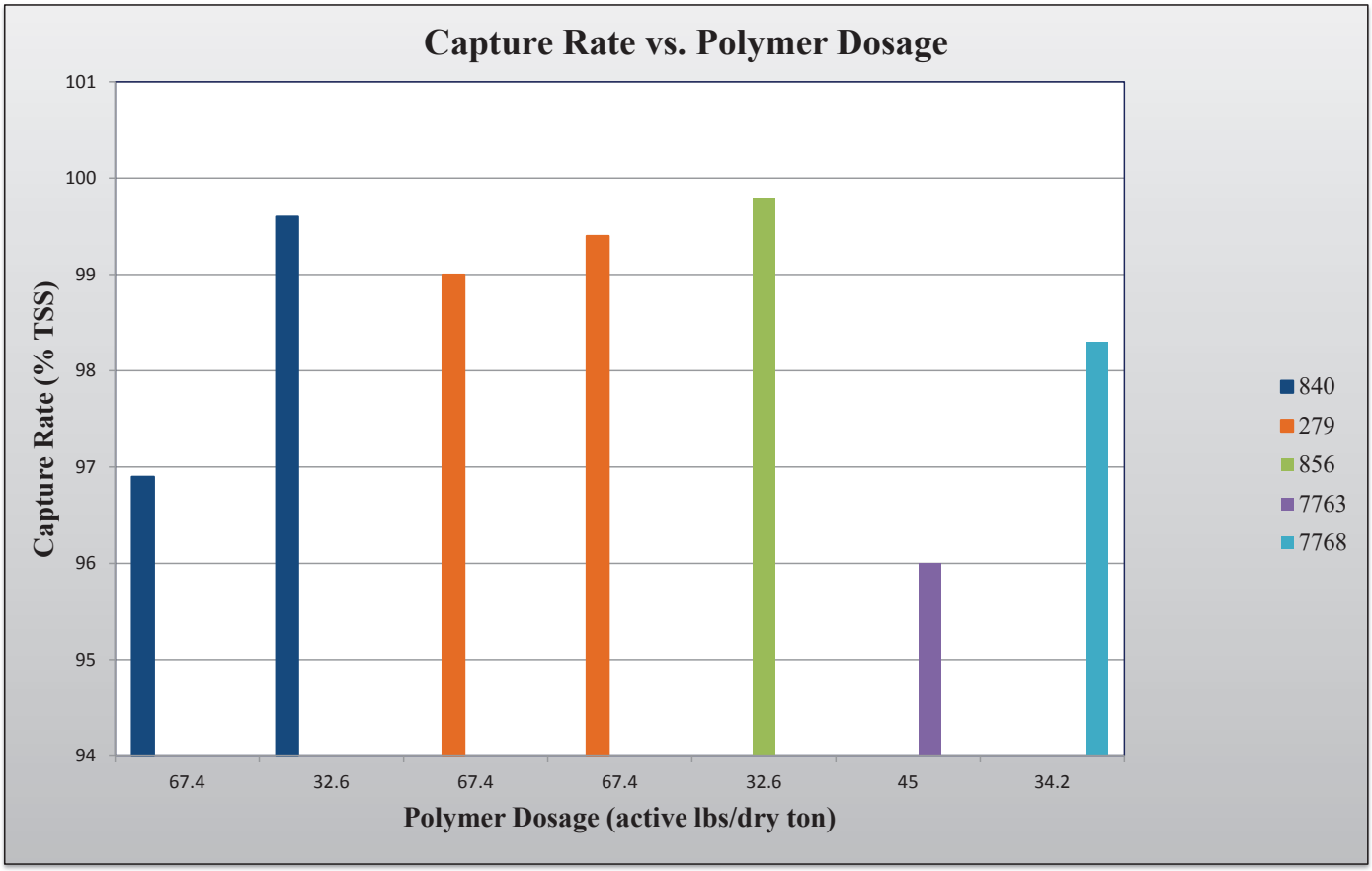
Pilot Testing Results Continued:



Pilot Testing Results Continued:



Pilot Testing Results Continued:



On-Site Pictures:

Pilot Conclusion:

This demonstration successfully illustrated the simplicity, ease-of-use and semi-automatic operation of the Rotary Fan Press, along with its ability to consistently produce dry cake solids — while using low energy and wash water. The totally enclosed design of the Rotary Fan Press provided a clean and safe work environment that virtually eliminated odors and airborne contaminants. This environment promotes prolonged equipment and building life.

Along with ease-of-operation, low maintenance requirements were demonstrated and discussed with plant operators and engineers — as well as, the RFP's ease of installation into existing facilities. Due to its small footprint, it does not require special building modifications.

Prime Solution, Inc. and The GK Solution would like to express their gratitude to the Manatee County WTP in Bradenton FL, and everyone involved, for the opportunity and support that made this pilot possible. We look forward to providing equipment that will suit the needs of the Plant.

Mr. Joe Dendel
Regional Sales Manager
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Web: www.psirotary.com

Appendix C

CAPITAL COST ESTIMATE SUMMARY

RFQ NO. 21-TA003721CD
ATTACHMENT C

AREA	DESCRIPTION		BELT FILTER PRESS ALTERNATIVE		CENTRIFUGE ALTERNATIVE		ADDITIONAL DRYING BEDS ALTERNATIVE		ROTARY FAN PRESS ALTERNATIVE		DRYING BED REHAB
			Phase 1	Buildout	Phase 1	Buildout	Phase 1	Buildout	Phase 1	Buildout	Buildout
DIRECT COST											
01	General Requirements		$302,000.00	$352,000	$324,000	$402,000	$600,000	$728,000	$450,000	$624,000	$40,000
02	Site/Civil Work		$47,000.00	$47,000	$44,000	$44,000	$3,937,000	$4,856,000	$47,000	$47,000	$0
03	Structual		$404,000.00	$412,000	$717,000	$717,000	$1,681,000	$1,930,000	$381,000	$381,000	$273,000
04	Dewatering Equipment		$997,000.00	$1,461,000	$768,000	$1,385,000	$240,000	$273,000	$2,383,000	$3,971,000	$83,000
05	Mechanical Piping		$66,000	$96,000	$70,000	$126,000	$72,000	$137,000	$185,000	$330,000	$41,000
06	EI&C		$1,507,000	$1,507,000	$1,507,000	$1,507,000	$72,000	$82,000	$1,507,000	$1,507,000	$0
07	Thickening System		$1,142,000	$1,965,000	$1,142,000	$1,965,000	$0	$0	$1,142,000	$1,965,000	$0
	SUBTOTAL DIRECT COST		**$4,465,000**	**$5,840,000**	**$4,572,000**	**$6,146,000**	**$6,602,000**	**$8,006,000**	**$6,095,000**	**$8,825,000**	**$437,000**
	Contingency	30.0%	$1,340,000	$1,752,000	$1,372,000	$1,844,000	$1,981,000	$2,402,000	$1,829,000	$2,648,000	$131,000
	TOTAL DIRECT COST		**$5,805,000**	**$7,592,000**	**$5,944,000**	**$7,990,000**	**$8,583,000**	**$10,408,000**	**$7,924,000**	**$11,473,000**	**$568,000**
INDIRECT COST											
	Bond and Insurance	3.0%	$174,000	$228,000	$178,000	$240,000	$257,000	$312,000	$238,000	$344,000	$17,000
	General Contractor Overhead, Profit & Risk	12.0%	$697,000	$911,000	$713,000	$959,000	$1,030,000	$1,249,000	$951,000	$1,377,000	$68,000
	Sales Tax	7.0%	$406,000	$531,000	$416,000	$559,000	$601,000	$729,000	$555,000	$803,000	$40,000
	TOTAL INDIRECT COST		**$1,277,000**	**$1,670,000**	**$1,307,000**	**$1,758,000**	**$1,888,000**	**$2,290,000**	**$1,744,000**	**$2,524,000**	**$125,000**
TOTAL CONSTRUCTION COST											
	TOTAL ESTIMATED CONSTRUCTION COST		**$7,082,000**	**$9,262,000**	**$7,251,000**	**$9,748,000**	**$10,471,000**	**$12,698,000**	**$9,668,000**	**$13,997,000**	**$693,000**
TOTAL PROJECT COST											
	Engineering, Legal & Administration Fees	25.0%	$1,771,000	$2,316,000	$1,813,000	$2,437,000	$1,571,000	$1,905,000	$1,450,000	$2,100,000	$104,000
	Owner's Reserve for Change Orders	5.0%	$354,000	$463,000	$363,000	$487,000	$524,000	$635,000	$483,000	$700,000	$35,000
	TOTAL ESTIMATED PROJECT COST (TEPC)		**$9,207,000**	**$12,041,000**	**$9,427,000**	**$12,672,000**	**$12,566,000**	**$15,238,000**	**$11,601,000**	**$16,797,000**	**$832,000**

Appendix D

O&M COST ESTIMATE SUMMARY

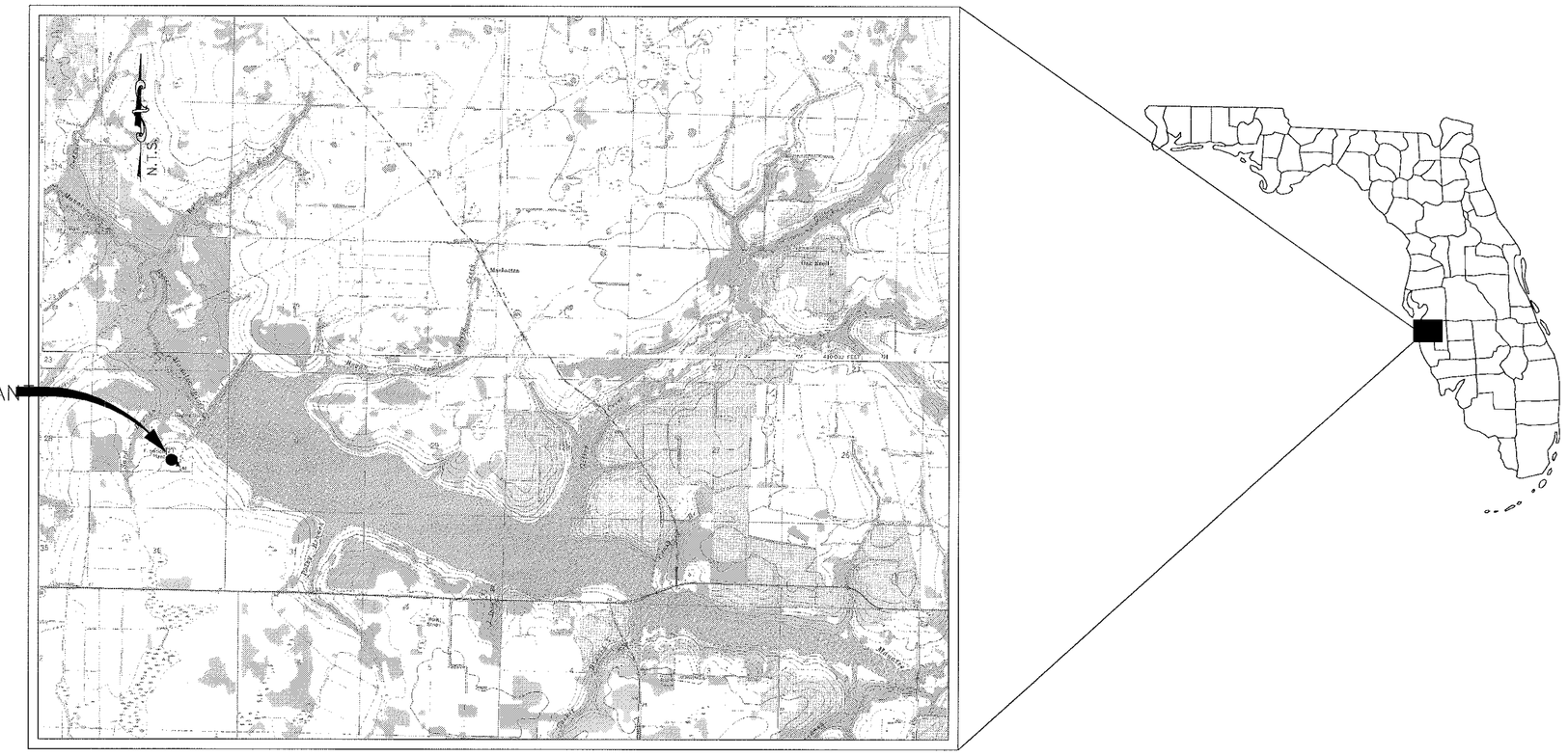
AREA	DESCRIPTION	BELT FILTER PRESS ALTERNATIVE		CENTRIFUGE ALTERNATIVE		ROTARY FAN PRESS ALTERNATIVE		ADDITIONAL DRYING BEDS ALTERNATIVE	
		Phase 1	Buildout	Phase 1	Buildout	Phase 1	Buildout	Phase 1	Buildout
O&M COST									
01	Annual Power Cost	$22,000	$16,000	$33,000	$40,000	$24,000	$26,000	$13,065	$15,678
02	Annual Chemical and Water Cost	$158,000	$186,000	$132,000	$156,000	$340,000	$403,000	$0	$0
03	Annual Maintenance Cost	$20,000	$24,000	$14,000	$18,000	$11,000	$11,000	$184,000	$220,800
04	Annual Replacement Cost	$34,000	$36,000	$57,000	$86,000	$31,000	$32,000		
05	Solids Handling Cost	$498,000	$586,000	$427,000	$503,000	$601,000	$708,000	$331,565	$390,650
	TOTAL ANNUAL O&M COST	**$732,000**	**$848,000**	**$663,000**	**$803,000**	**$1,007,000**	**$1,180,000**	**$529,000**	**$627,000**

ATTACHMENT D

LAKE MANATEE
WATER TREATMENT PLANT
SLUDGE DEWATERING IMPROVEMENTS

COUNTY PROJECT #404-6033070

MANATEE COUNTY, FLORIDA



PROJECT LOCATION

INDEX OF DRAWINGS

SHEET NUMBER	DRAWING TITLE
COV	COVER
G1	LEGEND, ABBREVIATIONS AND SYMBOLS
C1	AERIAL PLAN
C2	LIME SLUDGE THICKENER PAVING, GRADING & DRAINAGE PLAN
C3	LIME SLUDGE THICKENER SITE PIPING PLAN
C4	ALUM SLUDGE BEDS PUMP AND UNDERDRAIN SYSTEM PLAN
C5	ALUM SLUDGE BEDS PUMP AND UNDERDRAIN SYSTEM TYPICAL SECTIONS
C6	ALUM SLUDGE BEDS PUMP AND UNDERDRAIN SYSTEM DETAILS
C7	LIME SLUDGE BEDS SLIDE GATE DETAILS
P1	LIME SLUDGE PROCESS PIPING SCHEMATIC
M1	DECANT PUMP STATION DEMOLITION AND MODIFICATION PLANS AND SECTIONS
M2	THICKENED SLUDGE PUMP STATION PLAN AND SECTIONS
M3	LIME SLUDGE THICKENER PLAN AND SECTION
M4	LIME SLUDGE THICKENER DETAILS
M5	LIME SLUDGE THICKENER MECHANICAL DETAILS
M6	LIME SLUDGE THICKENER MECHANICAL DETAILS
D1	MISCELLANEOUS DETAILS
D2	MISCELLANEOUS DETAILS
D3	MISCELLANEOUS DETAILS
D4	TEMPORARY EROSION CONTROL DETAILS
I1	LIME SLUDGE P & ID
E1	ELECTRICAL SYMBOLS, NOTES & ABBREVIATIONS
E2	SLUDGE PUMP STATION ELECTRICAL SITE PLAN
E3	MCC-1 SINGLE LINE DIAGRAM
E4	MCC-2 SINGLE LINE DIAGRAM
E5	ELEMENTARY DIAGRAM
E6	ELEMENTARY DIAGRAM
E7	SLUDGE PUMP STATION ELECTRICAL PLAN
E8	SLUDGE BEDS POWER PLAN
E9	ELECTRICAL ROOM PLANS
E10	ELECTRICAL DETAILS

NOTE:

RECORD DRAWINGS
JUNE 2005

McKIM & CREED
601 Cleveland Street, Suite 205
Clearwater, FL 33755
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AA0002667 EB0006691
www.mckimcreed.com

23-19

4456.001

ATTACHMENT D

GENERAL ABBREVIATIONS

@.	AT
AC	ACRES
AC	ASPHALTIC CONCRETE
ABD	ABANDONED
AFF	ABOVE FINISHED FLOOR
AL./ALUM.	ALUMINUM
ANCH.	ANCHOR
APPROX.	APPROXIMATE
AVE.	AVENUE
BLDG.	BUILDING
BLVD.	BOULEVARD
BM.	BEAM
BOT./BOTT.	BOTTOM
C	CHANNEL
C.	CONDUIT
C.B.	CATCH BASIN
CHKR	CHECKERED
CIR.	CIRCLE
CLF	CHAIN LINK FENCE
℄	CENTERLINE
CMP	CORRUGATED METAL PIPE
COL.	COLUMN
CONN.	CONNECTOR/CONNECTION
CONC.	CONCRETE
CU.	COPPER
D.	DEEP/DRAIN
DBL.	DOUBLE
DHW.	DESIGN HIGH WATER
DISCH.	DISCHARGE
DLW.	DESIGN LOW WATER
DN.	DOWN
DR.	DRIVE
DRWY	DRIVEWAY
E.W.	EACH WAY
EA.	EACH
EL./ELEV.	ELEVATION
ELEC.	ELECTRICAL CONDUIT
ERCP	ELIPTICAL REINFORCED CONCRETE PIPE
ETC.	AND SO FORTH
EXIST.	EXISTING
EXP.	EXPANSION
FT.	FOOT
FF.	FINISHED FLOOR
FTG.	FOOTING
GALV.	GALVANIZED
GDRL	GUARDRAIL
GEN	GENERATOR
GI	GRATED INLET
GPM	GALLONS PER MINUTE
GRTG.	GRATING
G.S.	GALVANIZED STEEL
GR./GRD.	GRADE
GWP	GUY WIRE POLE
HDWALL	HEADWALL
H.R.	HANDRAIL
I.E.	INVERT ELEVATION
IN.	INCH
INV.	INVERT
IP	IRON PIPE
IR	IRON ROD
J.B.	JUNCTION BOX
JT.	JOINT
LG.	LONG
LN.	LANE
LP	LIGHT POLE
MAX.	MAXIMUM
MB	MAILBOX
MCC	MOTOR CONTROL CENTER
MES	MITERED END SECTION
MG	MILLION GALLONS
MON.	MONUMENT
NG	NATURAL GROUND
N.T.S.	NOT TO SCALE
NO.	NUMBER
℄	DIAMETER/PHASE
OPNG.	OPENING
PLCS.	PLACES
POT	POTABLE
PP	POWER POLE
PROP.	PROPOSED
P.V.	PLUG VALVE
PVMT	PAVEMENT
R.	RADIUS/RISER/RELAY
RCP	REINFORCED CONCRETE PIPE
REF.	REFERENCE
REINF.	REINFORCED/REINFORCING
REQ'D	REQUIRED
RESTR.	RESTRAINED
RW;R/W	RIGHT-OF-WAY
SAN.	SANITARY
SEC.	SECTION
SGL	SINGLE
SPRK	SPRINKLER
SQ.	SQUARE
SN	SIGN
ST.	STREET
STL.	STEEL
S/W;SWK	SIDEWALK
SYM.	SYMMETRICAL
TOB	TOP OF BANK (DITCH)
T.&B.	TOP & BOTTOM
TEL	TELEPHONE
TEMP.	TEMPORARY
THK	THICK
TOS	TOE OF SLOPE (DITCH)
TYP.	TYPICAL
UG	UNDERGROUND GAS
UP	UTILITY POLE
UT	UNDERGROUND TELEPHONE
UNO	UNLESS NOTED OTHERWISE
VERT.	VERTICAL
W	WIDE FLANGE/WIDE/WATT
W/	WITH
W/L	WATER LINE
W.L.	WATER LEVEL
W/M	WATER MAIN
W.M.	WATER METER
W.P.	WEATHER PROOF
W.S.	WALL SLEEVE/WATER STOP/ WATER SERVICE
WTR.	WATER

PIPING ABBREVIATIONS

ABD	ABANDONED
ARV	AIR RELEASE VALVE
ASV	ANTI-SIPHON VALVE
AV	AIR VENT
BFP	BACKFLOW PREVENTER
BFV	BUTTERFLY VALVE
BCS	BLACK CARBON STEEL
BPV	BACK PRESSURE VALVE
CC	CALIBRATION COLUMN
BV	BALL VALVE
CMP	CORRUGATED METAL PIPE
CO	CLEANOUT
CORP	CORPORATION
CV	CHECK VALVE
D.I.	DUCTILE IRON
DIA	DIAMETER
D.I.P.	DUCTILE IRON PIPE
ELEC.	ELECTRICAL
EXIST.	EXISTING
FCV	FLOW CONTROL VALVE
FH	FIRE HYDRANT
FL	FLANGED
FLC	FLEXIBLE COUPLING
FM	FLOWMETER
GLV	GLOBE VALVE
GV	GATE VALVE
HB	HOSE BIBB
HDPE	HIGH DENSITY POLYETHYLENE
MAG	MAGNETIC FLOWMETER
MH	MANHOLE
MJ	MECHANICAL JOINT
PD	PULSATION DAMPENER
PE	PLAIN END
PG	PRESSURE GAUGE
PRV	PRESSURE RELIEF VALVE
PS	PUMP STATION
PV	PLUG VALVE
PVC	POLYVINYLCHLORIDE
QC	QUICK COUPLING
RCP	REINFORCED CONCRETE PIPE
RED.	REDUCER
SCH.	SCHEDULE
SS	STAINLESS STEEL
SSMH	SANITARY SEWER MANHOLE
TBR	TO BE REMOVED
UE	UNDERGROUND ELECTRIC
VERT.	VERTICAL

FLOW ABBREVIATIONS

ALS	WASTE ALUM LIME SLUDGE
CA	COMPRESSED AIR
DE	DECANT
PW	POTABLE WATER
TLS	THICKENED LIME SLUDGE
WLS	WASTE LIME SLUDGE

PIPING SPECIFICATION

D1	CEMENT-LINED DUCTILE IRON
F1	SCHEDULE 40 BLACK CARBON STEEL
P1	SCHEDULE 80 PVC

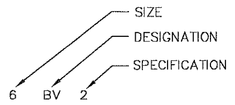
VALVE SPECIFICATION

BV1	PVC BALL VALVE
BV2	316 SS BALL VALVE
CV1	IRON BODY FLANGED SWING CHECK VALVE
CV2	PVC CHECK VALVE
CV3	316 SS CHECK VALVE
PV1	BURIED MJ PLUG VALVE
PV2	ABOVEGROUND FLANGED PLUG VALVE

INSTRUMENT SPECIFICATION

FE1	FLANGED MAGNETIC FLOWMETER

VALVE IDENTIFICATION

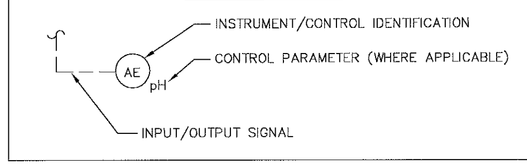


NOTES:
1. SEE VALVE SYMBOLS FOR DESIGNATIONS
2. VALVE SIZE IS IN INCHES

INSTRUMENT/CONTROL SYMBOLS

SYMBOL	DESIGNATION	DESCRIPTION
	NONE	INSTRUMENT SIGNAL
	NONE	POWER ACTUATOR (VALVE SYMBOL AS APPLICABLE)
	VARIES	FIELD MOUNTED INSTRUMENT
	VARIES	PLC OR COMPUTER INTERFACE

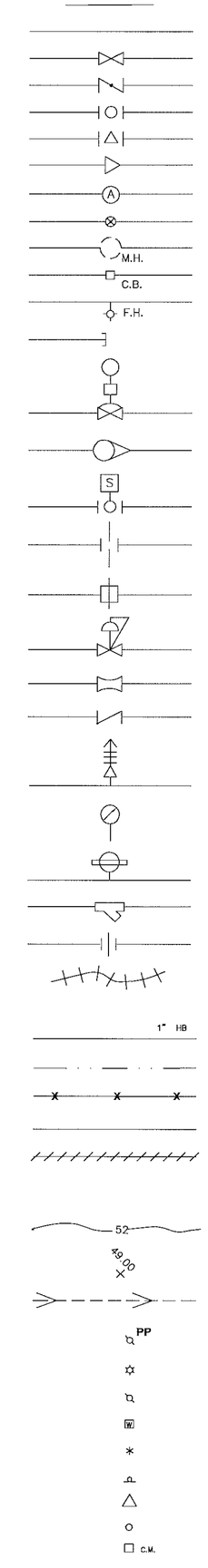
INSTRUMENT/CONTROL IDENTIFICATION

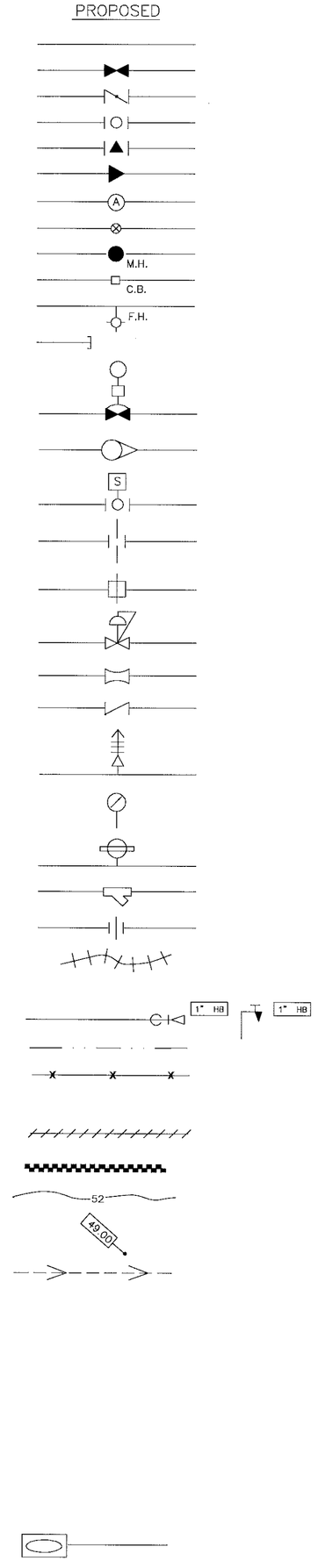


INSTRUMENT/CONTROL DESIGNATION

	FIRST LETTER		SUCCEEDING LETTERS		
	MEASURED OR INITIATING VARIABLE	MODIFIER	READOUT OR PASSIVE FUNCTION	OUTPUT FUNCTION	MODIFIER
A	ANALYSIS		ALARM		
C	CONDUCTIVITY/ RESISTIVITY			CONTROL	
D	DENSITY	DIFFERENTIAL			
E	VOLTAGE		ELEMENT		
F	FLOW		RATIO		
H	HAND				HIGH
I	CURRENT		INDICATE		
K	TIME				
L	LEVEL		LIGHT(PILOT)		LOW
M					INTERMEDIATE
P	PRESSURE/ VACUUM		POINT(TEST)		
Q	QUANTITY/EVENT		INTEGRATE/ TOTALIZE		
R	RADIOACTIVITY		RECORD		
S	SPEED/FREQ.	SAFETY		SWITCH	
T	TEMPERATURE			TRANSMITTER	
V	VISCOSITY			VALVE	
W	WEIGHT				
X	START/STOP			UNCLASSIFIED	UNCLASSIFIED
Y				RELAY	
Z	POSITION			DRIVE	

LEGEND





REV.NO.	DESCRIPTIONS	DATE
	REVISIONS	

SEAL

SEAL

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www.mckimcreed.com

MANATEE COUNTY, FLORIDA

LAKE MANATEE
WATER TREATMENT PLANT
SLUDGE DEWATERING IMPROVEMENTS

LEGEND, ABBREVIATIONS AND SYMBOLS

DATE:	APRIL, 2003
MCE PROJ. #	1024-0033
DRAWN	DKM
DESIGNED	NJS
CHECKED	MAC
PROJ. MGR.	MAC

SCALE
HORIZONTAL:
VERTICAL: NA

M&C FILE NUMBER

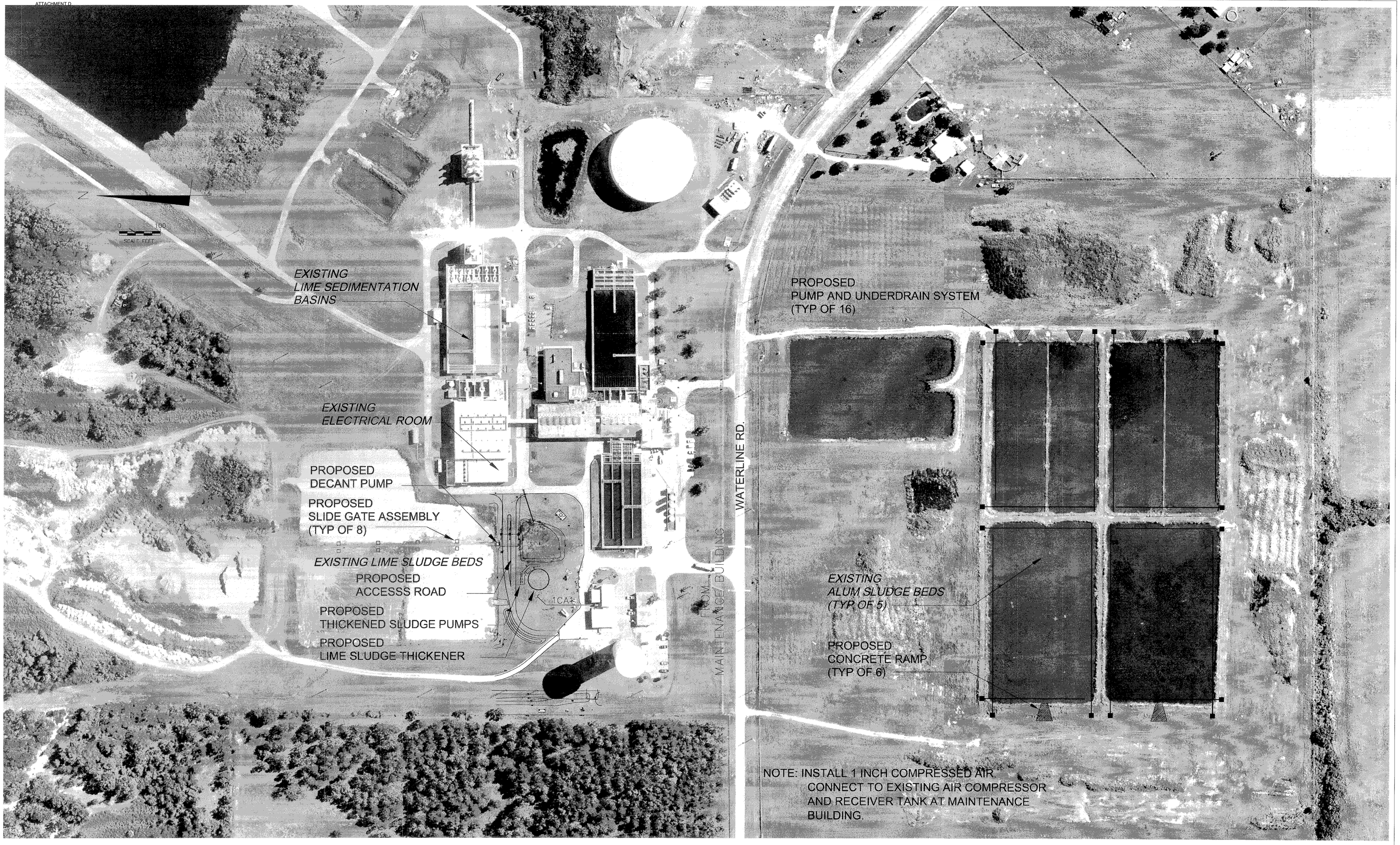
DRAWING NUMBER
G1

STATUS: JUNE, 2005 RECORD DRAWINGS

REVISION

4456.002

ATTACHMENT D



NOTE: INSTALL 1 INCH COMPRESSED AIR.
CONNECT TO EXISTING AIR COMPRESSOR
AND RECEIVER TANK AT MAINTENANCE
BUILDING.

REV.NO.	DESCRIPTIONS REVISIONS	DATE

SEAL

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MANATEE COUNTY, FLORIDA

LAKE MANATEE
WATER TREATMENT PLANT
SLUDGE DEWATERING IMPROVEMENTS

AERIAL PLAN

DATE:	APRIL, 2003
MCE PROJ. #	1024-0033
DRAWN	DKM
DESIGNED	NJS
CHECKED	MAC
PROJ. MGR.	MAC

SCALE
HORIZONTAL: 1"=100'
VERTICAL: NA

M&C FILE NUMBER

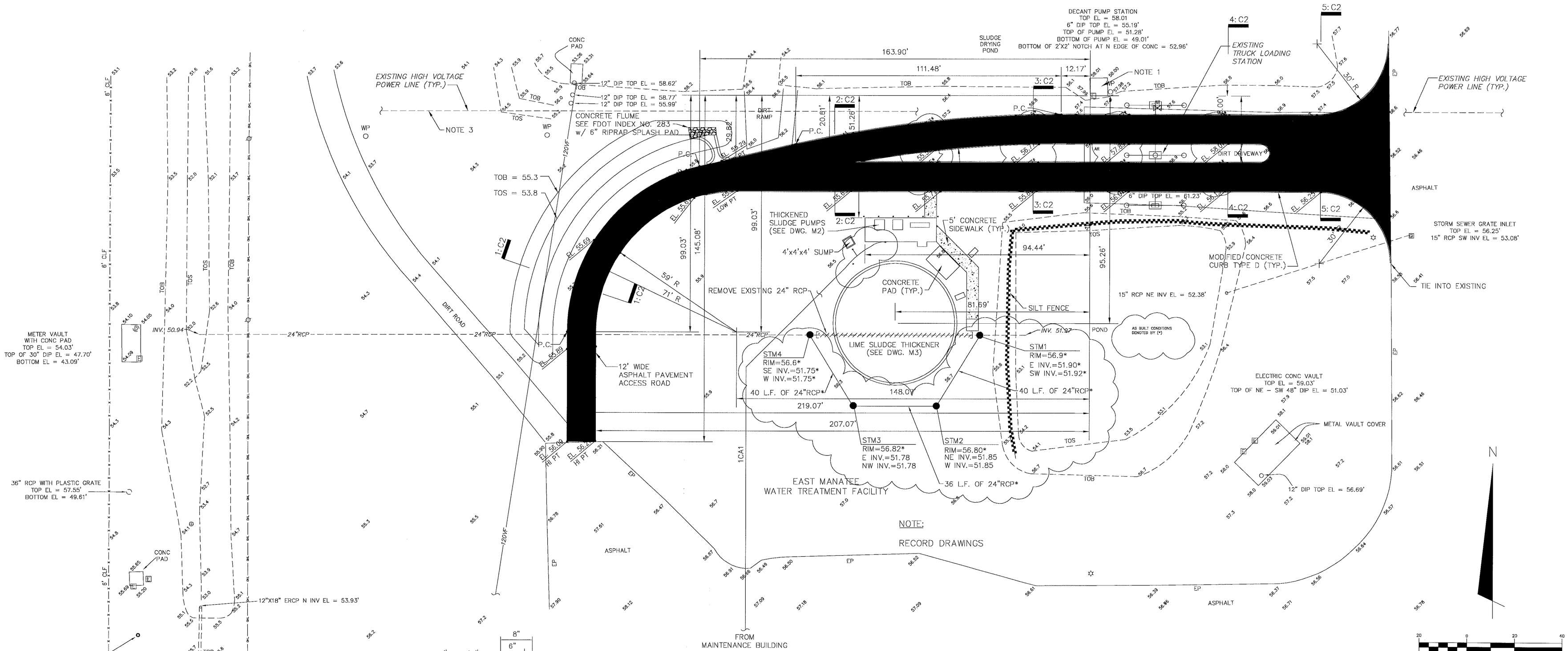
DRAWING NUMBER
C1

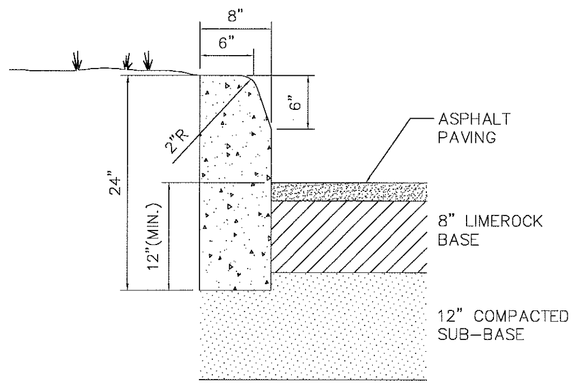
STATUS: JUNE, 2005
RECORD DRAWINGS

REVISION

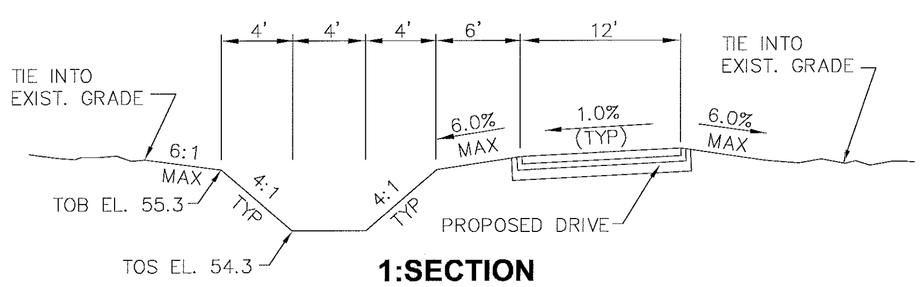
4456.003

ATTACHMENT D

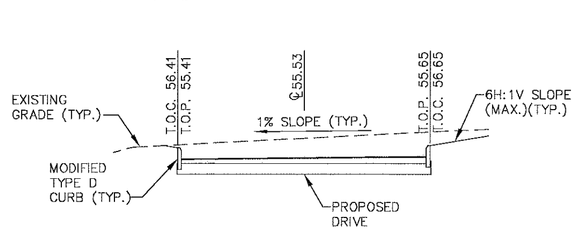




MODIFIED CURB TYPE "D" DETAIL
1" = 1'-0"



1:SECTION
NTS



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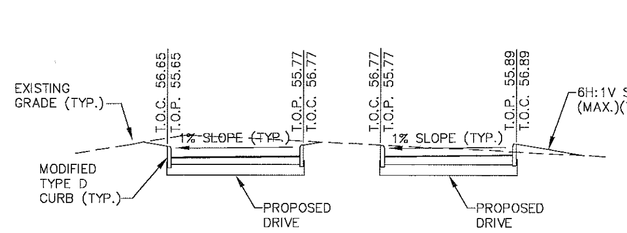
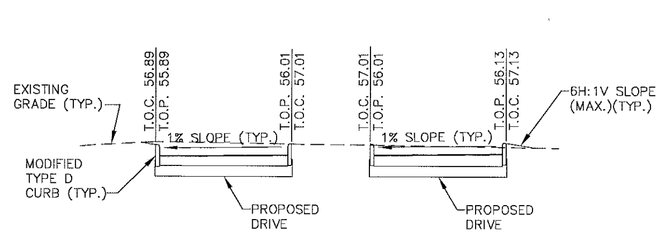
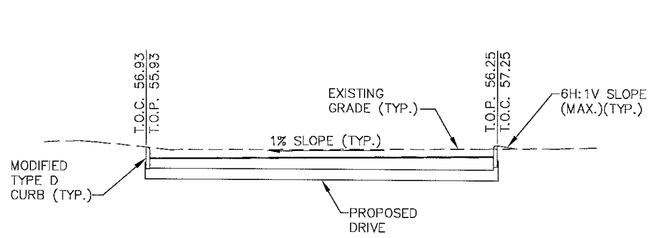
1" = 10'-0"



3:SECTION
1" = 10'-0"



4:SECTION
1" = 10'-0"



5:SECTION
1" = 10'-0"

REV.NO.	DESCRIPTIONS	DATE
	ADDENDUM No. 1 (RE-ROUTE 24" PIPE AROUND TANK)	3/18/04

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MANATEE COUNTY, FLORIDA

LAKE MANATEE WATER TREATMENT PLANT SLUDGE DEWATERING IMPROVEMENTS

LIME SLUDGE THICKENER PAVING, GRADING & DRAINAGE PLAN

DATE:	APRIL, 2003
MCE PROJ. #	1024-0033
DRAWN	DKM
DESIGNED	NJS
CHECKED	MAC
PROJ. MGR.	MAC

SCALE
HORIZONTAL: 1"=20'
VERTICAL: NA

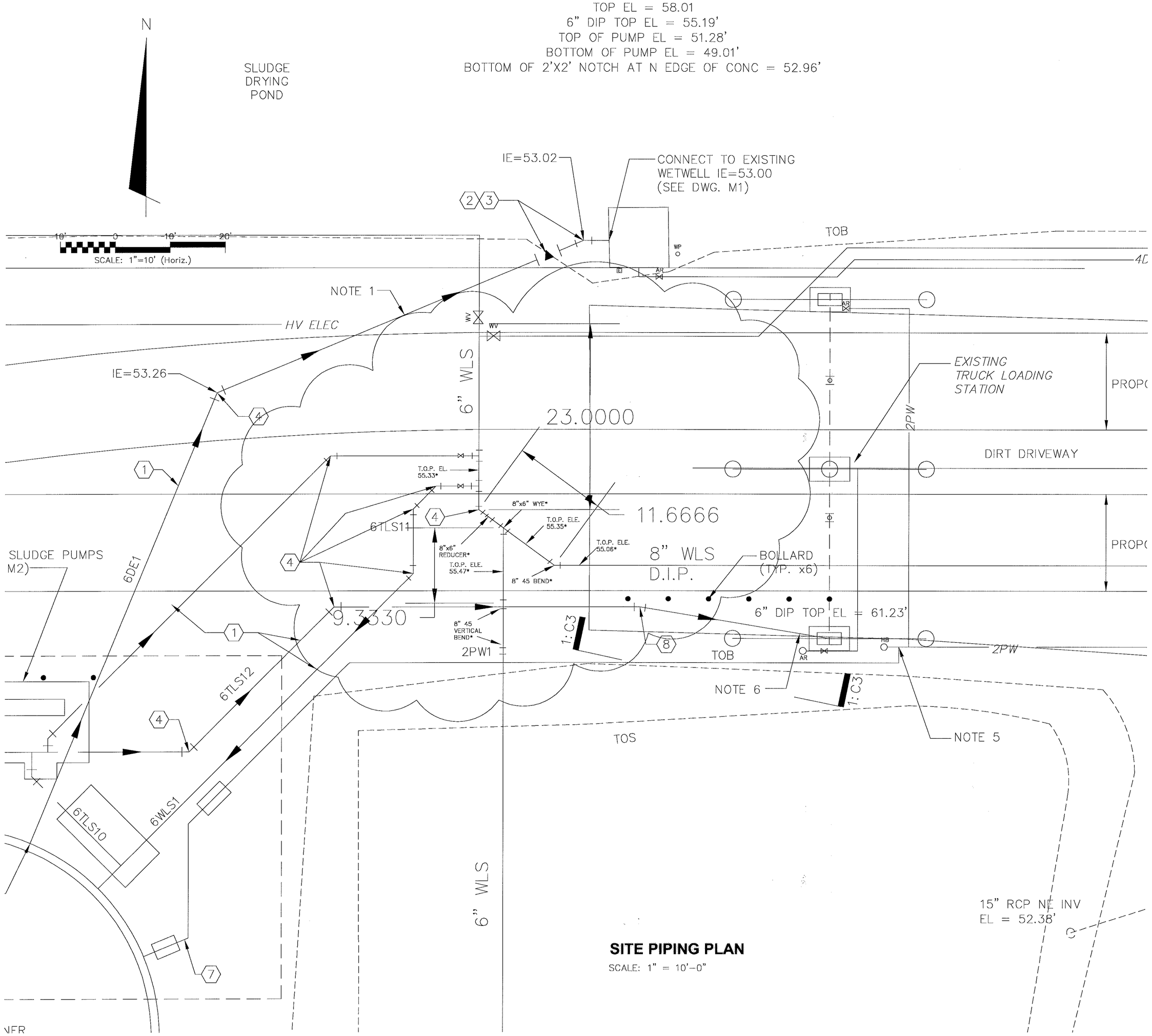
M&C FILE NUMBER
DRAWING NUMBER
C2

STATUS: JUNE, 2005 RECORD DRAWINGS
REVISION

4456.004

ATTACHMENT D

DECANT PUMP STATION
TOP EL = 58.01
6" DIP TOP EL = 55.19'
TOP OF PUMP EL = 51.28'
BOTTOM OF PUMP EL = 49.01'
BOTTOM OF 2'X2' NOTCH AT N EDGE OF CONC = 52.96'

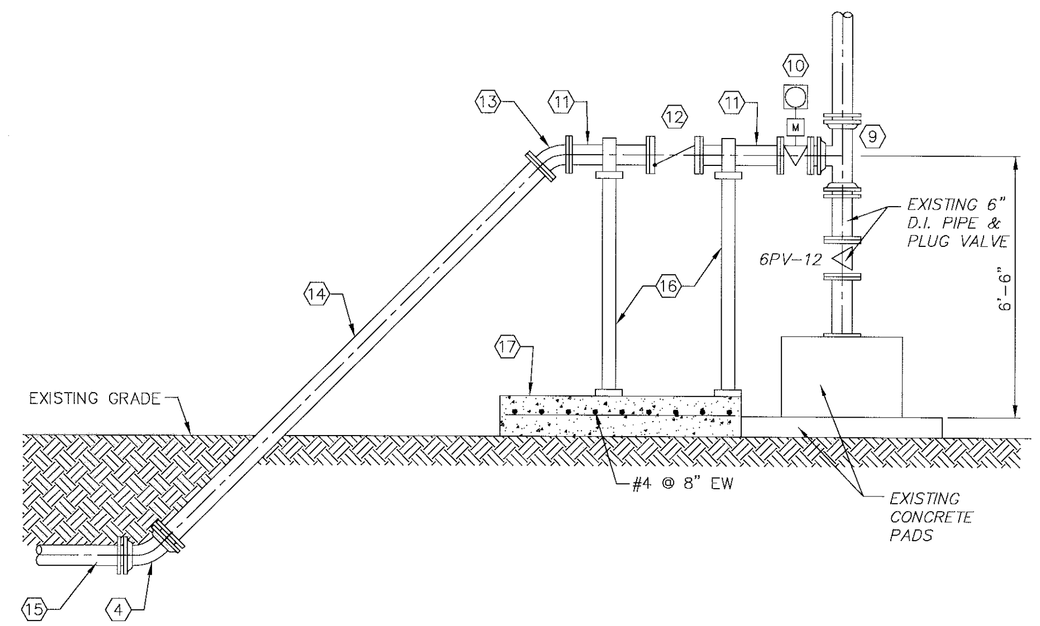


SITE PIPING PLAN
SCALE: 1" = 10'-0"

NOTES:
1. EXCAVATE TO FIND EXACT HORIZONTAL AND VERTICAL LOCATION OF THE BURIED HIGH VOLTAGE POWER LINE BEFORE INSTALLING THE DECANT LINE (6DE1).
2. SAWCUT EXISTING 6" PIPE AND INSTALL TWO 6" TEES, ONE 6" PLUG VALVE, ONE 6" SOLID SLEEVE AND 6" D.I. PIPE.
3. ALL PIPE SHALL BE RESTRAINED.
4. ALL BURIED PIPE SHALL HAVE 3' OF COVER UNLESS OTHERWISE NOTED ON THE PLANS.
5. CONNECT TO EXISTING 2" POTABLE WATER.
6. CONNECT TO EXISTING TRUCK LOADING STATION SLUDGE PIPE. (SEE DETAIL DWG. C3)

PIPING LEGEND

1. 6" DUCTILE IRON PIPE
2. 6" MJ D.I. 22.5° BEND
3. 6" MJ PLUG VALVE
4. 6" MJ D.I. 45° BEND
5. 6" MJ TEE
6. 6" D.I. SOLID SLEEVE WITH RESTRAINED JOINTS
7. 2" SCH. 80 PVC PIPE
8. 6" MJ D.I. 11.25° BEND
9. 6" MJ D.I. TAPPING SLEEVE
10. 6" FL MOTORIZED PLUG VALVE
11. 6" FL D.I.P.
12. 6" FL CHECK VALVE
13. 6" FL D.I. 45° BEND
14. 6" FL x PE D.I. PIPE
15. 6" MJ D.I. PIPE
16. STEEL PIPE SUPPORT
17. 6'x4'x1' CONCRETE PAD



1:SECTION
CONNECTION TO EXISTING LIME SLUDGE TRUCK LOADING STATION
SCALE: 3/8" = 1'-0"

REV.NO.	DESCRIPTIONS	DATE
	REVISIONS	

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MANATEE COUNTY, FLORIDA

LAKE MANATEE
WATER TREATMENT PLANT
SLUDGE DEWATERING IMPROVEMENTS

LIME SLUDGE THICKENER
SITE PIPING PLAN

DATE:	APRIL, 2003
MCE PROJ. #	1024-003.3
DRAWN	DKM
DESIGNED	NJS
CHECKED	MAC
PROJ. MGR.	MAC

SCALE
HORIZONTAL: 1"=10'
VERTICAL: NA

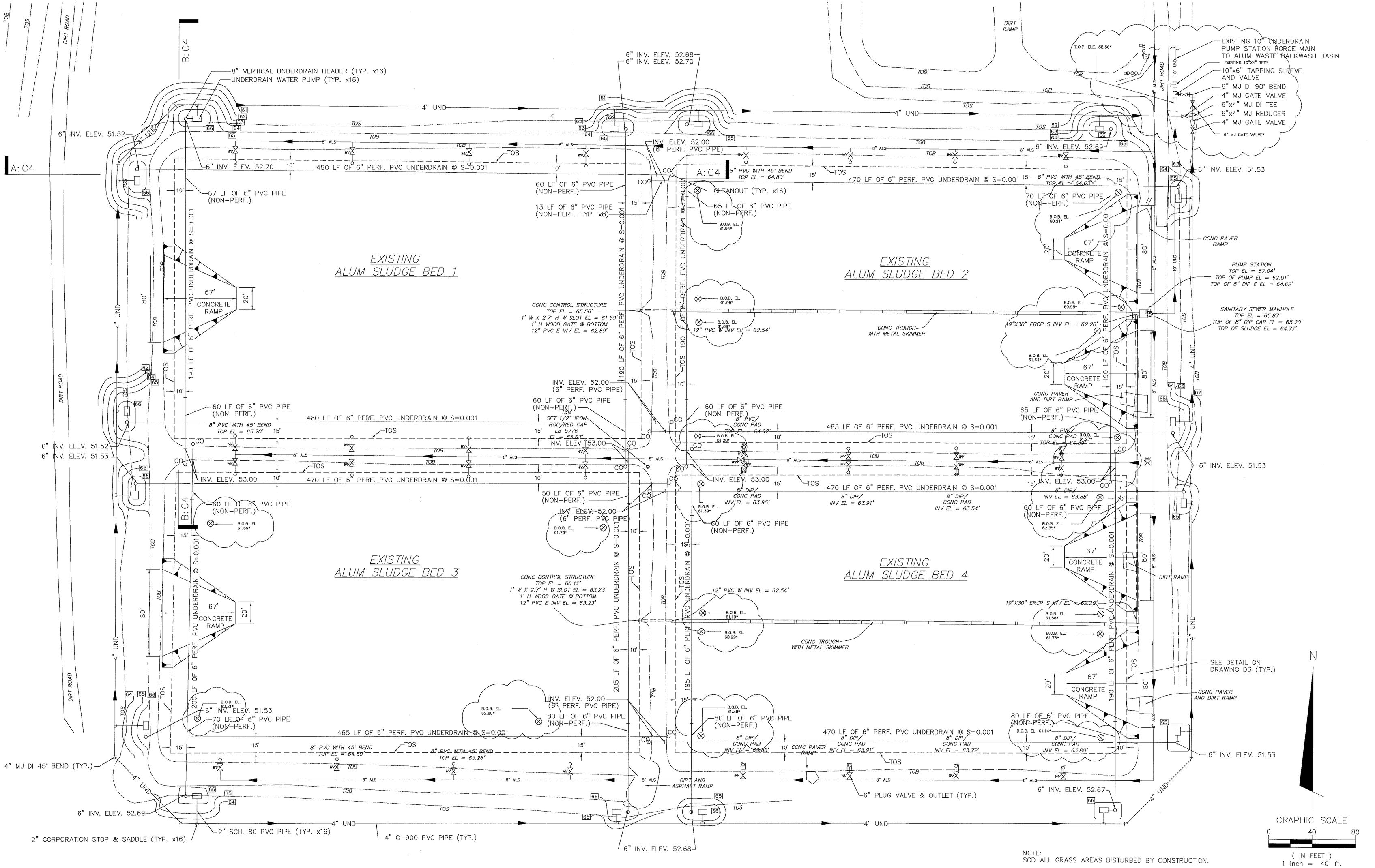
M&C FILE NUMBER

DRAWING NUMBER
C3

STATUS: JUNE, 2005 RECORD DRAWINGS
REVISION

4456.005

ATTACHMENT D



NOTE:
SOD ALL GRASS AREAS DISTURBED BY CONSTRUCTION.

REV.NO.	DESCRIPTIONS	DATE
	REVISIONS	

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MANATEE COUNTY, FLORIDA

LAKE MANATEE WATER TREATMENT PLANT SLUDGE DEWATERING IMPROVEMENTS

ALUM SLUDGE BEDS PUMP AND UNDERDRAIN SYSTEM PLAN

DATE:	APRIL, 2003
MCE PROJ. #	1024-003.3
DRAWN	DKM
DESIGNED	NJS
CHECKED	MAC
PROJ. MGR.	MAC

SCALE: HORIZONTAL: 1"=40' VERTICAL: NA

M&C FILE NUMBER

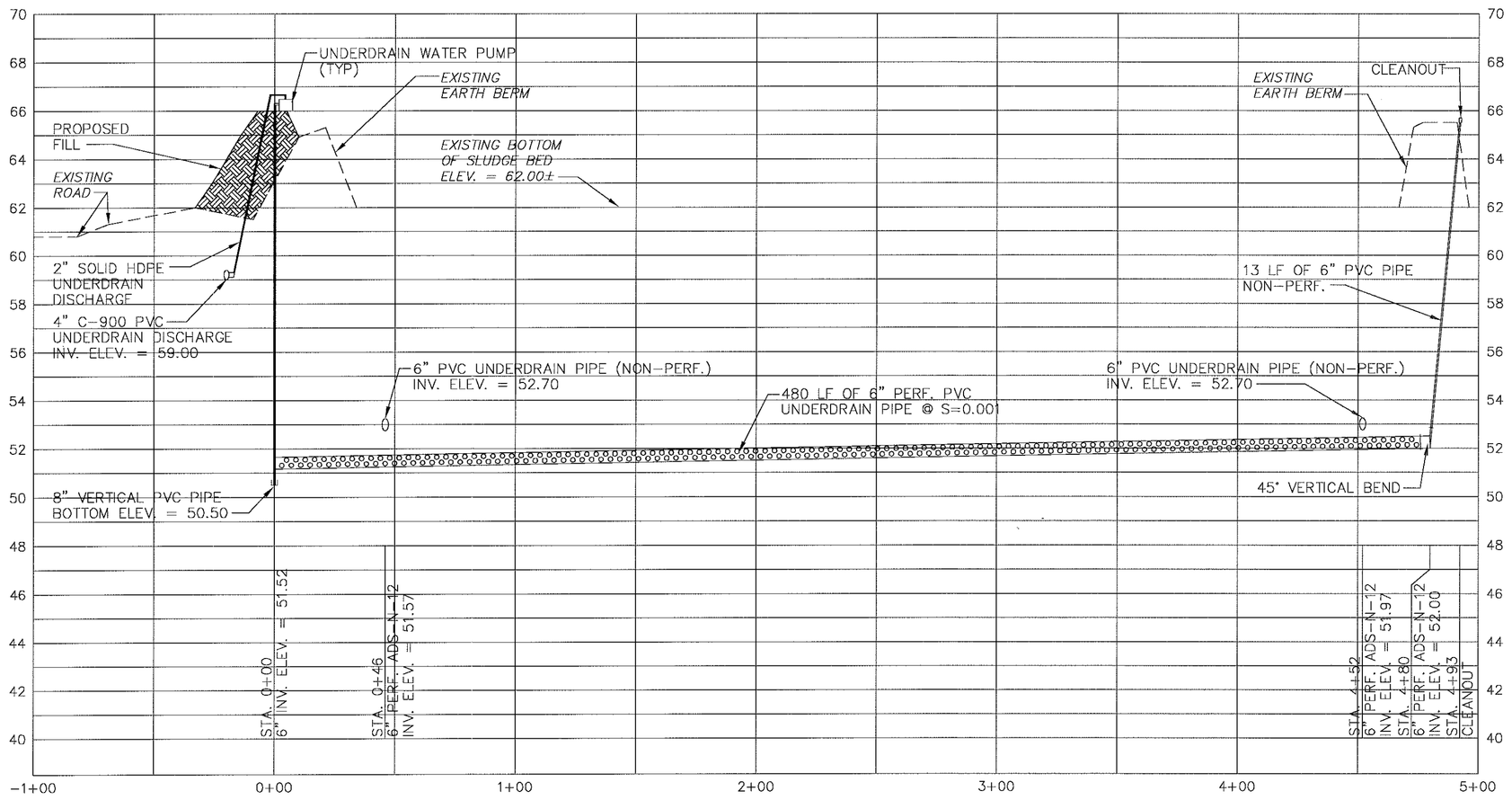
DRAWING NUMBER: C4

STATUS: JUNE, 2005 RECORD DRAWINGS

REVISION

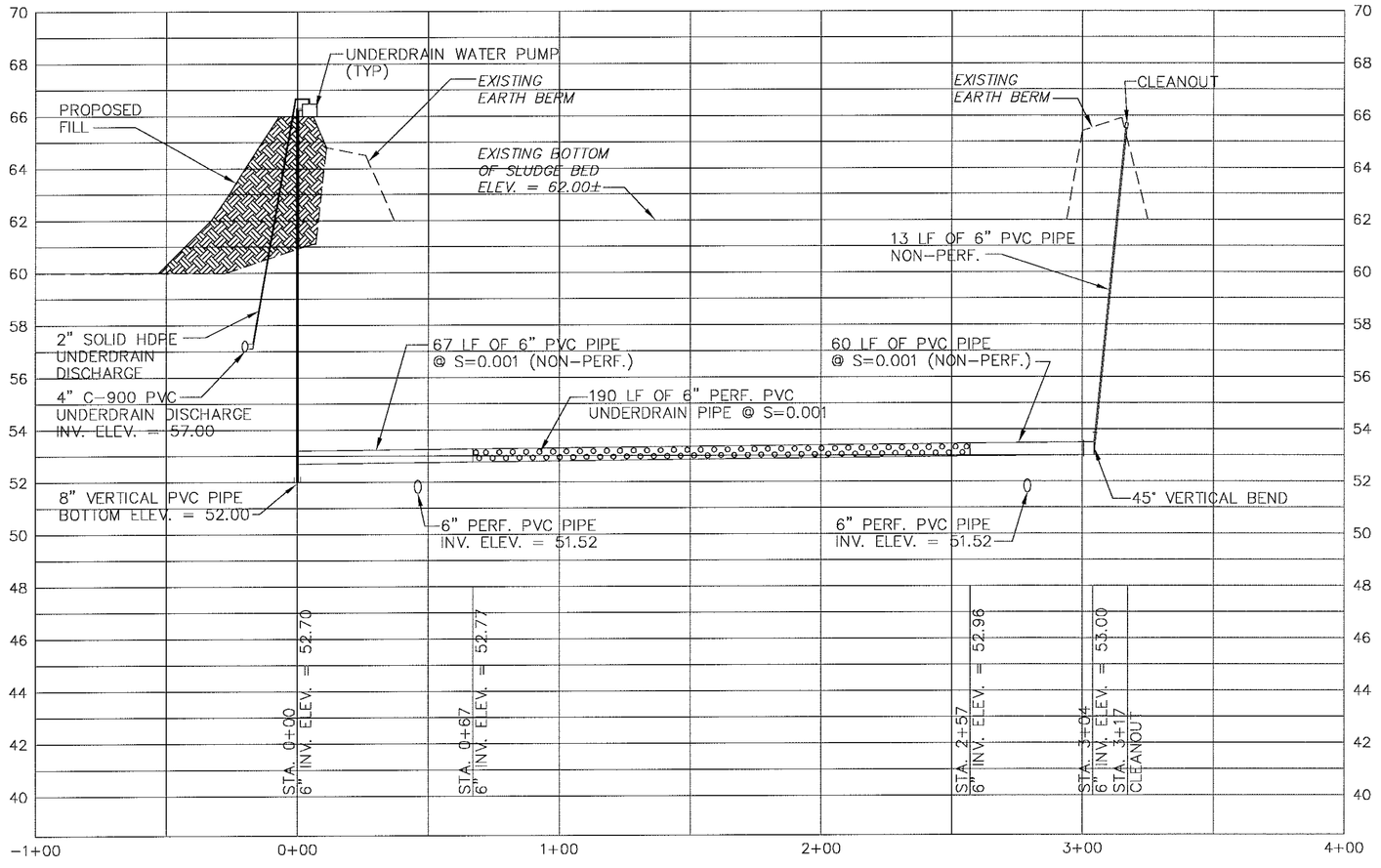
4456.006

ATTACHMENT D



SECTION A-A
TYPICAL EAST-WEST UNDERDRAIN PROFILE

SCALE: 1" = 40' H
1" = 4' V



SECTION B-B
TYPICAL NORTH-SOUTH UNDERDRAIN PROFILE

SCALE: 1" = 40' H
1" = 4' V

REV.NO.	DESCRIPTIONS	DATE
	REVISIONS	

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MANATEE COUNTY, FLORIDA

LAKE MANATEE
WATER TREATMENT PLANT
SLUDGE DEWATERING IMPROVEMENTS

ALUM SLUDGE BEDS
PUMP AND UNDERDRAIN SYSTEM
TYPICAL SECTIONS

DATE:	APRIL, 2003
MCE PROJ. #	1024-0033
DRAWN	DKM
DESIGNED	NJS
CHECKED	MAC
PROJ. MGR.	MAC

SCALE
HORIZONTAL: 1" = 40'
VERTICAL: 1" = 4'

M&C FILE NUMBER

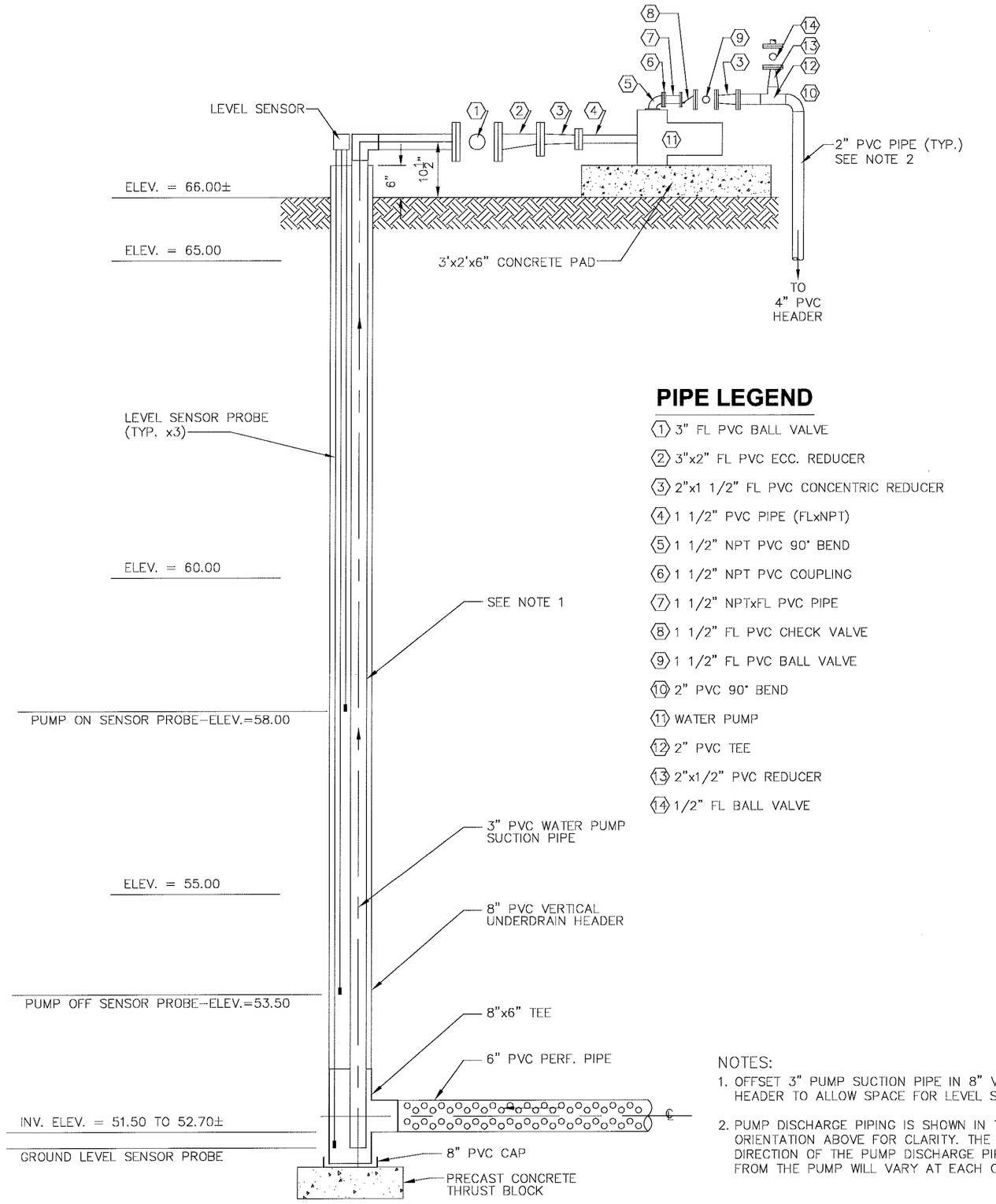
DRAWING NUMBER
C5

STATUS: JUNE, 2005 RECORD DRAWINGS

REVISION

4456.007

ATTACHMENT D



PIPE LEGEND

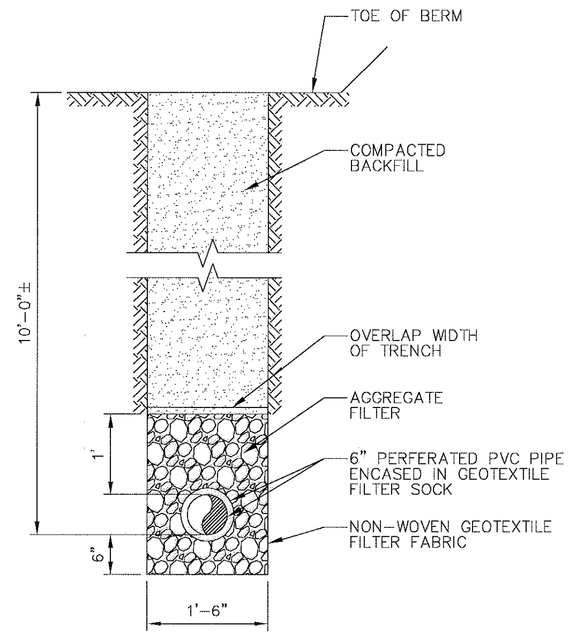
1. 3" FL PVC BALL VALVE
2. 3"x2" FL PVC ECC. REDUCER
3. 2"x1 1/2" FL PVC CONCENTRIC REDUCER
4. 1 1/2" PVC PIPE (FLxNPT)
5. 1 1/2" NPT PVC 90° BEND
6. 1 1/2" NPT PVC COUPLING
7. 1 1/2" NPTxFL PVC PIPE
8. 1 1/2" FL PVC CHECK VALVE
9. 1 1/2" FL PVC BALL VALVE
10. 2" PVC 90° BEND
11. WATER PUMP
12. 2" PVC TEE
13. 2"x1/2" PVC REDUCER
14. 1/2" FL BALL VALVE

NOTES:

1. OFFSET 3" PUMP SUCTION PIPE IN 8" VERTICAL HEADER TO ALLOW SPACE FOR LEVEL SENSORS.
2. PUMP DISCHARGE PIPING IS SHOWN IN THE ORIENTATION ABOVE FOR CLARITY. THE ACTUAL DIRECTION OF THE PUMP DISCHARGE PIPE AWAY FROM THE PUMP WILL VARY AT EACH OF THE 16 SITES.

TYPICAL 8" PVC VERTICAL UNDERDRAIN HEADER DETAIL AND PUMP DETAIL

SCALE: 3/4" = 1'-0"



TYPICAL UNDERDRAIN PIPE INSTALLATION

SCALE: 3/4" = 1'-0"

REV.NO.	DESCRIPTIONS	DATE
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MANATEE COUNTY, FLORIDA

LAKE MANATEE
WATER TREATMENT PLANT
SLUDGE DEWATERING IMPROVEMENTS

ALUM SLUDGE BEDS
PUMP AND UNDERDRAIN SYSTEM
DETAILS

DATE:	APRIL, 2003
MCE PROJ. #	1024-0033
DRAWN	DKM
DESIGNED	NJS
CHECKED	MAC
PROJ. MGR.	MAC

SCALE
HORIZONTAL: AS SHOWN
VERTICAL: NA

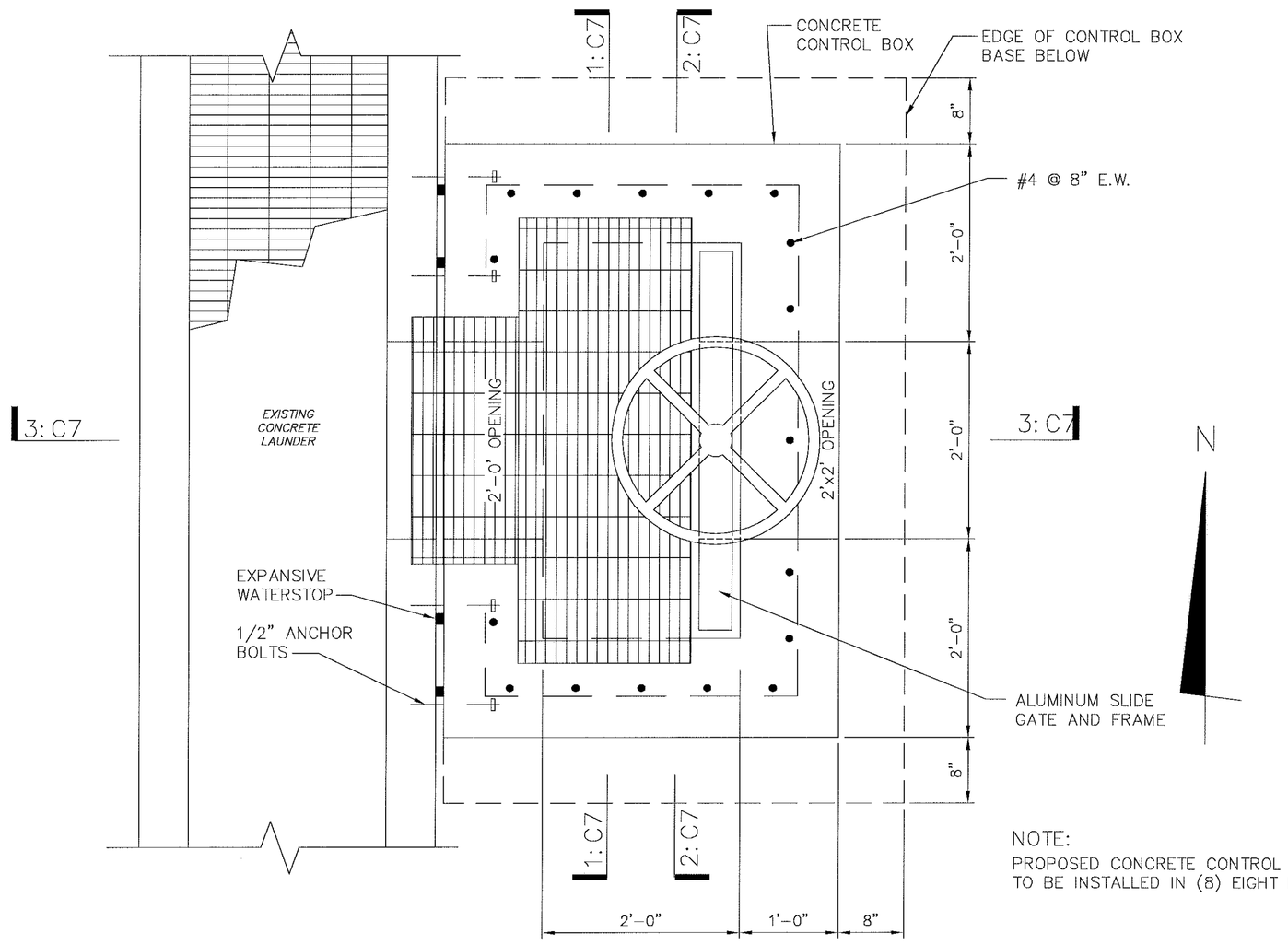
M&C FILE NUMBER

DRAWING NUMBER
C6

STATUS: JUNE, 2005 RECORD DRAWINGS
REVISION

4456.008

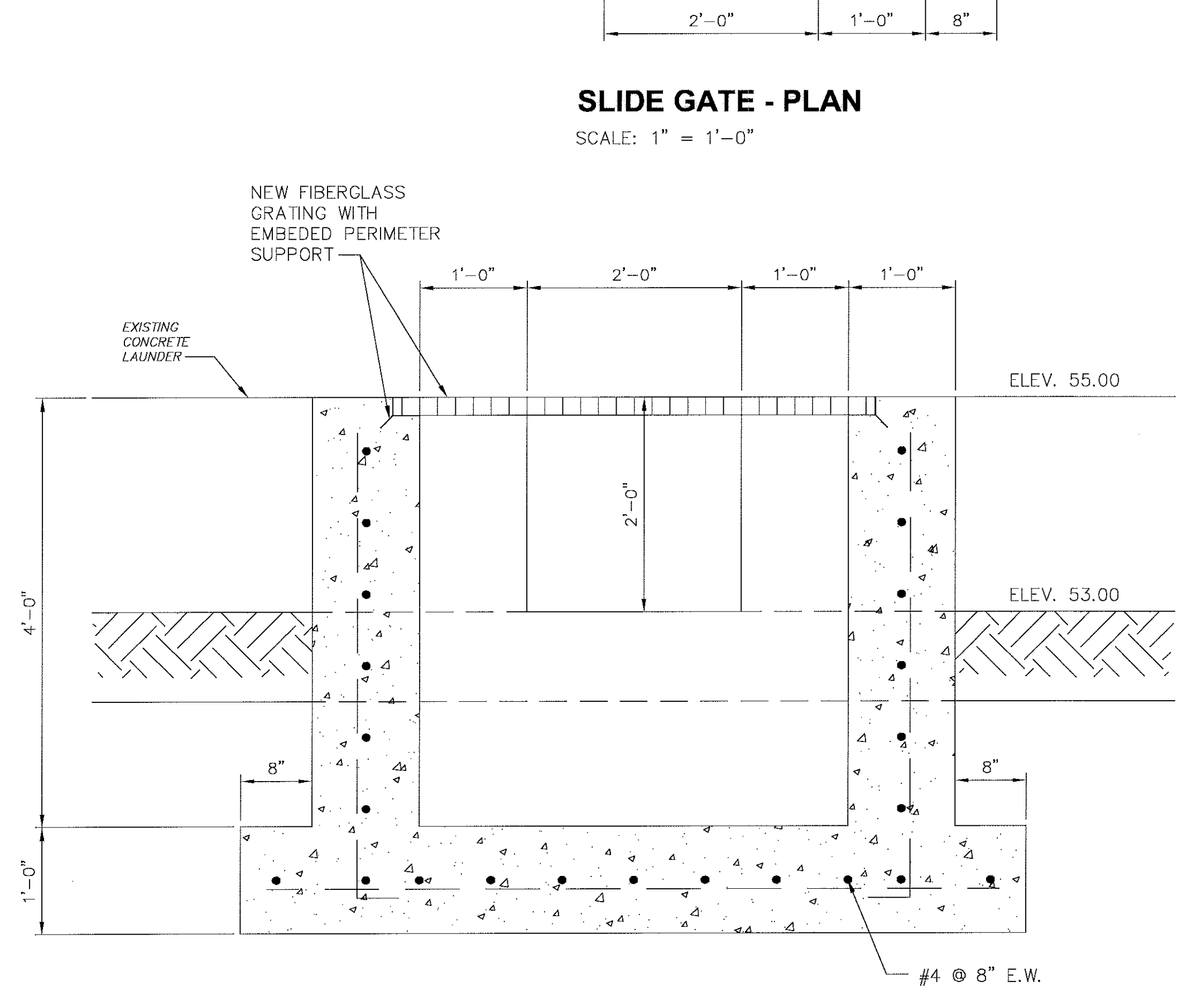
ATTACHMENT D



NOTE:
PROPOSED CONCRETE CONTROL BOX WITH SLIDE GATE TO BE INSTALLED IN (8) EIGHT LOCATIONS.

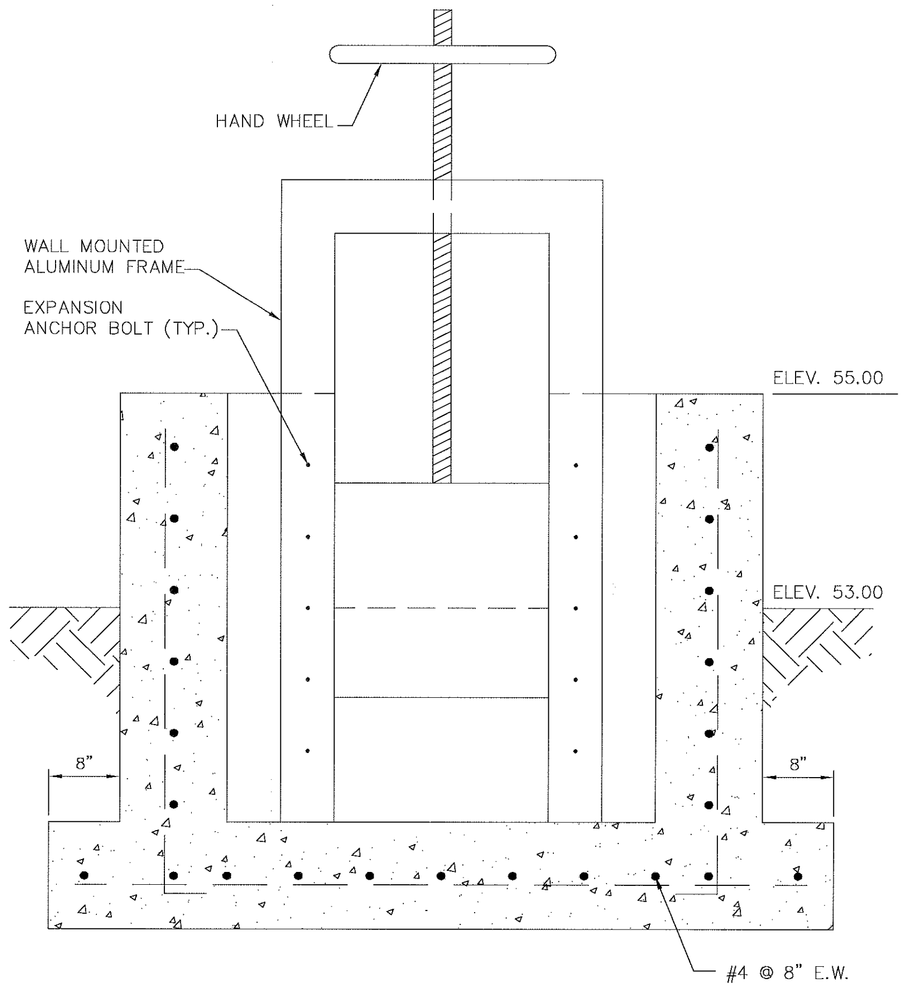
SLIDE GATE - PLAN

SCALE: 1" = 1'-0"



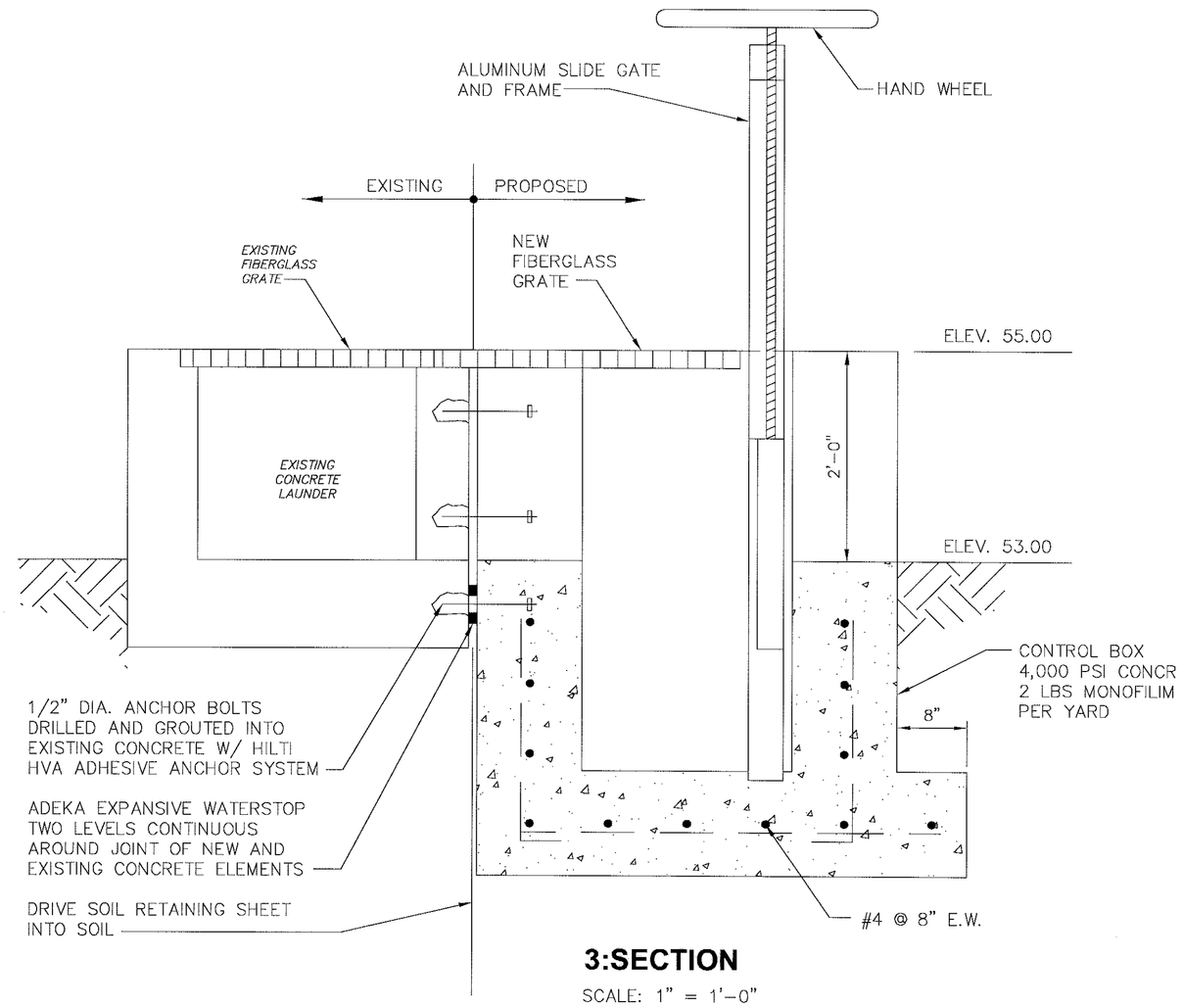
1:SECTION

SCALE: 1" = 1'-0"



2:SECTION

SCALE: 1" = 1'-0"



3:SECTION

SCALE: 1" = 1'-0"

REV.NO.	DESCRIPTIONS	DATE
	REVISIONS	

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MANATEE COUNTY, FLORIDA

LAKE MANATEE WATER TREATMENT PLANT SLUDGE DEWATERING IMPROVEMENTS

LIME SLUDGE BEDS SLIDE GATE DETAILS

DATE:	APRIL, 2003
MCE PROJ. #	1024-0033
DRAWN	DKM
DESIGNED	NJS
CHECKED	MAC
PROJ. MGR.	MAC

SCALE
HORIZONTAL: AS SHOWN
VERTICAL: NA

M&C FILE NUMBER

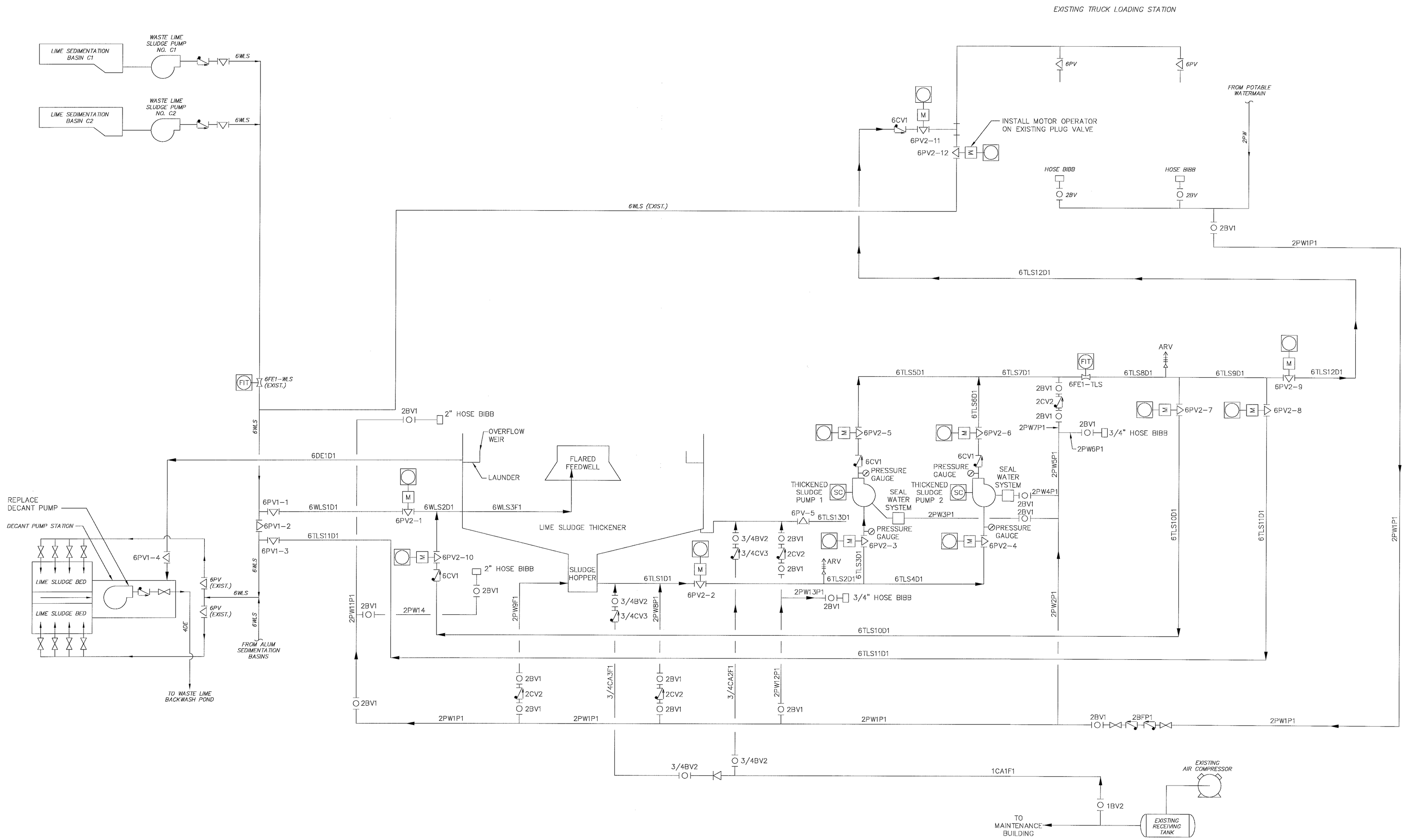
DRAWING NUMBER
C7

STATUS: JUNE, 2005 RECORD DRAWINGS

REVISION

4456.009

ATTACHMENT D



REV.NO.	DESCRIPTIONS	DATE
	REVISIONS	

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MANATEE COUNTY, FLORIDA

LAKE MANATEE WATER TREATMENT PLANT SLUDGE DEWATERING IMPROVEMENTS

LIME SLUDGE PROCESS PIPING SCHEMATIC

DATE:	APRIL, 2003
MCE PROJ. #	1024-0033
DRAWN	DKM
DESIGNED	NJS
CHECKED	MAC
PROJ. MGR.	MAC

SCALE
HORIZONTAL: NA
VERTICAL: NA

M&C FILE NUMBER

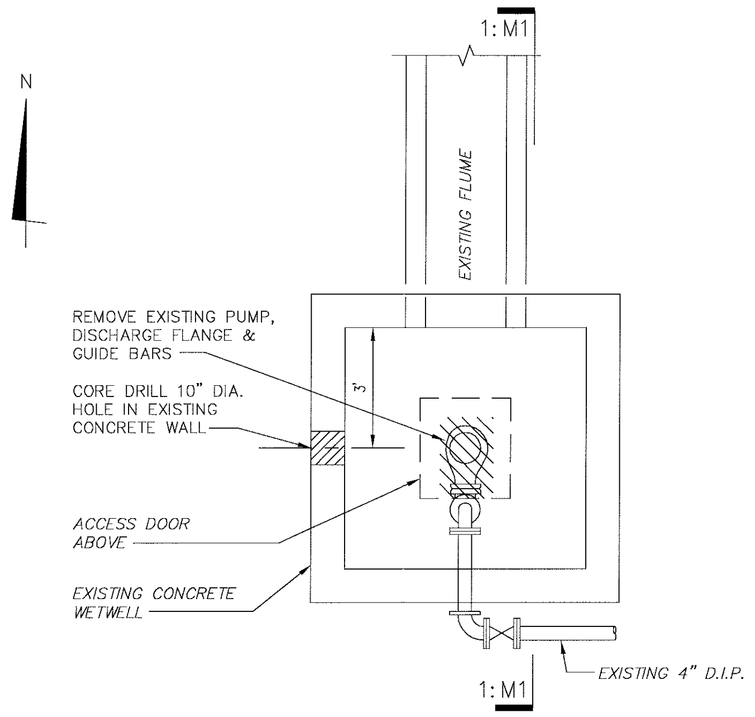
DRAWING NUMBER
P1

STATUS: JUNE, 2005 RECORD DRAWINGS

REVISION

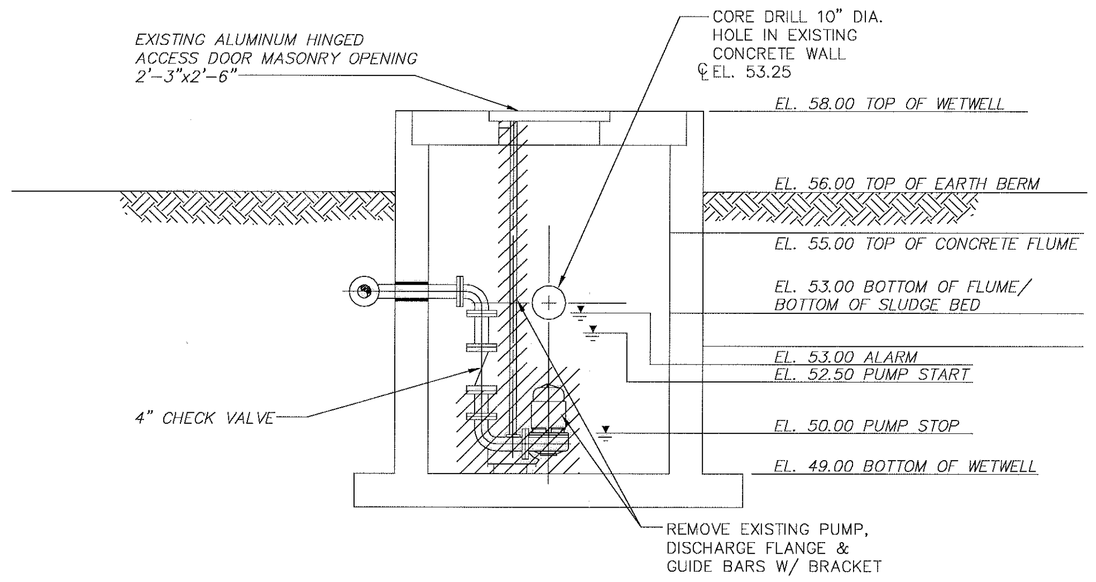
4456.010

ATTACHMENT D



LIME SLUDGE DECANT PUMP DEMOLITION PLAN

SCALE: 3/8" = 1'-0"



1:SECTION

SCALE: 3/8" = 1'-0"

LIME SLUDGE DECANT PUMP INSTALLATION PLAN

SCALE: 3/8" = 1'-0"

2:SECTION

SCALE: 3/8" = 1'-0"

REV.NO.	DESCRIPTIONS	DATE
	REVISIONS	

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MANATEE COUNTY, FLORIDA

LAKE MANATEE
WATER TREATMENT PLANT
SLUDGE DEWATERING IMPROVEMENTS

DECANT PUMP STATION
DEMOLITION AND MODIFICATION
PLANS AND SECTIONS

DATE:	APRIL, 2003
MCE PROJ. #	1024-0033
DRAWN	DKM
DESIGNED	NJS
CHECKED	MAC
PROJ. MGR.	MAC

SCALE
HORIZONTAL: AS SHOWN
VERTICAL: NA

M&C FILE NUMBER

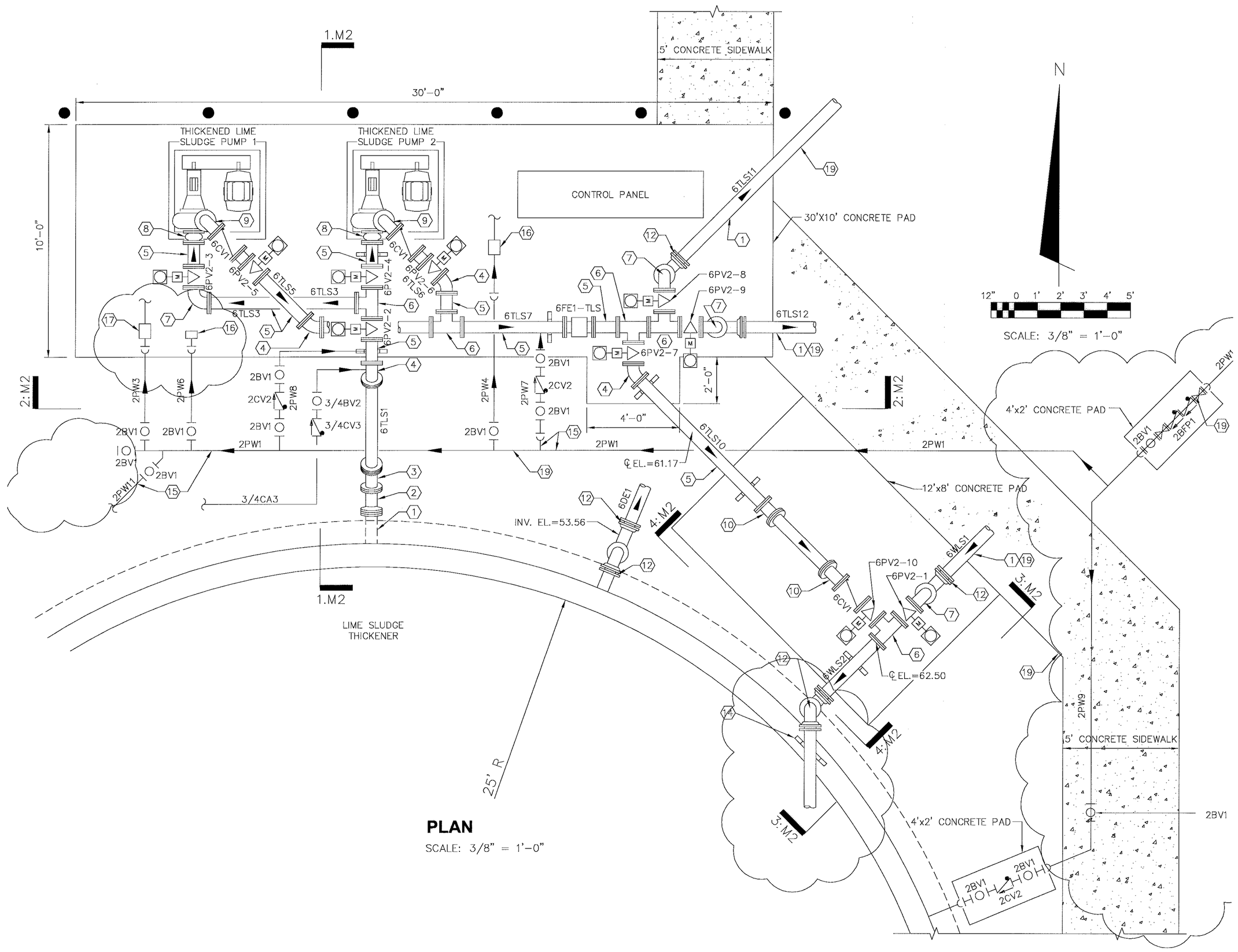
DRAWING NUMBER
M1

STATUS: JUNE, 2005 RECORD DRAWINGS

REVISION

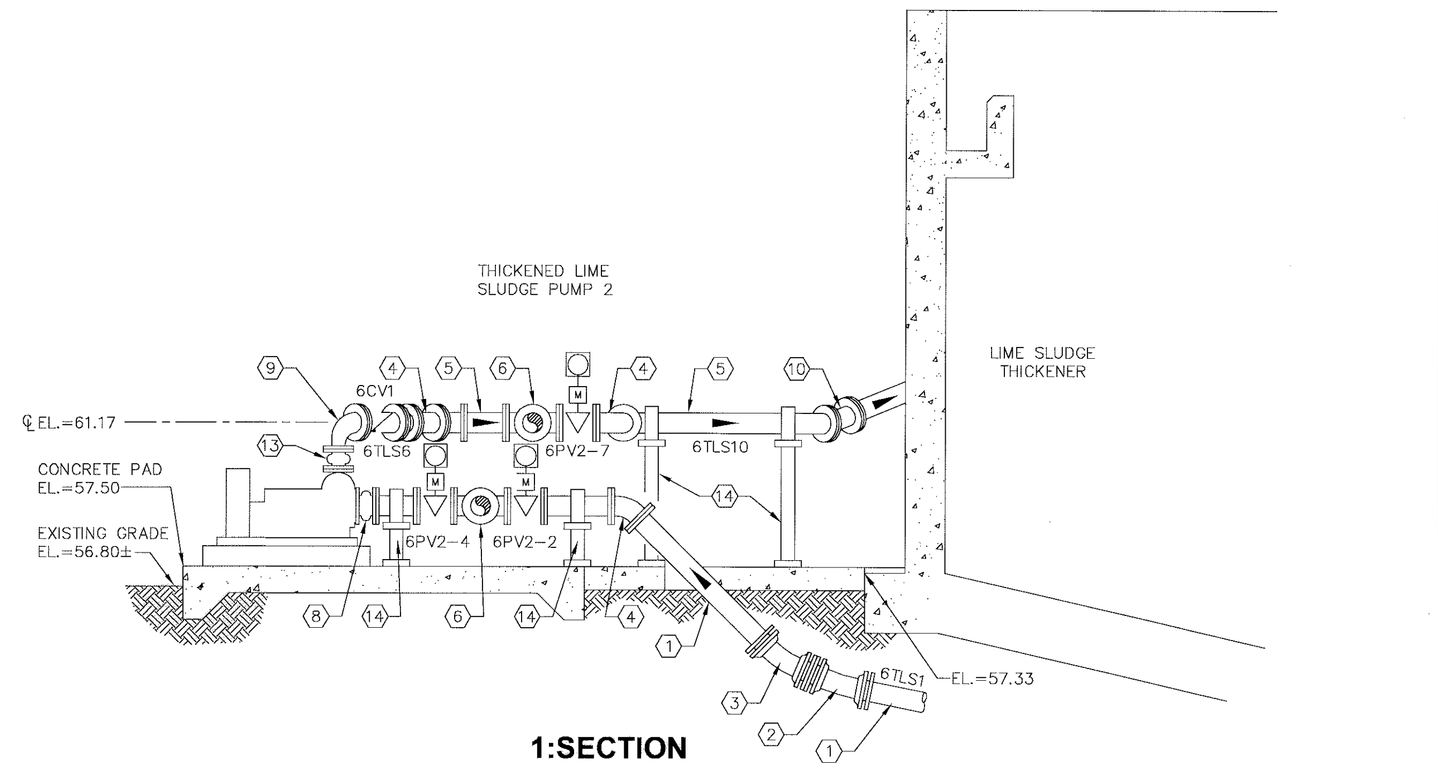
4456.011

ATTACHMENT D



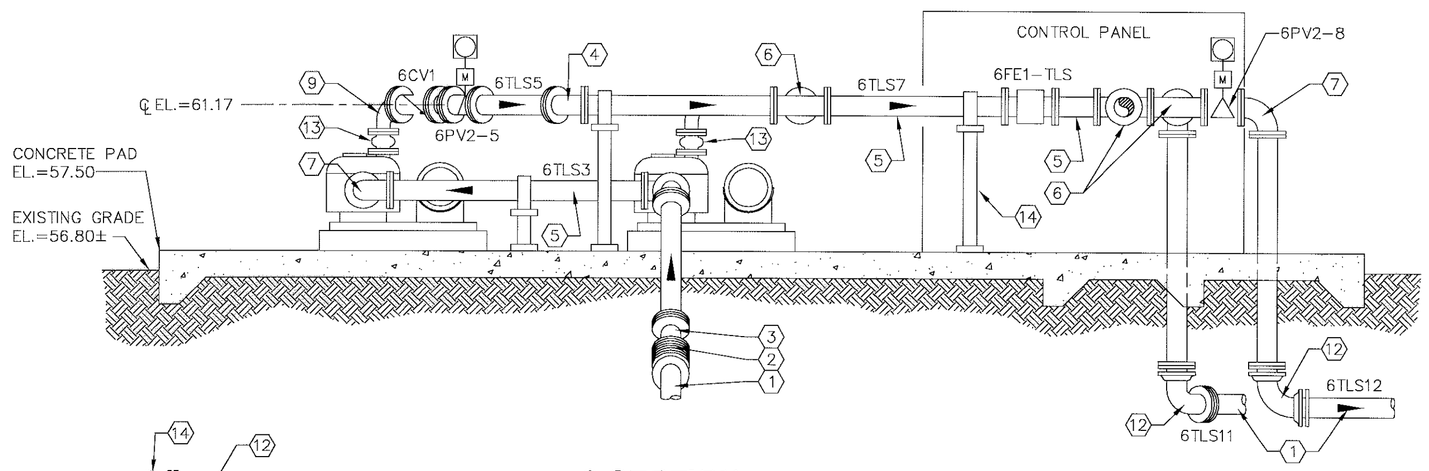
PLAN

SCALE: 3/8" = 1'-0"



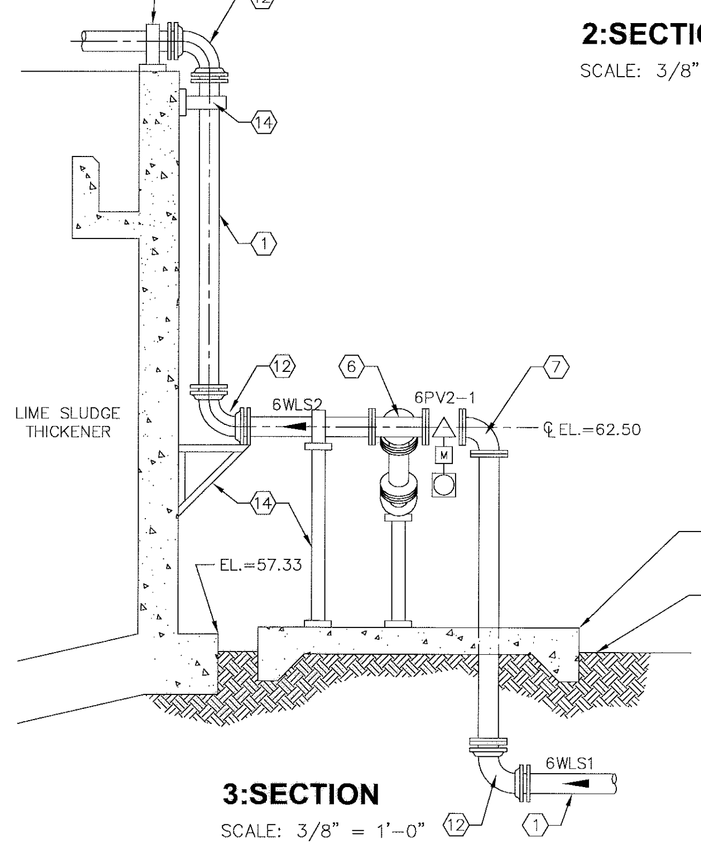
1:SECTION

SCALE: 3/8" = 1'-0"



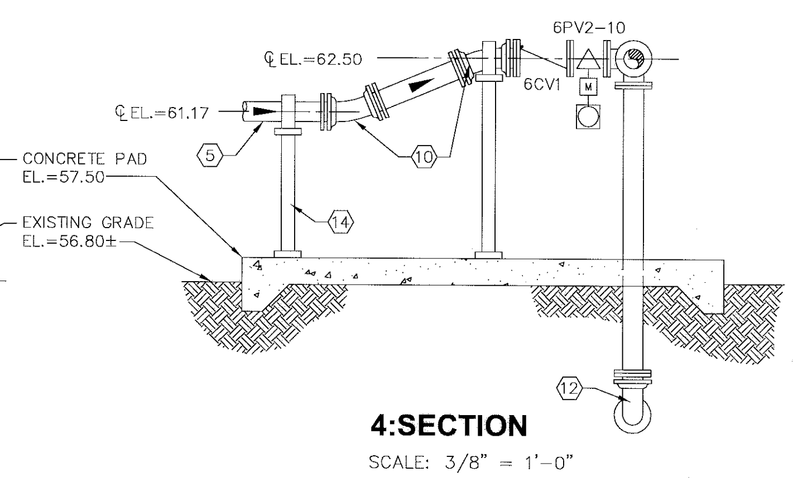
2:SECTION

SCALE: 3/8" = 1'-0"



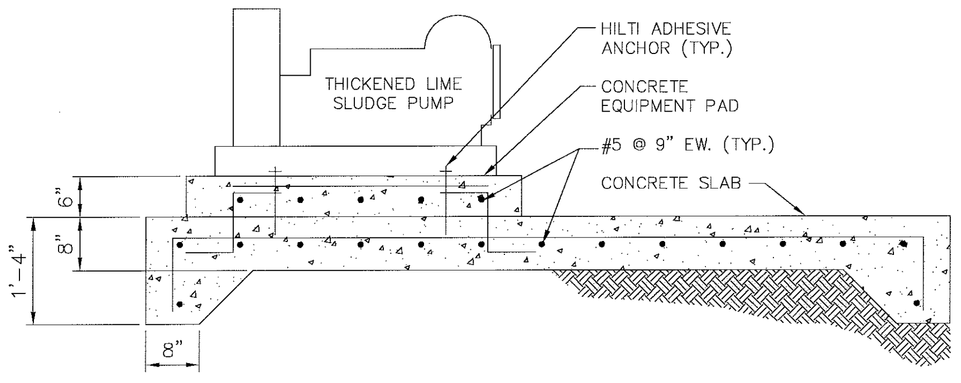
3:SECTION

SCALE: 3/8" = 1'-0"



4:SECTION

SCALE: 3/8" = 1'-0"



EQUIPMENT PAD AND SLAB DETAIL

3/4" = 1'-0"

PIPING LEGEND

1. 6" DUCTILE IRON PIPE
2. 6" MJ D.I. 22.5° BEND
3. 6" MJ D.I. 11.25° BEND
4. 6" FL D.I. 45° BEND
5. 6" FL D.I.P.
6. 6" FL D.I. TEE
7. 6" FL D.I. 90° BEND
8. 6" FL EXPANSION JOINT
9. 6"x4" FL D.I. 90° BEND
10. 6" MJ D.I. VERTICAL 22.5° BEND
11. 6" MJ D.I. 45° BEND
12. 6" MJ D.I. 90° BEND
13. 4" FL EXPANSION JOINT
14. STEEL PIPE SUPPORT
15. 2" SCH. 80 PVC PIPE
16. SEAL WATER SYSTEM
17. HOSE BIBB
18. 6" MECHANICAL JOINT
19. PIPE BURIED 3' ± BELOW SURFACE OF GROUND

NOTES:
1. SEE DRAWING NO. P1 FOR P & I.D.
2. PROVIDE PIPE SUPPORTS WHERE REQUIRED TO ADEQUATELY SUPPORT PIPING AND VALVES AT A SPACING NOT TO EXCEED 5'-0".

REV.NO.	DESCRIPTIONS REVISIONS	DATE

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MANATEE COUNTY, FLORIDA

LAKE MANATEE WATER TREATMENT PLANT SLUDGE DEWATERING IMPROVEMENTS

THICKENED SLUDGE PUMP STATION PLAN AND SECTIONS

DATE:	APRIL, 2003
MCE PROJ. #	1024-0033
DRAWN	DKM
DESIGNED	NJS
CHECKED	MAC
PROJ. MGR.	MAC

SCALE: HORIZONTAL: 3/8" = 1'-0" VERTICAL: NA

M&C FILE NUMBER

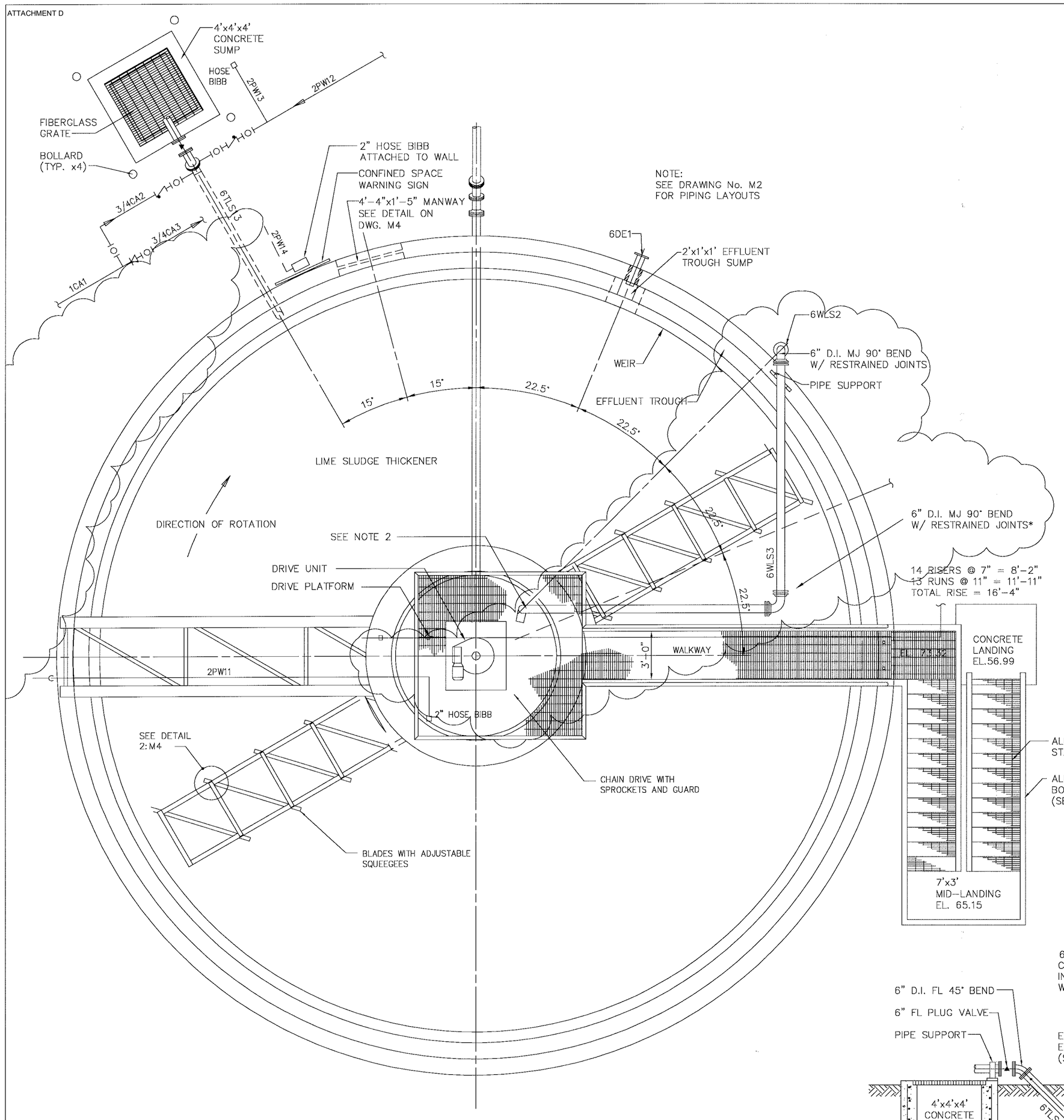
DRAWING NUMBER: M2

STATUS: JUNE, 2005 RECORD DRAWINGS

REVISION

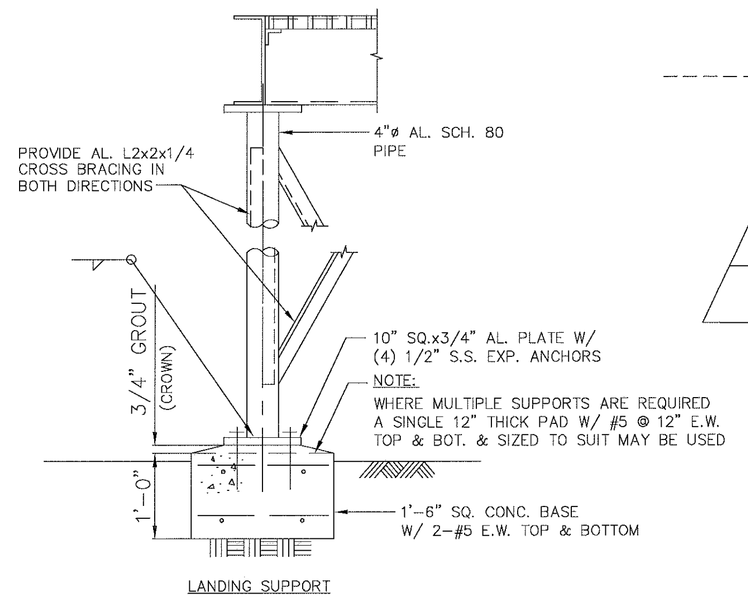
4456.012

ATTACHMENT D

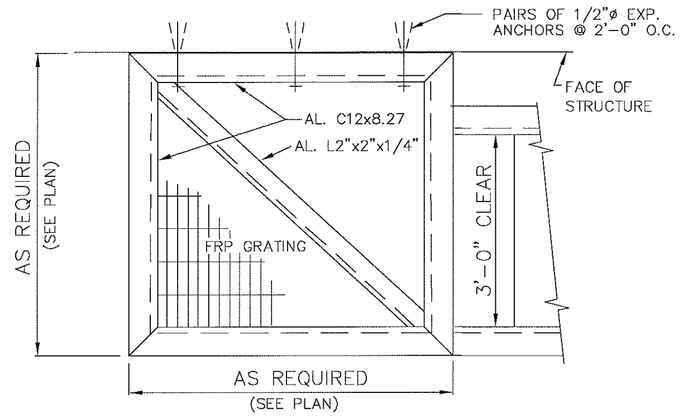


LIME SLUDGE THICKENER PLAN

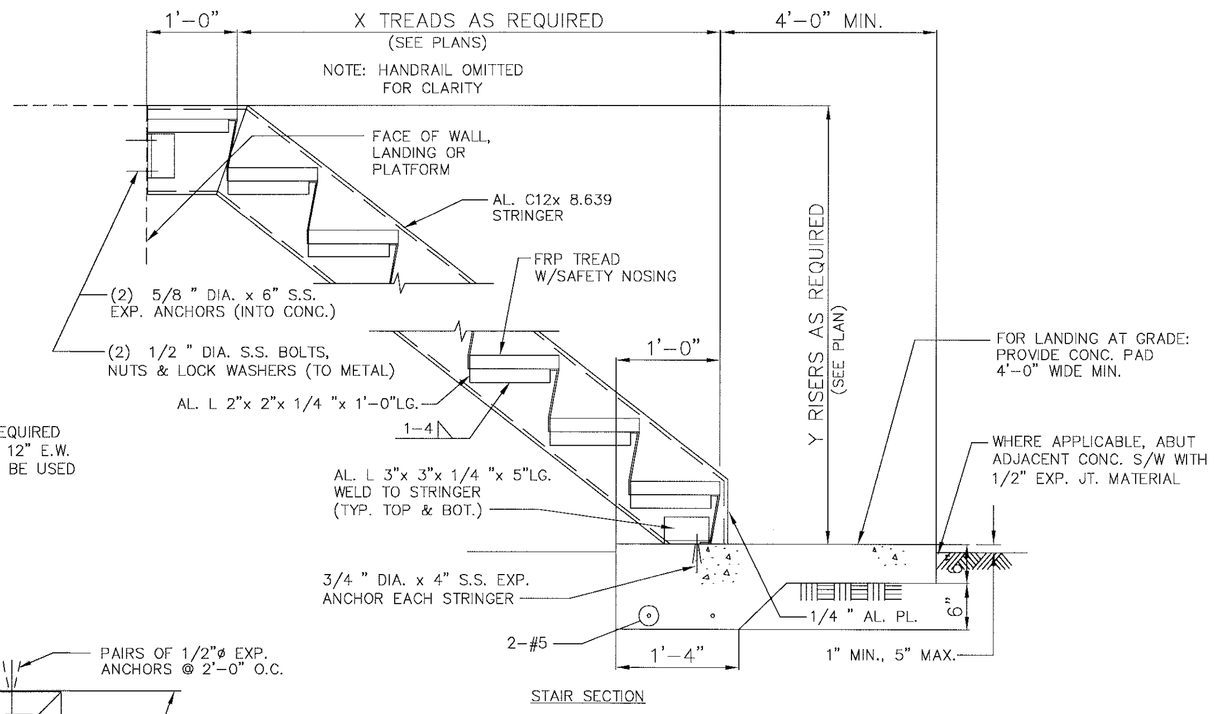
SCALE: 1/4" = 1'-0"



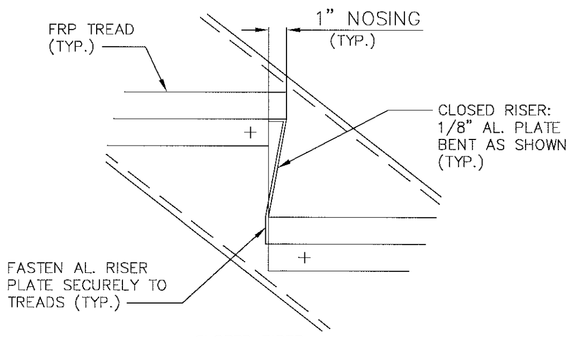
LANDING SUPPORT



LANDING PLAN



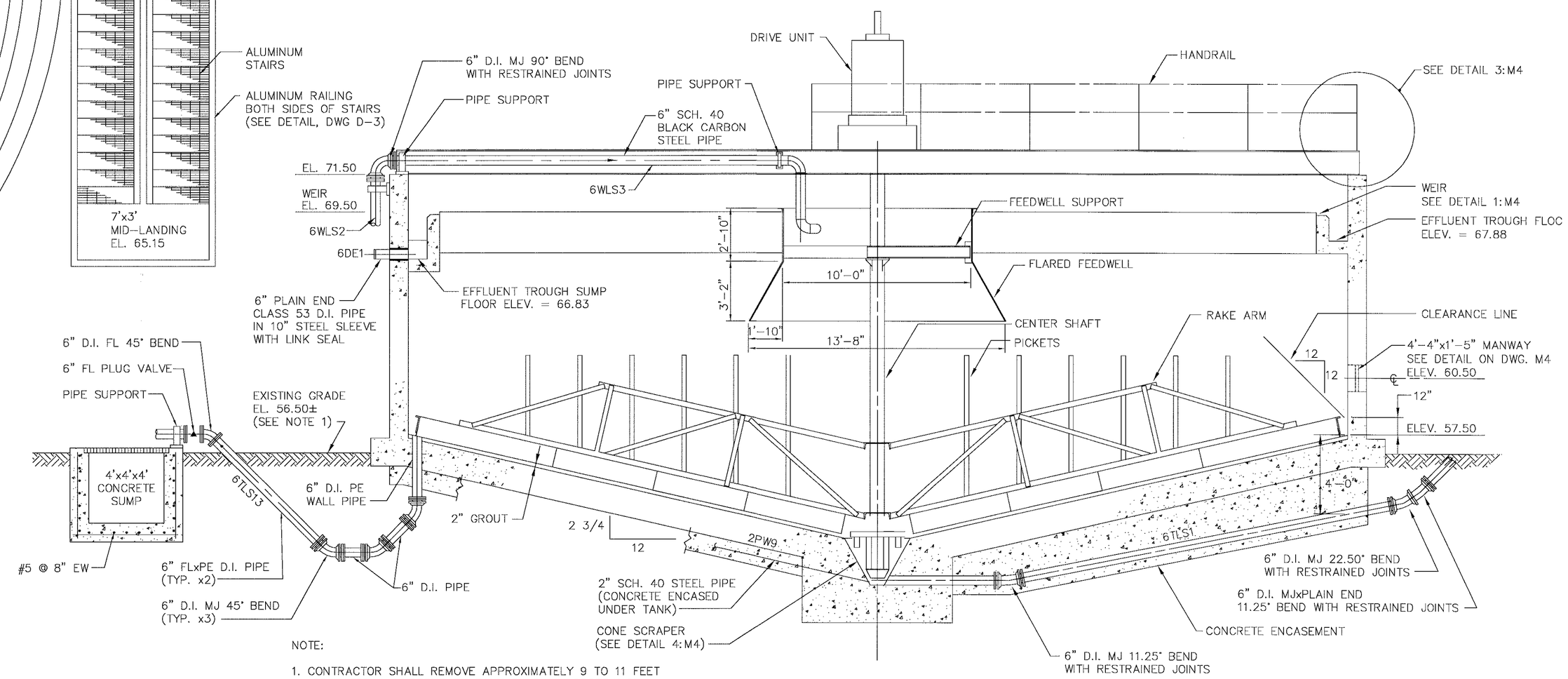
STAIR SECTION



CLOSED RISER

ALUMINUM STAIR DETAIL

SCALE: 3/8" = 1'-0"



NOTE:

1. CONTRACTOR SHALL REMOVE APPROXIMATELY 9 TO 11 FEET OF MATERIAL UNDERNEATH TANK SLAB IN ACCORDANCE WITH SOILS REPORT.
2. POINT INLET PIPE DISCHARGE IN THE SAME DIRECTION AS THE ROTATION OF THE RAKE ARMS.

TYPICAL SECTION

SCALE: 1/4" = 1'-0"

REV.NO.	DESCRIPTIONS	DATE
	REVISIONS	

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MANATEE COUNTY, FLORIDA

LAKE MANATEE
WATER TREATMENT PLANT
SLUDGE DEWATERING IMPROVEMENTS

LIME SLUDGE THICKENER
PLAN AND SECTION

DATE:	APRIL, 2003
MCE PROJ. #	1024-0033
DRAWN	DKM
DESIGNED	NJS
CHECKED	MAC
PROJ. MGR.	MAC

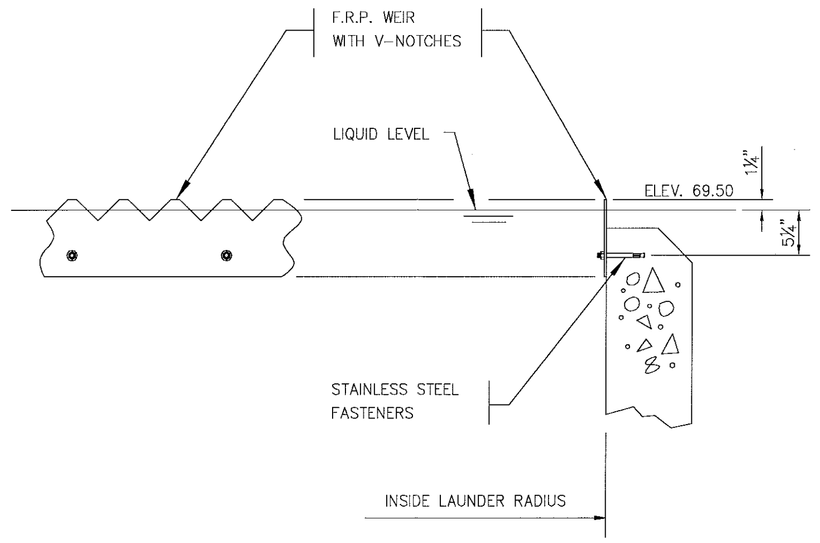
SCALE
HORIZONTAL:
VERTICAL: NA

M&C FILE NUMBER
DRAWING NUMBER
M3

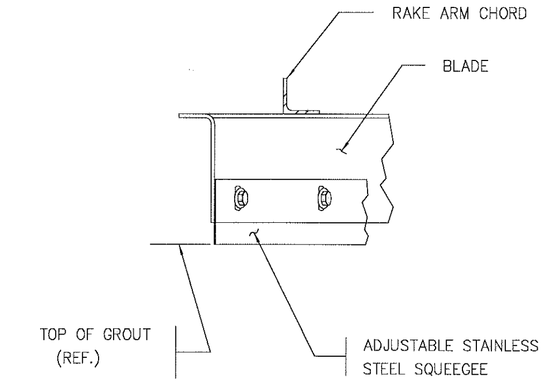
STATUS: JUNE, 2005 RECORD DRAWINGS
REVISION

4456.013

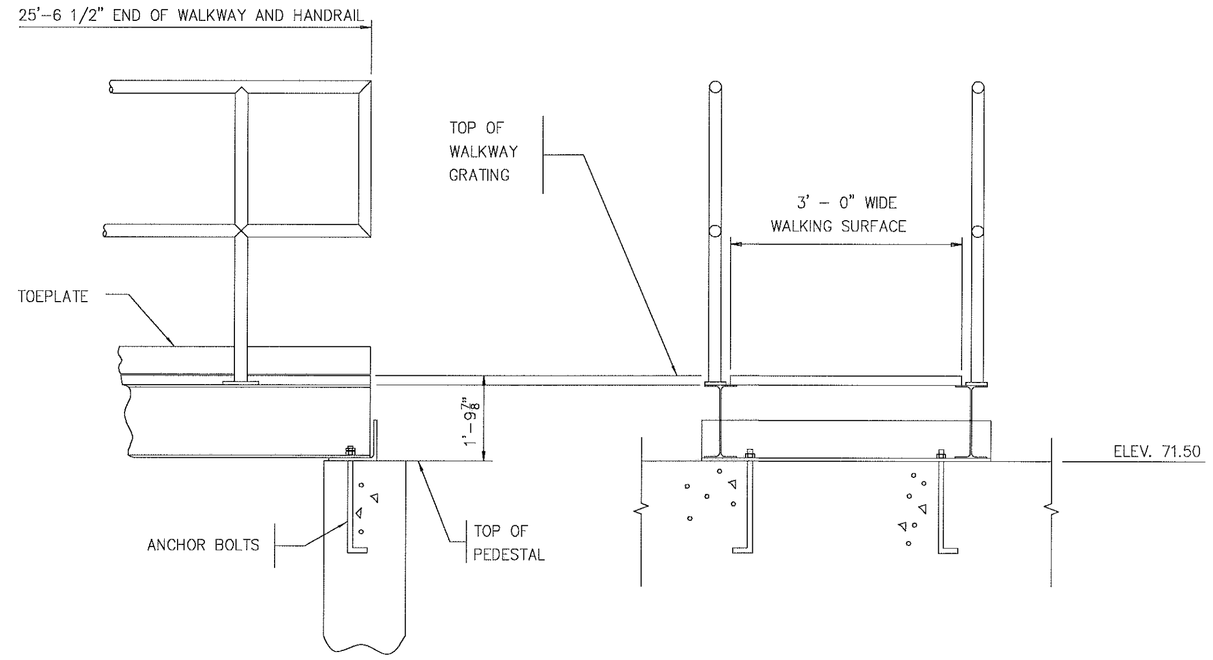
ATTACHMENT D



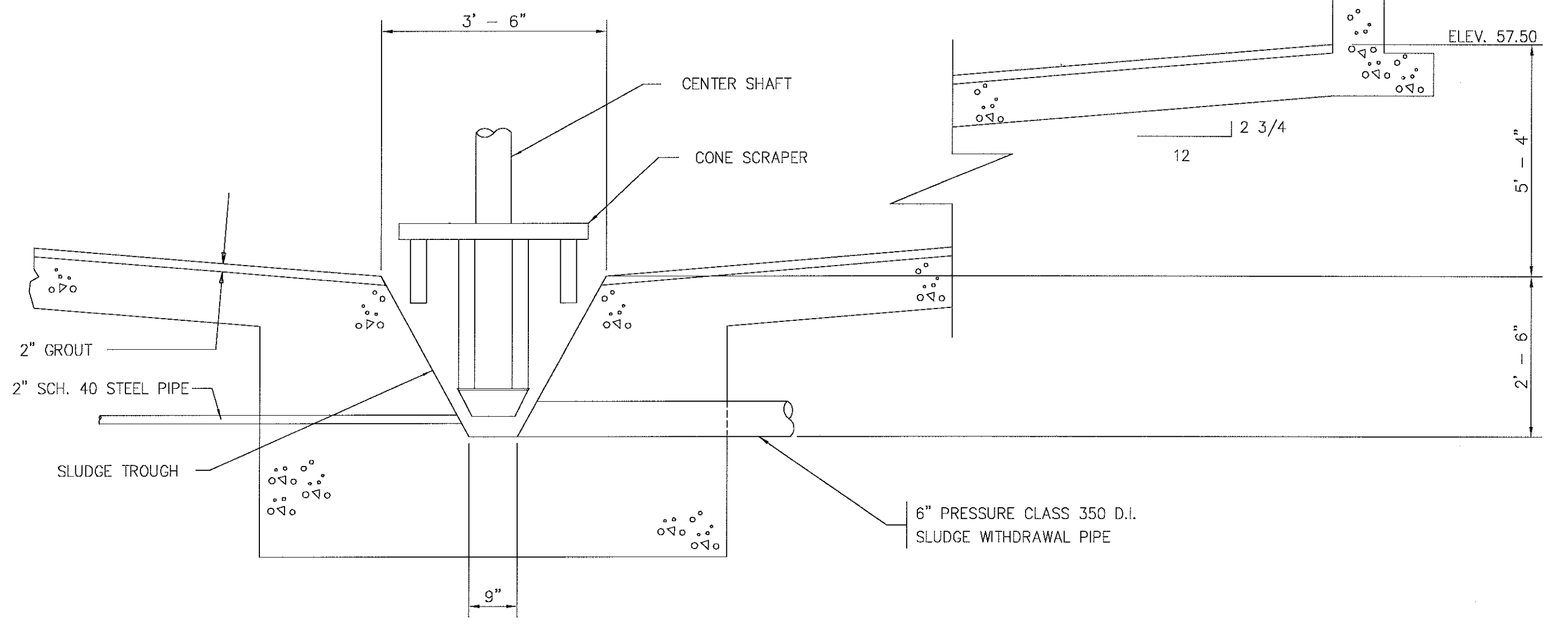
1:M3 - WEIR DETAIL



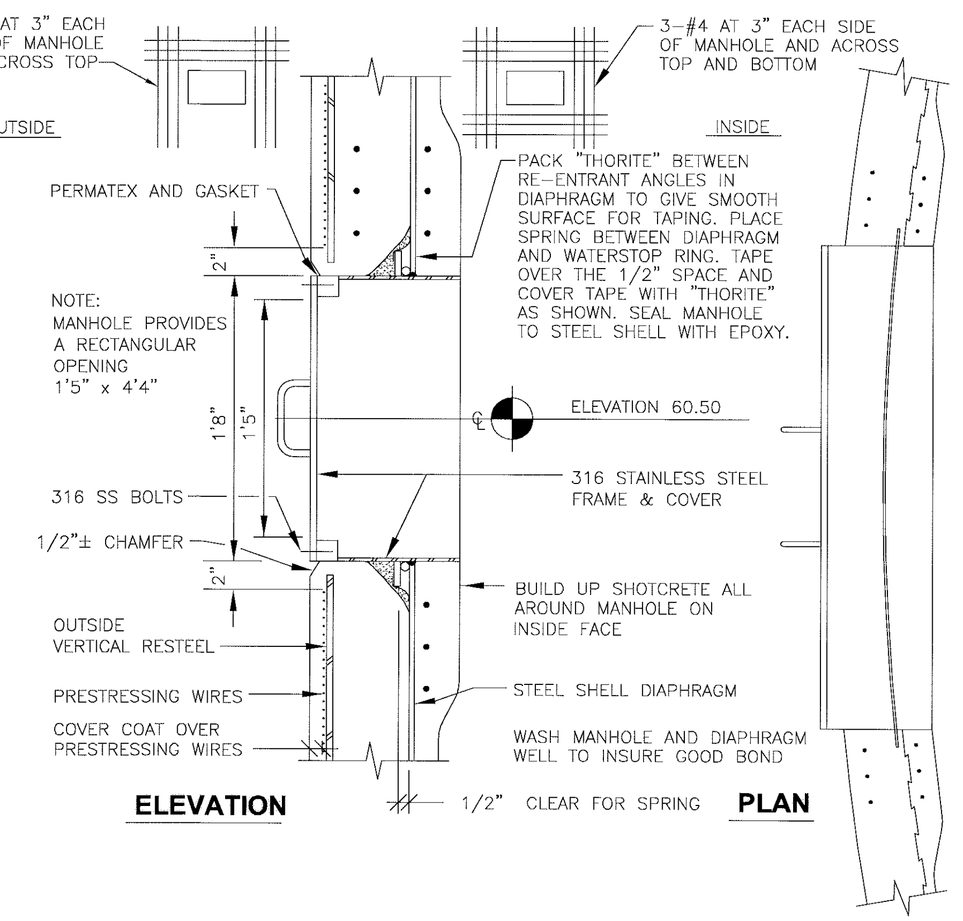
2:M3 - RAKE BLADE DETAIL (ELEVATION)



3:M3 - WALKWAY END DETAIL



4:M3 - TANK BOTTOM DETAIL



STAINLESS STEEL WALL MANHOLE

NTS

REV.NO.	DESCRIPTIONS	DATE
	REVISIONS	

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MANATEE COUNTY, FLORIDA

LAKE MANATEE WATER TREATMENT PLANT SLUDGE DEWATERING IMPROVEMENTS

LIME SLUDGE THICKENER DETAILS

DATE:	APRIL, 2003
MCE PROJ. #	1024-0033
DRAWN	DKM
DESIGNED	NJS
CHECKED	MAC
PROJ. MGR.	MAC

SCALE
HORIZONTAL:
VERTICAL: NA

M&C FILE NUMBER

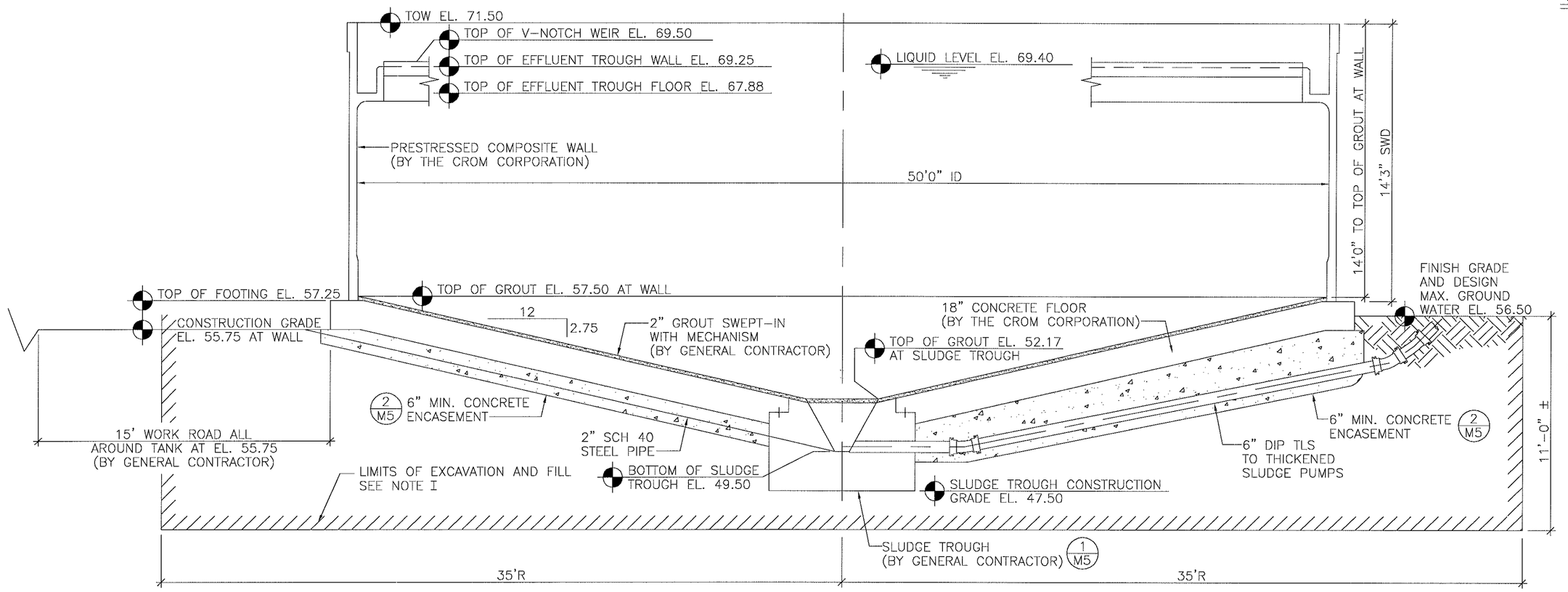
DRAWING NUMBER
M4

STATUS: JUNE, 2005 RECORD DRAWINGS

REVISION

4456.014

ATTACHMENT D



SECTION

NOTES

A. Concrete: Use Type I/II Cement with up to 20% Fly Ash
   1. Tank Floor: 4000 psi pump mix with 3/4" aggregate.
   2. Effluent Trough Floor: 4000 psi pump mix with 3/8" aggregate.

B. Shotcrete: 4000 psi grout mix with Type I/II cement with up to 20% fly ash for walls.
   1. fg = 1510 psi
   2. fgi = 1510 psi

C. Material Testing:
   Use 6" x 12" molded cylinders for all tests.
   1. Concrete: Set of four cylinders each 50 CY (for each set, test one at 7 days, two at 28 days, and hold one)
      (a) 3 sets min. for tank floor
      (b) 2 sets min. for effluent trough floor
   2. Shotcrete: Set of four cylinders each 50 CY with at least one set each day when shotcreting (for each set, test one at 7 days, two at 28 days, and hold one)
      (a) 2 sets min. for outside core wall
      (b) 2 sets min. for inside core wall
      (c) 2 sets min. for cover coat

D. Curing: Water-cure floors and walls during tank construction (7 days minimum).

E. Reinforcing Steel:
   1. ASTM A615 grade 60, lap splices 38 bar diameters.
   2. Use 3-SBP-3 wire bar supports (3" slab bolsters with plate) under typical floor resteel and 11-CHCU-3 wire bar supports (11" continuous high chairs with runner) or equivalent standees between typical floor resteel.

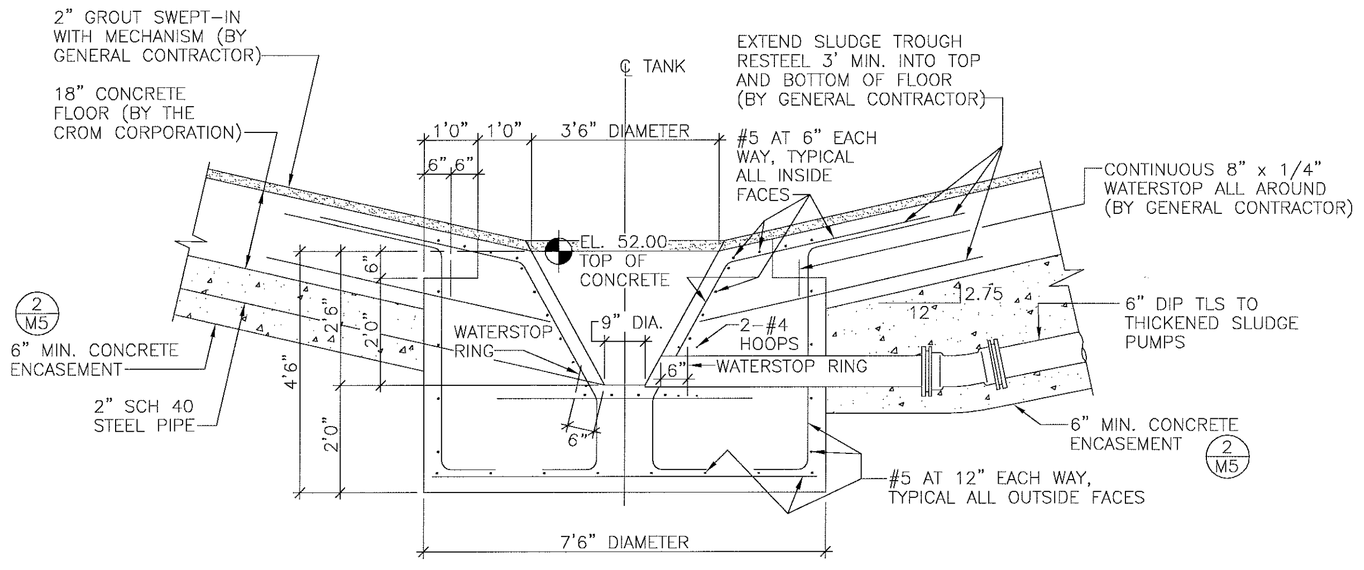
F. Prestressing Wire: Meets ASTM A821-93 Type B
   1. Diameter: 0.162 in. (8 gauge)
   2. Area: 0.0206 sq-in.
   3. Ultimate Strength: 231,000 psi
   4. Initial Stress: 145,600 psi
   5. Working Stress: 115,000 psi

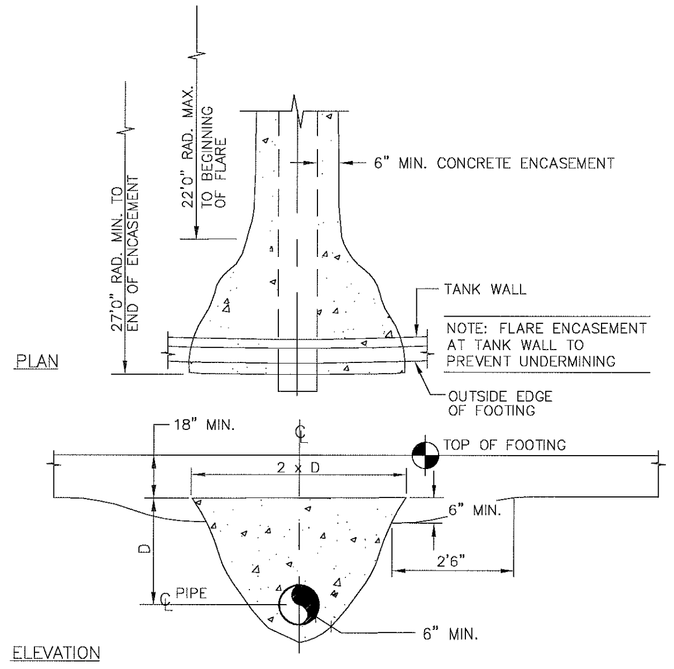
G. Paint Schedule:
   1. Exterior Concrete Surfaces: One prime coat of white Thoroseal with Acryl 60 and two finish coats of Tnemec Series 6 Tneme-Cryl.
   2. Interior Concrete Surfaces: None.

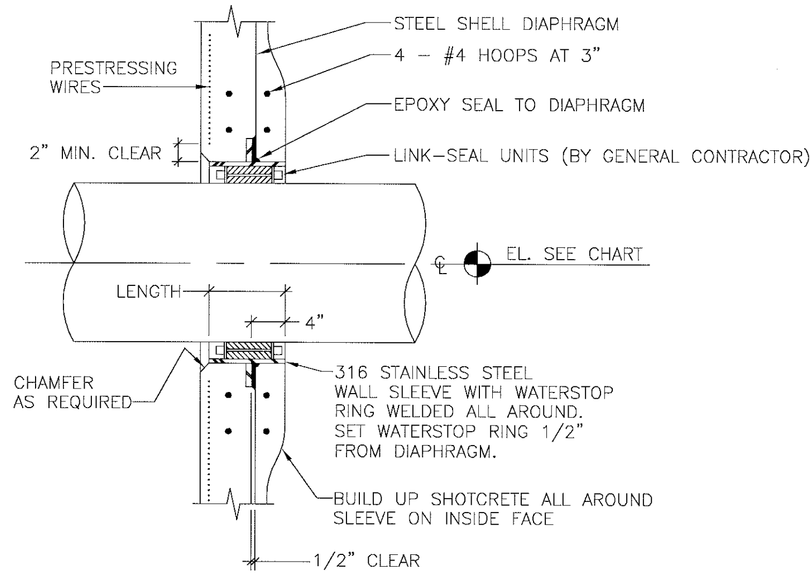
H. Accessories:
   1. Stainless steel wall sleeve only (Link-Seal units by General Contractor) for:
      (a) 6" DIP DE to decant pump station
   2. Stainless steel anchor bolts embedded in tank wall for 6" DIP WLS influent pipe support
   3. Stainless steel anchor bolts embedded in top of tank wall for walkway bridge
   4. 316 Stainless steel wall manhole (4'-4" length x 1'-5" width)

I. Contractor shall remove unsuitable material to limits show. The depth of removal may be reduced if suitable material is present at a more shallow depth and if approved by the Owner's Represenative. Contractor shall refill and compact with suitable structural fill from off site.

NOTE: ALL PIPING AND CONCRETE PIPE ENCASEMENT BY GENERAL CONTRACTOR







PIPE DESCRIPTION	OD	℄ EL.	LINK-SEAL/# (BY GENERAL CONTRACTOR)	SLEEVE		
				ID	WALL	LENGTH
6" DIP DE TO DECANT PUMP STATION	6.90"	67.25	LS-400-S/7	10.020"	0.365"	7"

1 — SLUDGE TROUGH (BY GENERAL CONTRACTOR)
1/2"=1'0"
1' 0 1' 2'

2 — TYPICAL PIPE ENCASEMENT AT FOOTING
NTS

3 — TYPICAL WALL SLEEVE
NTS

NOTE:
STEEL REINFORCING SHOWN IS FOR INFORMATIONAL PURPOSES ONLY TO ESTABLISH THE SCOPE OF WORK FOR BIDDING. THE PRESTRESSED CONCRETE TANK SUBCONTRACTOR SHALL SUBMIT COMPLETE SIGNED AND SEALED STRUCTURAL DRAWINGS AND CALCULATIONS AFTER AWARD OF THE CONTRACT.

REV.NO.	DESCRIPTIONS REVISIONS	DATE

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MANATEE COUNTY, FLORIDA

LAKE MANATEE
WATER TREATMENT PLANT
SLUDGE DEWATERING IMPROVEMENTS

LIME SLUDGE THICKENER
MECHANICAL DETAILS

DATE:	APRIL, 2003
MCE PROJ. #	1024-0033
DRAWN	DKM
DESIGNED	NJS
CHECKED	MAC
PROJ. MGR.	MAC

SCALE
HORIZONTAL: AS SHOWN
VERTICAL: NA

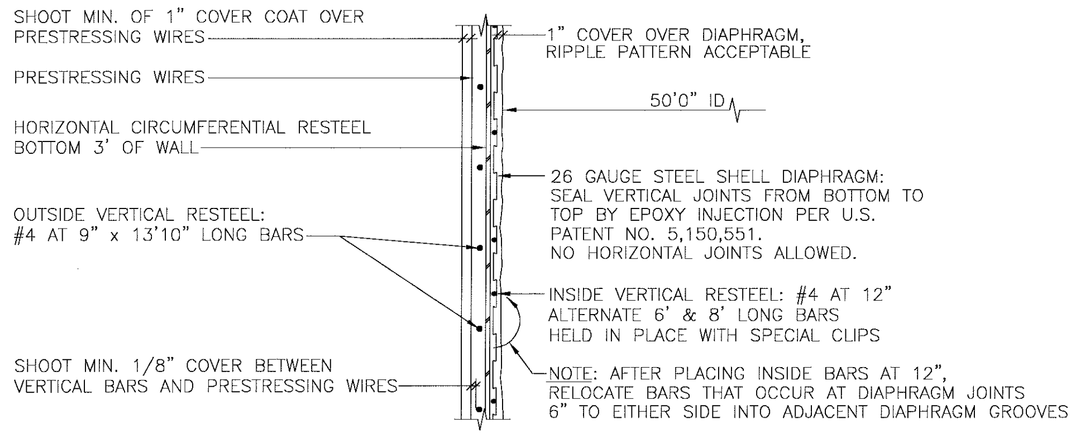
M&C FILE NUMBER

DRAWING NUMBER
M5

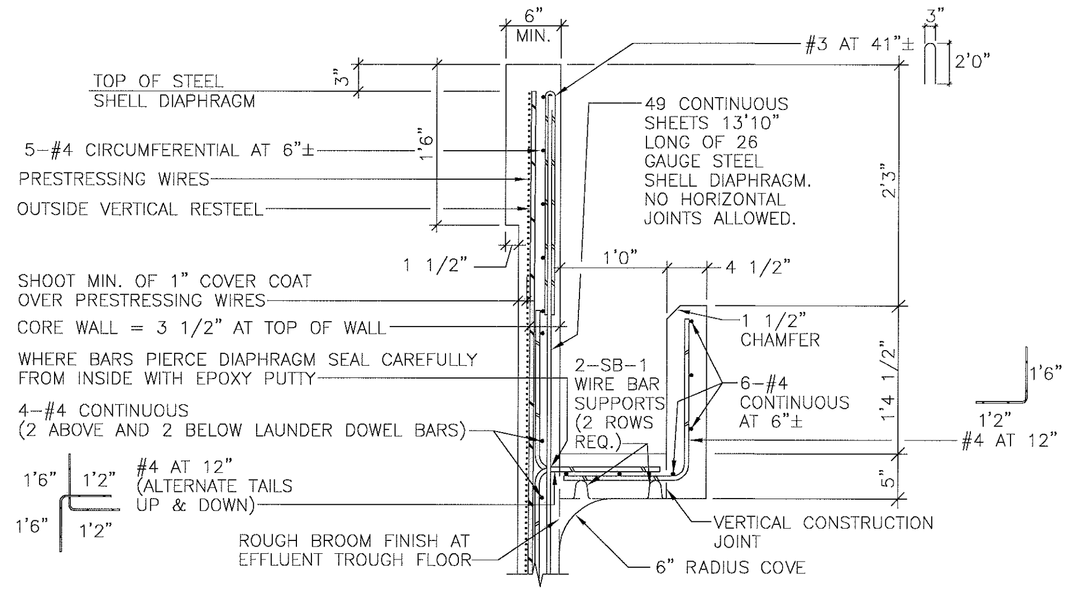
STATUS: JUNE, 2005 RECORD DRAWINGS
REVISION

4456.05

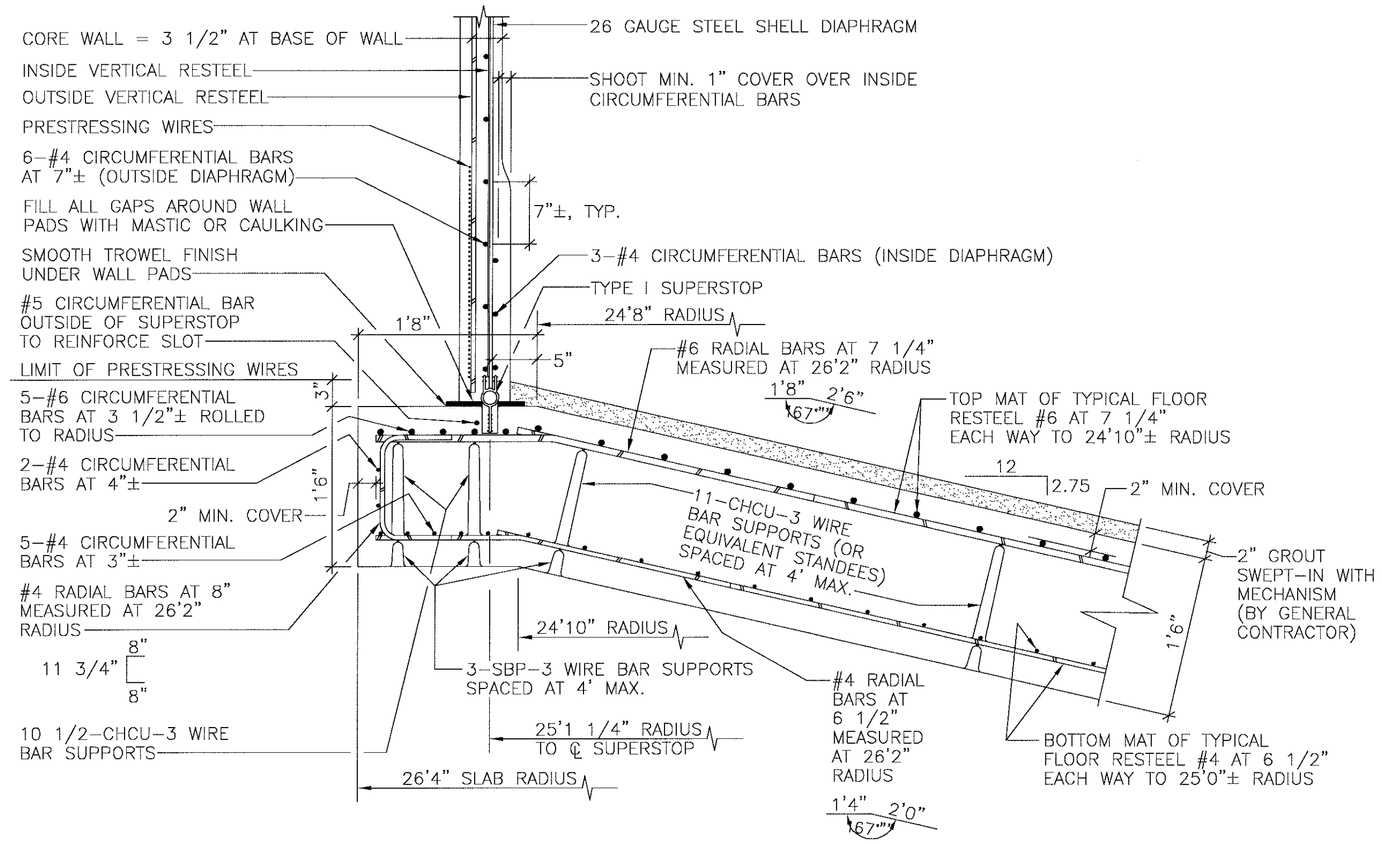
ATTACHMENT D



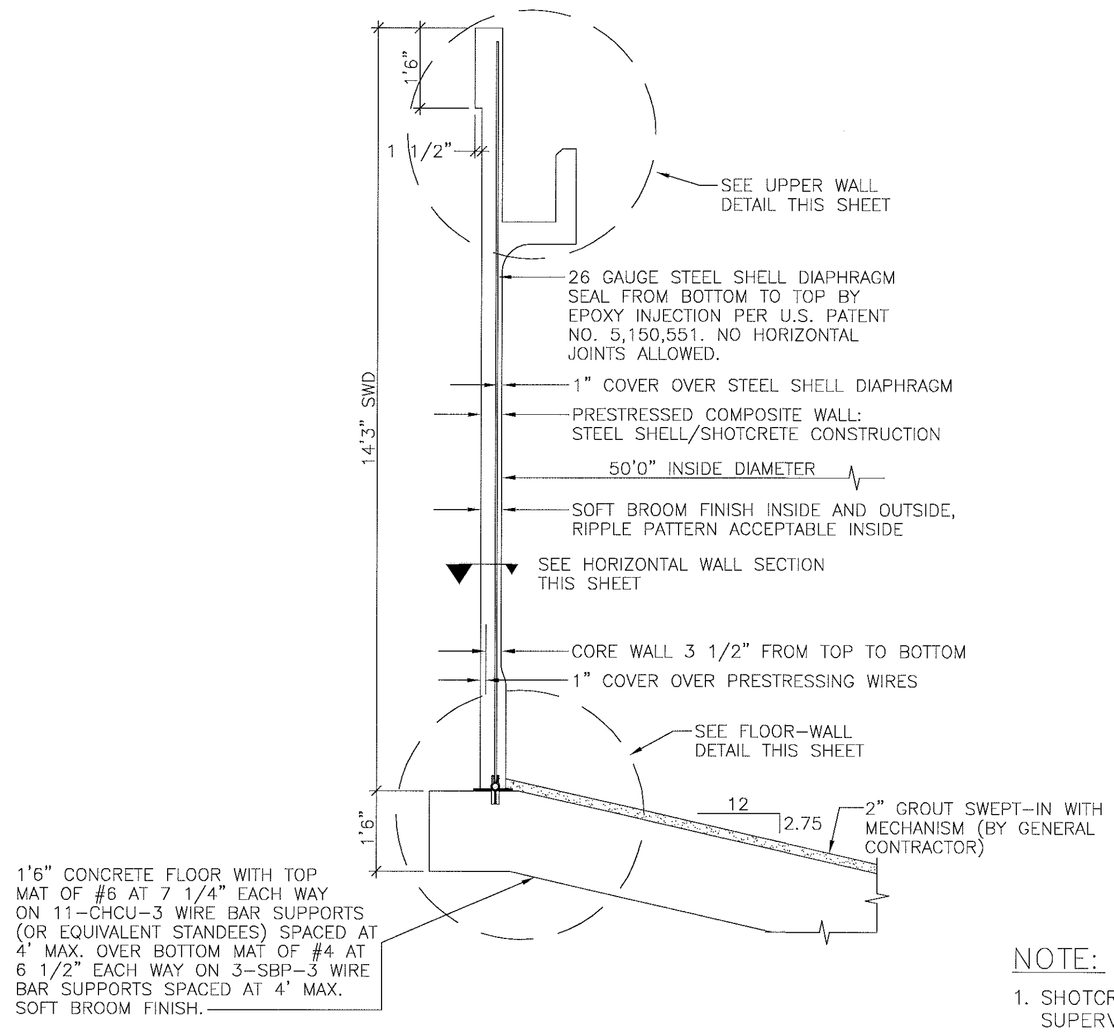
HORIZONTAL WALL SECTION



UPPER WALL DETAIL



FLOOR-WALL DETAIL



TYPICAL WALL SECTION

1/2"=1'0"

1' 0 1' 2'

TYPICAL WALL DETAILS

1"=1'0"

1' 0 1'

NOTE:

1. SHOTCRETE SHALL BE APPLIED BY OR UNDER DIRECT SUPERVISION OF NOZZLEMEN CERTIFIED IN ACCORDANCE WITH ACI GUIDELINES.
2. TENSION IN PRESTRESSING WIRE SHALL BE MEASURED BY AN ELECTRONIC DIRECT-READING STRESSOMETER ACCURATE TO WITHIN 2%.
3. STEEL REINFORCING SHOWN IS FOR INFORMATIONAL PURPOSES ONLY TO ESTABLISH THE SCOPE OF WORK FOR BIDDING. THE PRESTRESSED CONCRETE TANK SUBCONTRACTOR SHALL SUBMIT COMPLETE SIGNED AND SEALED STRUCTURAL DRAWINGS AND CALCULATIONS AFTER AWARD OF THE CONTRACT.

REV.NO.	DESCRIPTIONS	DATE
	REVISIONS	

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MANATEE COUNTY, FLORIDA

LAKE MANATEE
WATER TREATMENT PLANT
SLUDGE DEWATERING IMPROVEMENTS

LIME SLUDGE THICKENER
MECHANICAL DETAILS

DATE:	APRIL, 2003
MCE PROJ. #	1024-0033
DRAWN	DKM
DESIGNED	NJS
CHECKED	MAC
PROJ. MGR.	MAC

SCALE: HORIZONTAL: AS SHOWN VERTICAL: NA

M&C FILE NUMBER

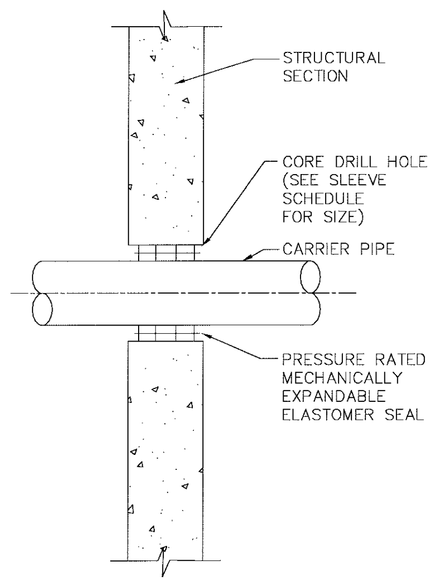
DRAWING NUMBER: M6

STATUS: JUNE, 2005 RECORD DRAWINGS

REVISION

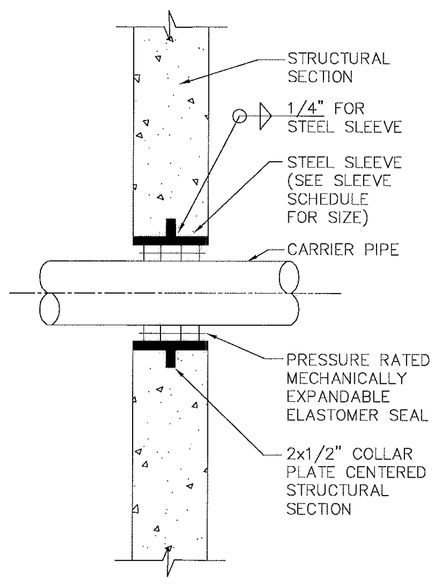
4456.016

ATTACHMENT D



TYPE 1

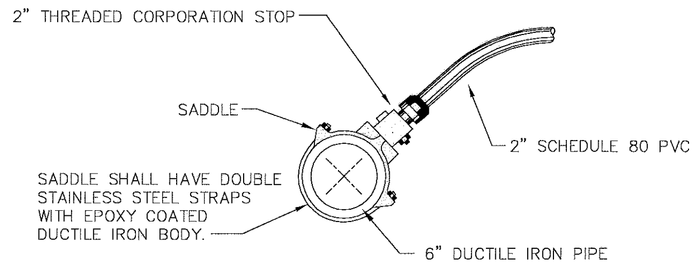
SLEEVE SCHEDULE				
CARRIER PIPE			STEEL SLEEVE INSIDE DIAMETER (INCHES)	CORE DRILLED HOLE INSIDE DIAMETER (INCHES)
NOMINAL DIAMETER INCHES	MATERIAL	OUTSIDE DIAMETER INCHES		
2	SCH. 80 PVC	2.375	6	6
3	SCH. 80 PVC	3.50	6	6
4	DUCTILE IRON	4.80	8	8
6	DUCTILE IRON	6.90	10	10
8	DUCTILE IRON	9.05	12	12



TYPE 2

LINK SEAL WALL PENETRATION

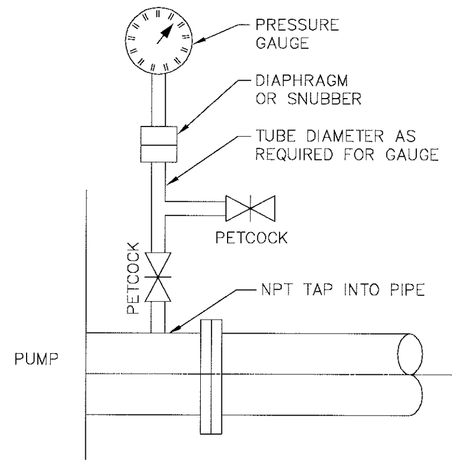
NOT TO SCALE



NOTE:
1. SADDLE IS REQUIRED

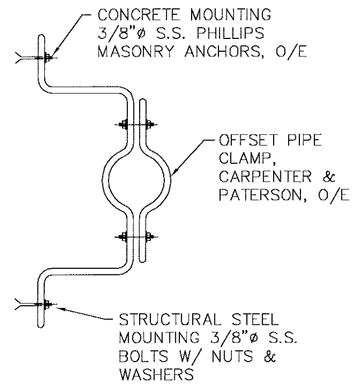
FLUSHING CONNECTION DETAIL

NOT TO SCALE



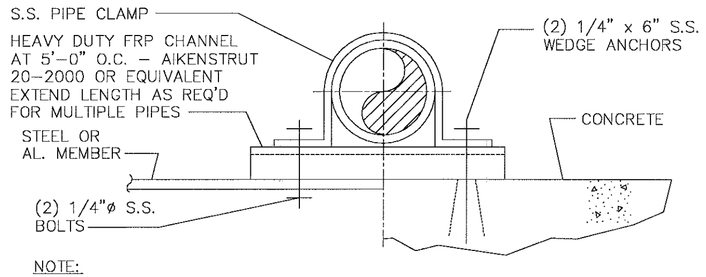
TYPICAL PRESSURE GAUGE INSTALLATION DETAIL

NOT TO SCALE



PIPE SUPPORT TYPE 1

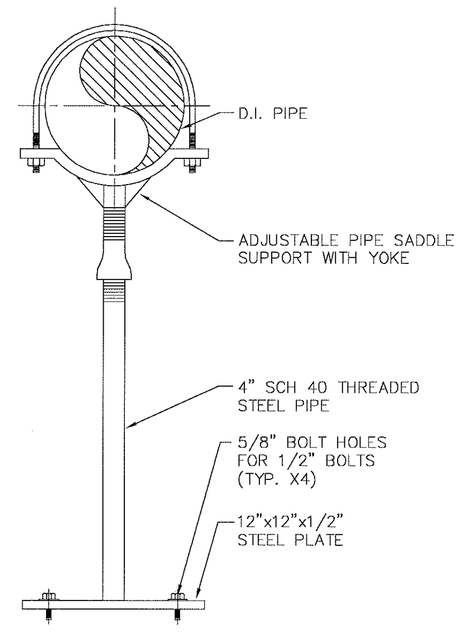
NOT TO SCALE



NOTE:
USE THIS DETAIL FOR SMALL DIA. PIPING OR CONDUIT ATTACHED TO CONCRETE SLAB, WALL, CEILING, METAL FRAMING MEMBERS OR EQUIPMENT MOUNTING BOARDS.

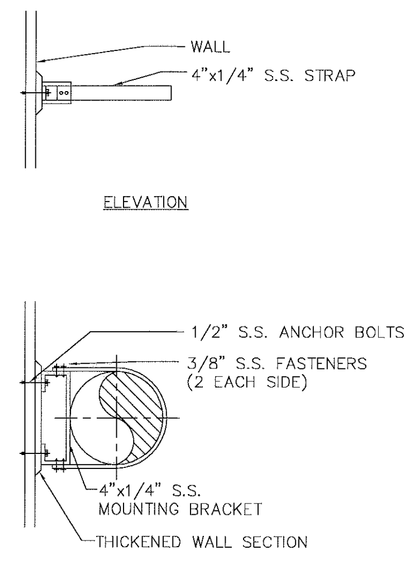
PIPE SUPPORT TYPE 2

NOT TO SCALE

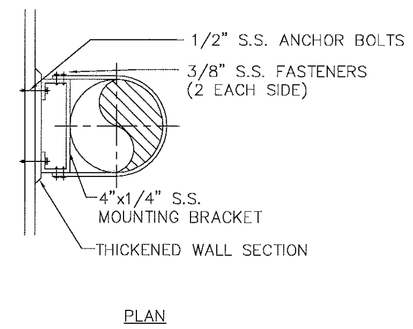


PIPE SUPPORT TYPE 3

NOT TO SCALE



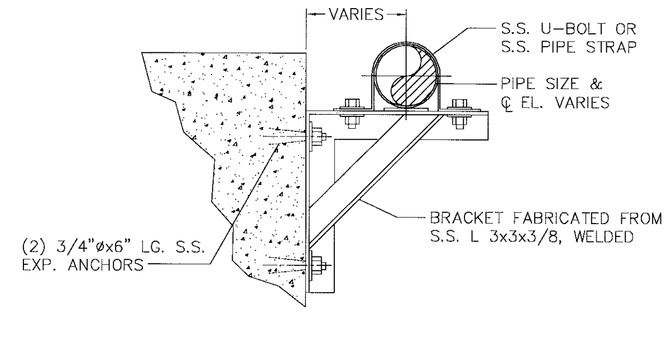
ELEVATION



PLAN

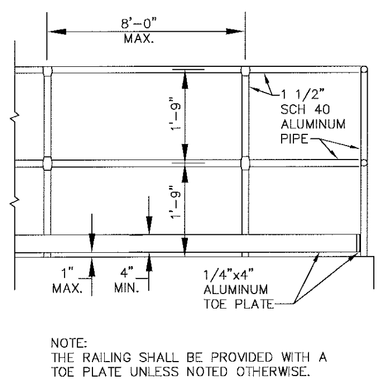
PIPE SUPPORT TYPE 4

NOT TO SCALE



PIPE SUPPORT TYPE 5

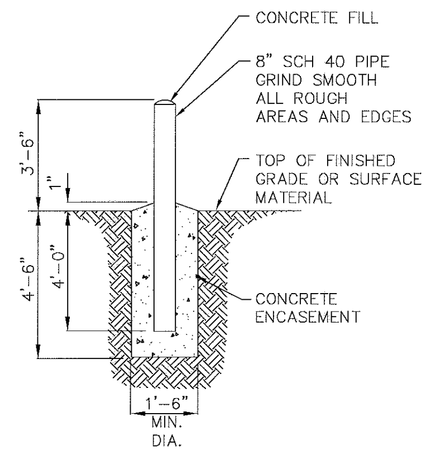
NOT TO SCALE



NOTE:
THE RAILING SHALL BE PROVIDED WITH A TOE PLATE UNLESS NOTED OTHERWISE.

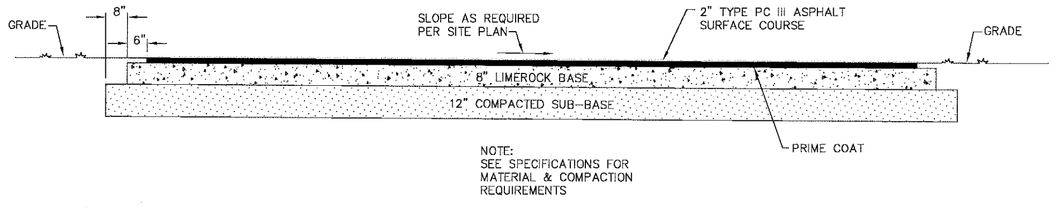
HANDRAIL DETAIL

NOT TO SCALE



BOLLARD DETAIL

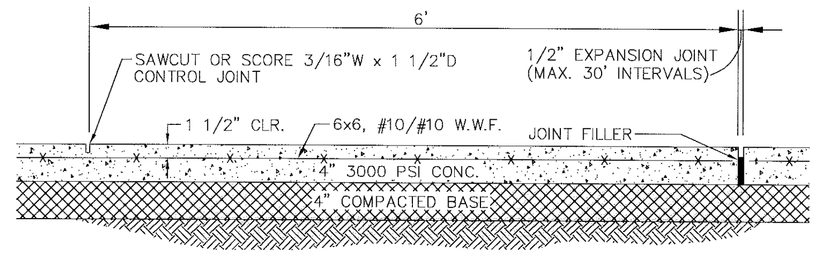
NOT TO SCALE



NOTE:
SEE SPECIFICATIONS FOR MATERIAL & COMPACTION REQUIREMENTS

PAVEMENT SECTION

NOT TO SCALE



TYPICAL SIDEWALK DETAIL

NOT TO SCALE

REV.NO.	DESCRIPTIONS REVISIONS	DATE

SEAL

SEAL

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MANATEE COUNTY, FLORIDA

LAKE MANATEE
WATER TREATMENT PLANT
SLUDGE DEWATERING IMPROVEMENTS

MISCELLANEOUS DETAILS

DATE:	APRIL, 2003
MCE PROJ. #	1024-0033
DRAWN	DRM
DESIGNED	NJS
CHECKED	MAC
PROJ. MGR.	MAC

SCALE
HORIZONTAL: NA
VERTICAL: NA

M&C FILE NUMBER

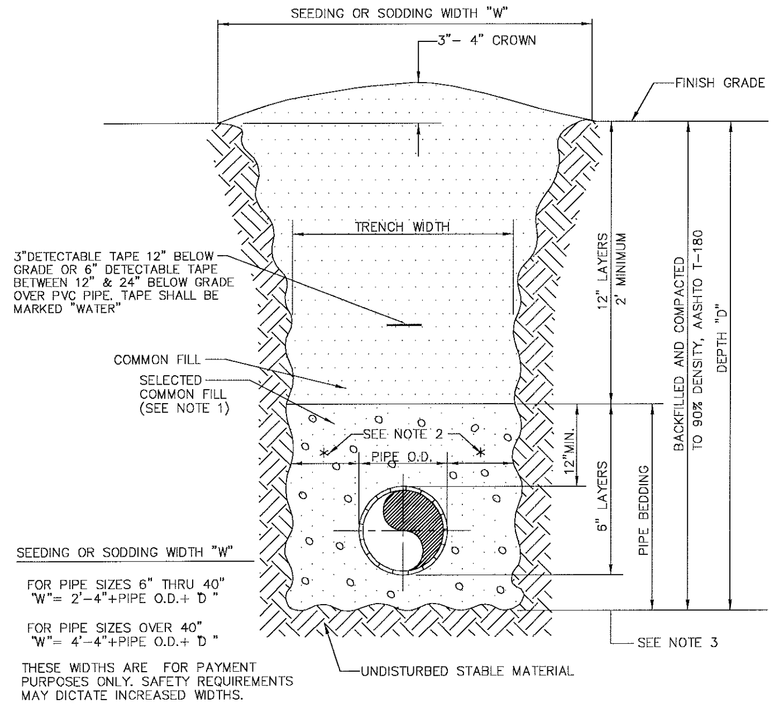
DRAWING NUMBER
D1

STATUS: JUNE, 2005 RECORD DRAWINGS

REVISION

4456.017

ATTACHMENT D



NOTES:

1.) USE OF TYPE A-2 AND A-3 PIPE BEDDING TO BE DETERMINED IN THE FIELD BY THE ENGINEER.

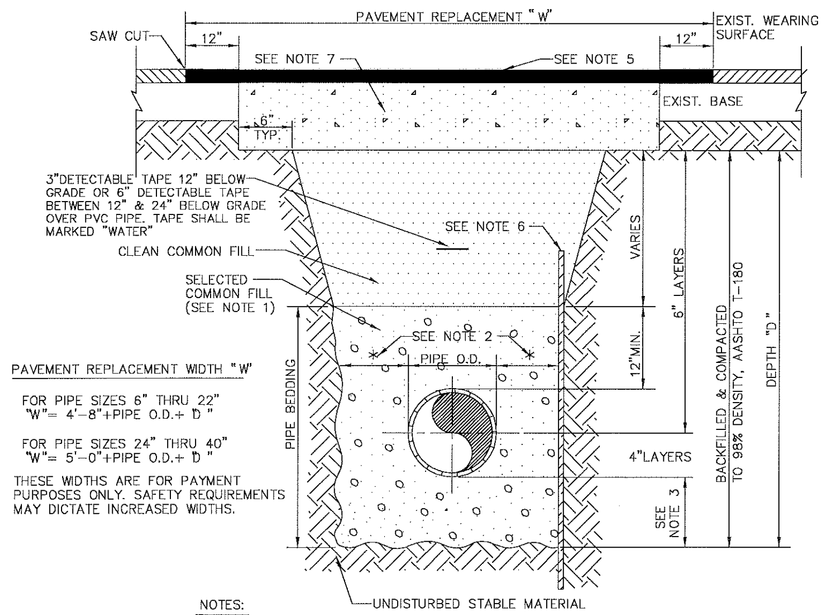
2.) 10" MAX. FOR PIPE DIAMETERS LESS THAN 24"; 12" MAX. FOR PIPE DIAMETER 24" AND LESS THAN 42"; 24" MAX. FOR PIPE DIAMETER 42" AND OVER.

3.) 4" MAX. FOR PIPE 16" DIAMETER & LESS; 6" MAX. FOR PIPE 18" TO 36" DIAMETER; AND 9" MAX FOR PIPE 42" DIAMETER AND LARGER.

4.) INSTALLATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS.

TRENCH DETAIL
UNIMPROVED SURFACE
TYPE A-1 PIPE BEDDING

NOT TO SCALE



NOTES:

1.) USE OF TYPE A-2 AND A-3 PIPE BEDDING TO BE DETERMINED IN THE FIELD BY THE ENGINEER.

2.) 10" MAX. FOR PIPE DIAMETERS LESS THAN 24"; 12" MAX. FOR PIPE DIAMETER 24" AND LESS THAN 42"; 24" MAX. FOR PIPE DIAMETER 42" AND OVER.

3.) 4" MAX. FOR PIPE 16" DIAMETER & LESS; 6" MAX. FOR PIPE 18" TO 36" DIAMETER; AND 9" MAX. FOR PIPE 42" DIAMETER AND LARGER.

4.) INSTALLATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS.

5.) WEARING SURFACE TO BE SAME TYPE & THICKNESS (1 1/2 " MIN.) AS EXISTING PAVEMENT.

6.) SHEETING ORDERED LEFT IN PLACE TO BE CUT OFF 24" BELOW FINISHED GRADE OR 12" BELOW SUBGRADE.

7.) BASE SHALL BE 6" MINIMUM THICKNESS SAND ASPHALT, 10" MIN. THICKNESS CRUSHED CONCRETE, OR APPROVED EQUAL.

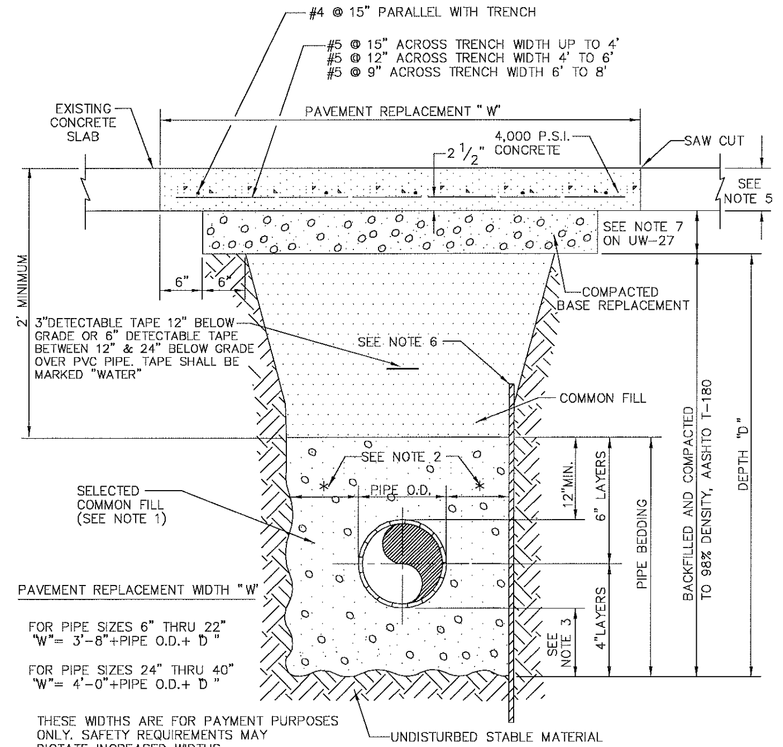
8.) BACKFILL AASHTO M-145 SHALL BE PLACED IN LAYERS NOT TO EXCEED 6 INCHES. EACH LAYER SHALL BE THOROUGHLY TAMPED AND/OR ROLLED TO 98% AASHTO T-180 DENSITY.

9.) TEMPORARY PATCHES WILL BE INSTALLED TO PROVIDE A SMOOTH ALL WEATHER SURFACE AT ALL TIME. PERMANENT REPLACEMENT TO BE MADE AS SOON AS POSSIBLE.

10.) NOTES 5.) THRU 9.) ARE MINIMUM REQUIREMENTS. REFER TO MANATEE COUNTY TRANSPORTATION DEPARTMENT STANDARDS FOR ADDITIONAL REQUIREMENTS.

TRENCH DETAIL
ASPHALT PAVEMENT SURFACE
TYPE A-1 PIPE BEDDING

NOT TO SCALE



NOTES:

1.) USE OF TYPE A-2 AND A-3 PIPE BEDDING TO BE DETERMINED IN THE FIELD BY THE ENGINEER.

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3.) 4" MAX. FOR PIPE 16" DIAMETER & LESS; 6" MAX. FOR PIPE 18" TO 36" DIAMETER; AND 9" MAX. FOR PIPE 42" DIAMETER AND LARGER.

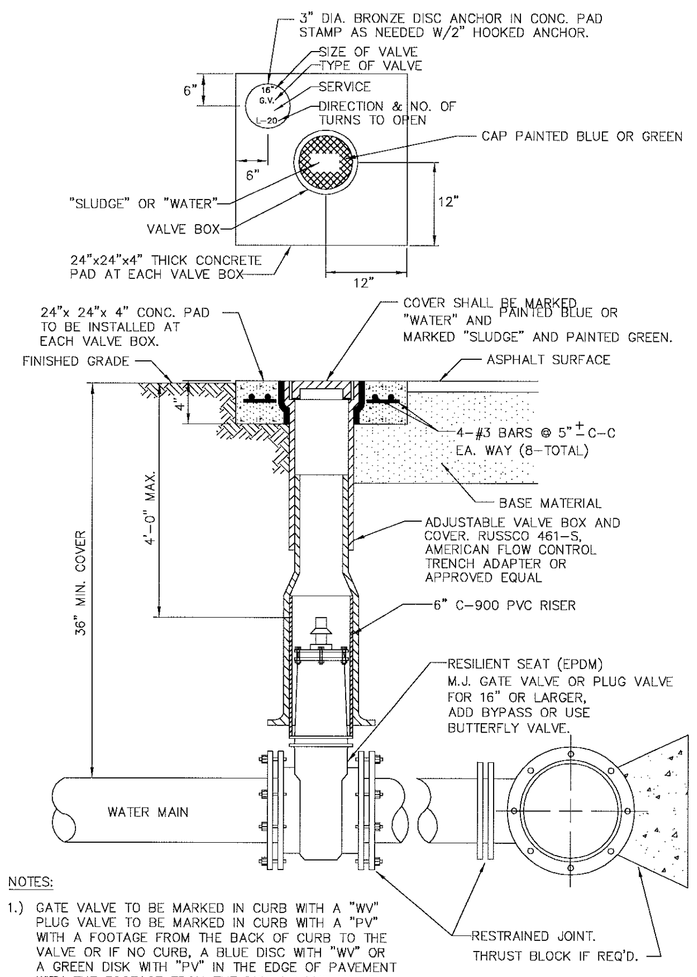
4.) INSTALLATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS.

5.) THICKNESS TO MATCH EXISTING OR BE 8" MINIMUM, WHICHEVER IS GREATER.

FOR NOTES 6.) THRU 10.) SEE UW-27

TRENCH DETAIL
CONC. PAVEMENT SURFACE
TYPE A-1 PIPE BEDDING

NOT TO SCALE



NOTES:

1.) GATE VALVE TO BE MARKED IN CURB WITH A "WV" PLUG VALVE TO BE MARKED IN CURB WITH A "PV" WITH A FOOTAGE FROM THE BACK OF CURB TO THE VALVE OR IF NO CURB, A BLUE DISC WITH "WV" OR A GREEN DISK WITH "PV" IN THE EDGE OF PAVEMENT WITH THE FOOTAGE FROM THE DISC TO THE VALVE.

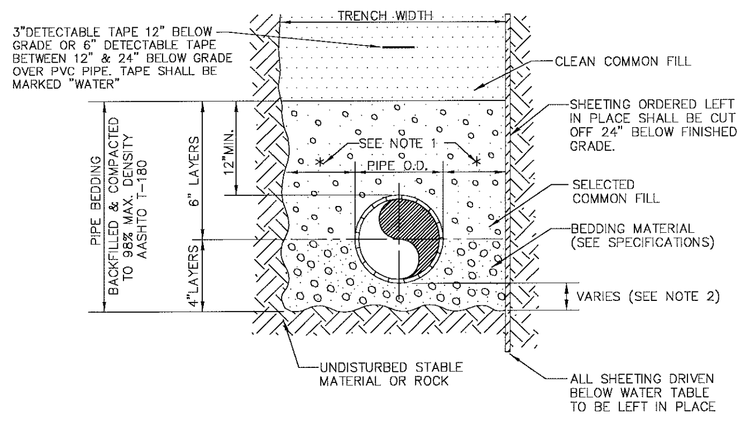
2.) ALL EXISTING AND PROPOSED VALVE BOXES SHALL BE ADJUSTED TO FINISHED GRADES AS ESTABLISHED IN THE FIELD.

3.) WATER VALVES SHALL NOT BE PLACED IN HANDICAPPED RAMPS.

4.) ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED 1/2".

PLUG VALVE OR GATE VALVE, BOX, COVER AND TAG

NOT TO SCALE



NOTES:

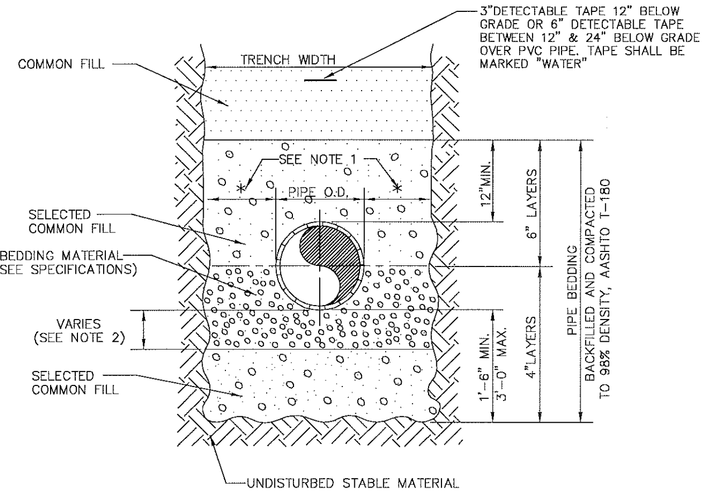
1.) 10" MAX. FOR PIPE DIAMETER LESS THAN 24"; 12" MAX. FOR PIPE DIAMETER 24" AND LESS THAN 42"; 24" MAX. FOR PIPE DIAMETER 42" AND OVER.

2.) 4" MAX. FOR PIPE 16" DIAMETER AND LESS; 6" MAX. FOR PIPE DIAMETER 18" TO 36" AND 9" MAX. FOR PIPE DIAMETER 42" AND OVER.

3.) INSTALLATION SHALL BE IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.

TRENCH DETAIL
TYPE A-2 PIPE BEDDING

NOT TO SCALE



NOTES:

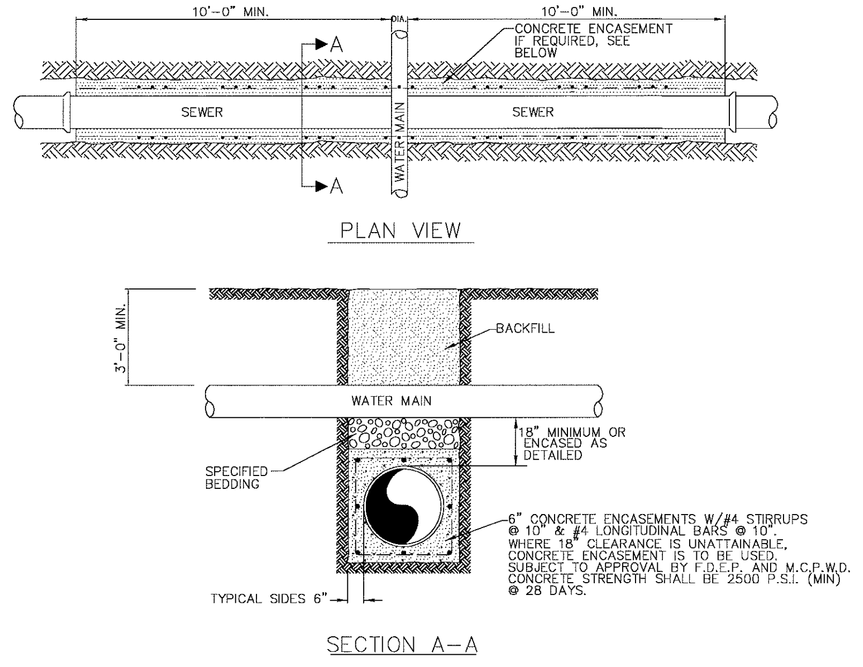
1.) 10" MAX. FOR PIPE DIAMETER LESS THAN 24"; 12" MAX. FOR PIPE DIAMETER 24" AND LESS THAN 42"; 24" MAX. FOR PIPE DIAMETER 42" AND OVER.

2.) 4" MAX. FOR PIPE 16" DIAMETER & LESS; 6" MAX. FOR PIPE 18" TO 36" DIAMETER; AND 9" MAX FOR PIPE 42" DIAMETER AND LARGER.

3.) INSTALLATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS.

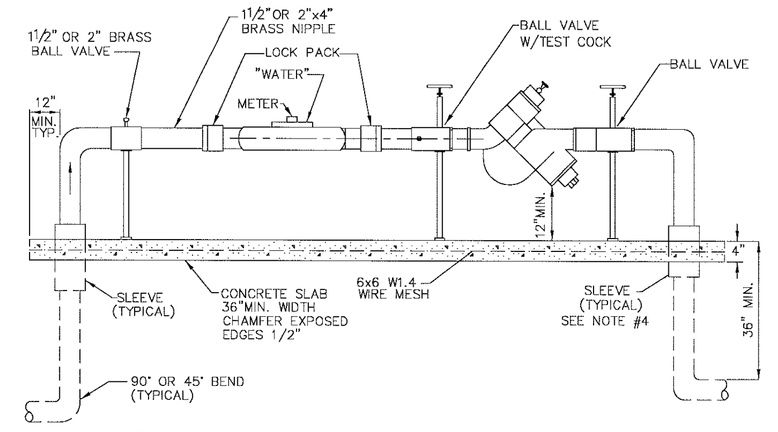
TRENCH DETAIL
TYPE A-3 PIPE BEDDING

NOT TO SCALE



TYPICAL WATER/SEWER CROSSING

NOT TO SCALE



NOTES:

1. BOTTOM OF BACKFLOW DEVICE MUST BE 12" ABOVE FINISHED GRADE.
2. BACKFLOW DEVICE MUST BE INSTALLED DOWNSTREAM OF METER, AS CLOSE TO METER AS POSSIBLE.
3. COPPER PIPE TYPE "L" OR "K" OR BRASS PIPE MINIMUM SCHEDULE 40 SHALL BE USED TO A MINIMUM DEPTH OF 36" BELOW GRADE.
4. PIPES PASSING THROUGH OR ENCASED IN CONCRETE MUST BE PROPERLY PROTECTED AND SLEEVED.
5. THE SYSTEM MUST MEET ALL REQUIREMENTS OF THE MANATEE COUNTY PLUMBING CODE (Latest Edition) AND THE MANATEE COUNTY BACKFLOW PREVENTION CODE (Latest Edition).
6. ALL PIPING FROM BACKFLOW DEVICE TO THE FIRST ATMOSPHERIC OPENING OR TO EACH BRANCH VALVE, MUST BE COLOR CODED BLUE.
7. METER, LOCK PACKS AND BRASS NIPPLES WILL BE PROVIDED BY M.C.P.W.D.
8. FOR USE WHERE BACKFLOW PREVENTER IS REQUIRED WITH METER.

1 1/2" & 2" METER AND BACKFLOW PREVENTER ABOVE GROUND DETAIL

NOT TO SCALE

REV.NO.	DESCRIPTIONS	DATE
	REVISIONS	

SEAL

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MANATEE COUNTY, FLORIDA

LAKE MANATEE
WATER TREATMENT PLANT
SLUDGE DEWATERING IMPROVEMENTS

MISCELLANEOUS DETAILS

DATE:	APRIL, 2003
MCE PROJ. #	1024-0033
DRAWN	DRW
DESIGNED	NJS
CHECKED	MAC
PROJ. MGR.	MAC

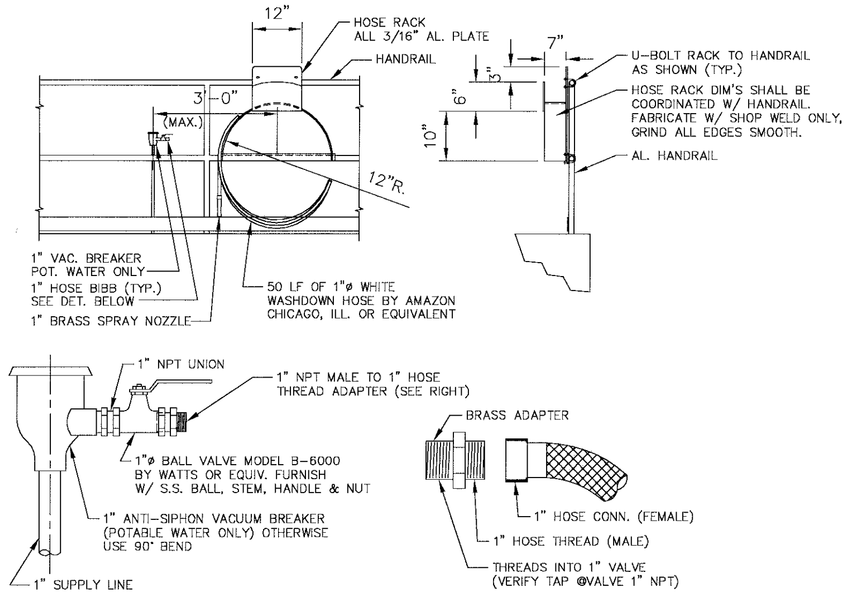
SCALE
HORIZONTAL: NA
VERTICAL: NA

M&C FILE NUMBER
DRAWING NUMBER
D2

STATUS: JUNE, 2005 RECORD DRAWINGS
REVISION

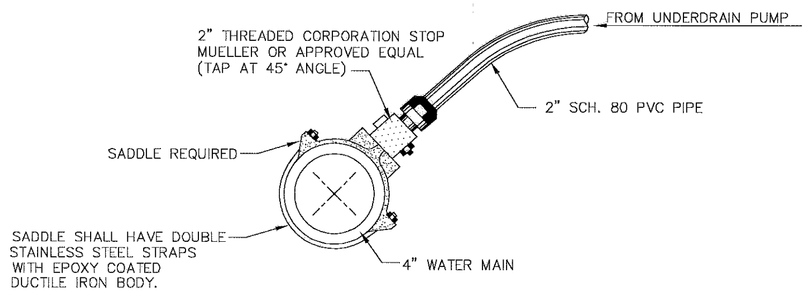
4456.018

ATTACHMENT D



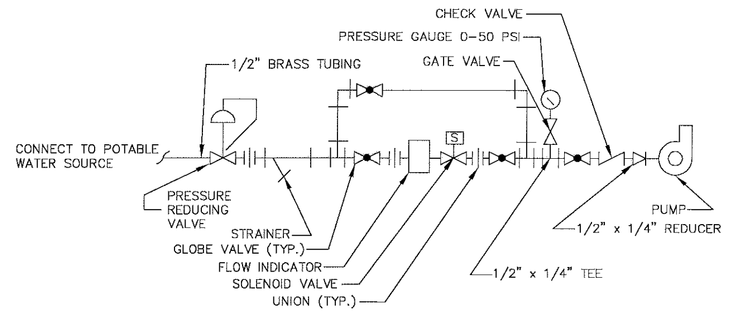
HOSE BIBB/ HOSE RACK DETAIL

NOT TO SCALE



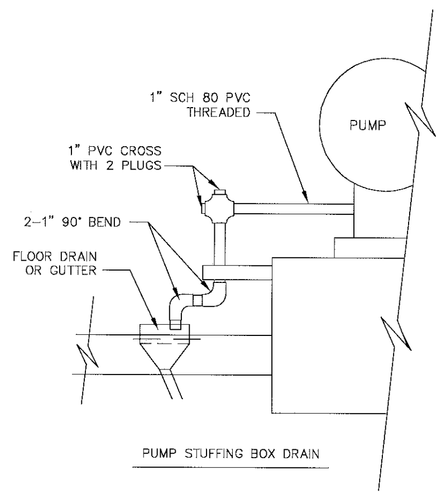
2" UNDERDRAIN PUMP DISCHARGE PIPE TAP INTO 4" HEADER

NOT TO SCALE



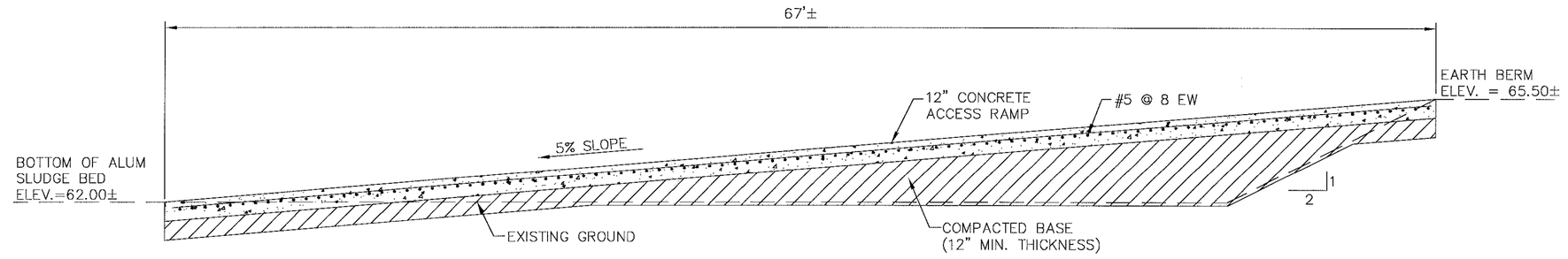
PUMP WATER SEAL SYSTEM DETAIL

NOT TO SCALE



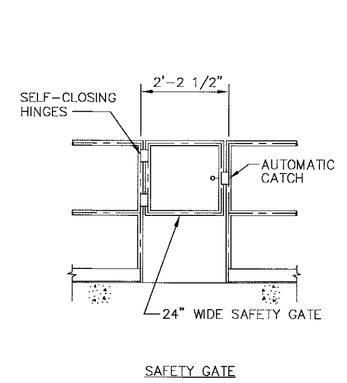
DETAIL

NOT TO SCALE

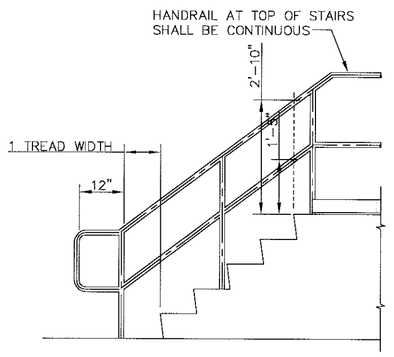


CONCRETE ACCESS RAMP TYPICAL SECTION

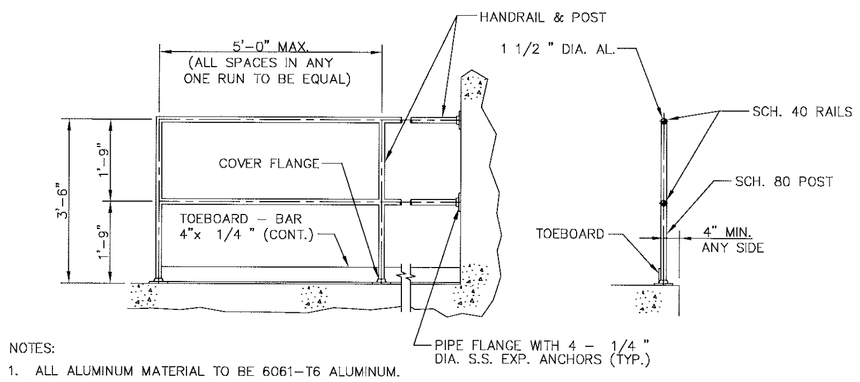
1" – 5'–0"



SAFETY GATE



HANDRAIL AT STAIRS



NOTES:

1. ALL ALUMINUM MATERIAL TO BE 6061-T6 ALUMINUM.
2. COAT ALUMINUM SURFACES IN CONTACT WITH CONCRETE WITH BITUMASTIC.

HANDRAIL DETAILS

NOT TO SCALE

REV.NO.	DESCRIPTIONS	DATE
	REVISIONS	

SEAL

SEAL

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MANATEE COUNTY, FLORIDA

LAKE MANATEE
WATER TREATMENT PLANT
SLUDGE DEWATERING IMPROVEMENTS

MISCELLANEOUS DETAILS

DATE:	APRIL, 2003
MCE PROJ. #	1024-0033
DRAWN	DKM
DESIGNED	NJS
CHECKED	MAC
PROJ. MGR.	MAC

SCALE
HORIZONTAL: NA
VERTICAL: NA

M&C FILE NUMBER

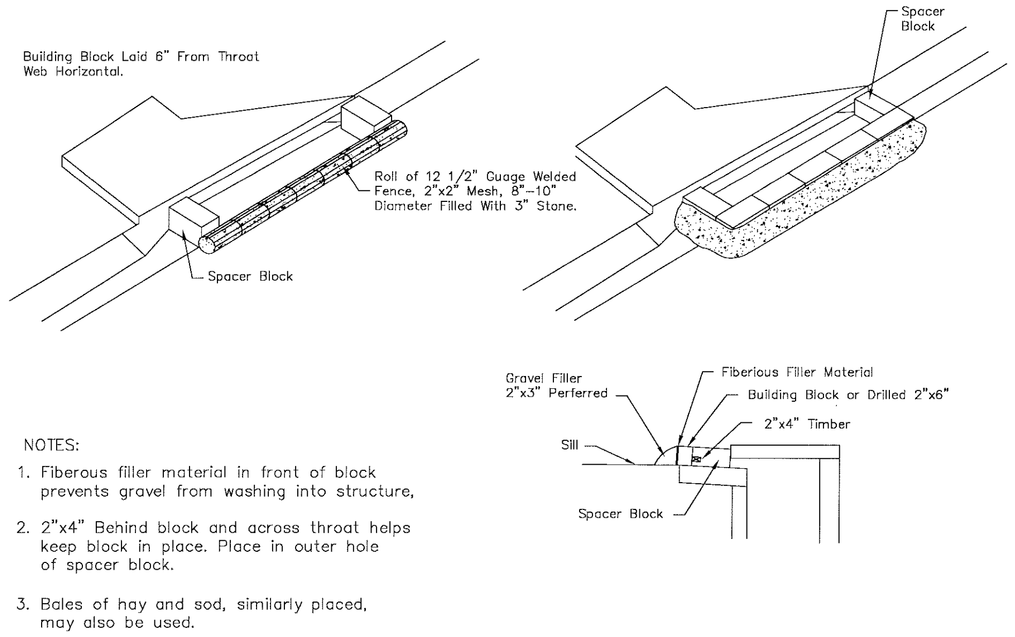
DRAWING NUMBER
D3

STATUS: JUNE, 2005 RECORD DRAWINGS

REVISION

4456.019

ATTACHMENT D

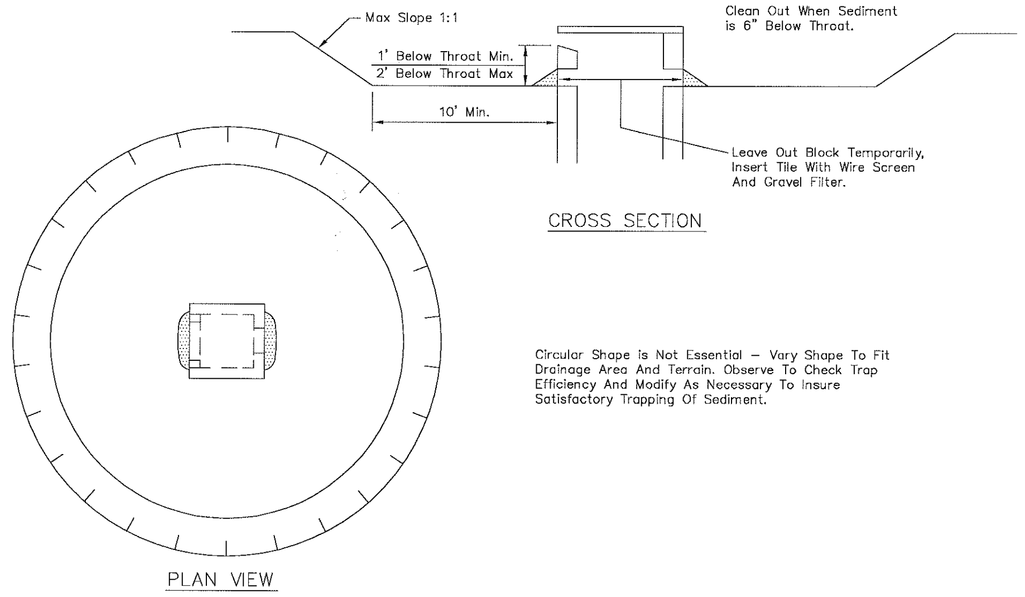


NOTES:

1. Fiberous filler material in front of block prevents gravel from washing into structure,
2. 2"x4" Behind block and across throat helps keep block in place. Place in outer hole of spacer block.
3. Bales of hay and sod, similarly placed, may also be used.

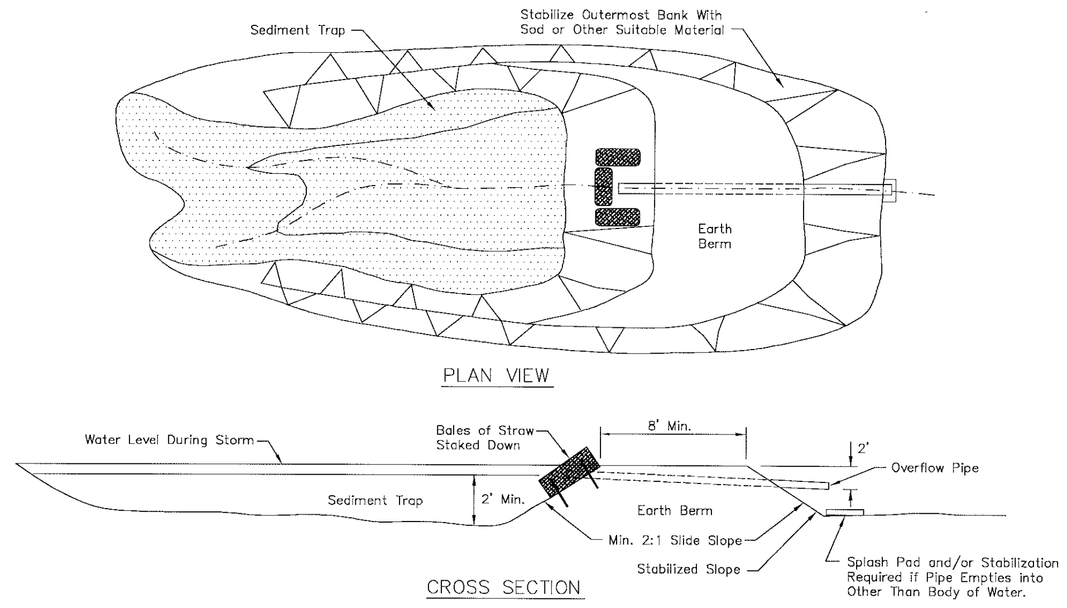
TEMPORARY SEDIMENT TRAP AT CURB INLET

NOT TO SCALE



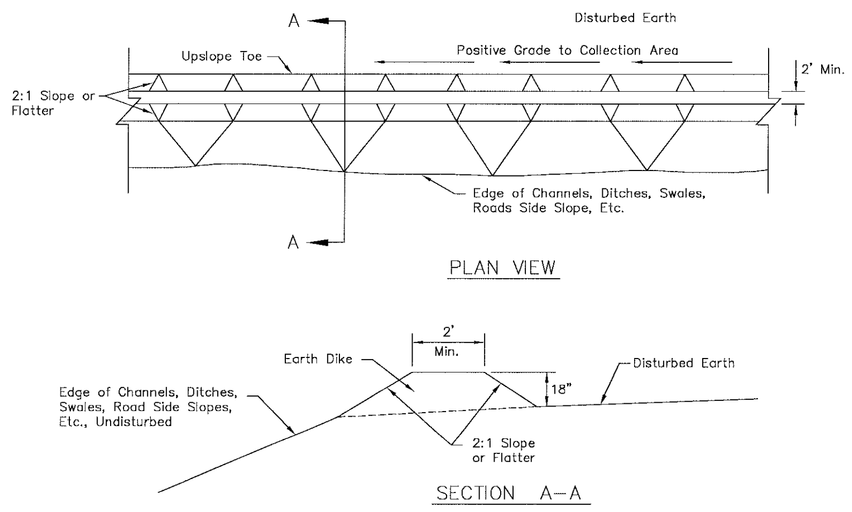
TEMPORARY SEDIMENT TRAP AT STORM DRAIN INLET

NOT TO SCALE



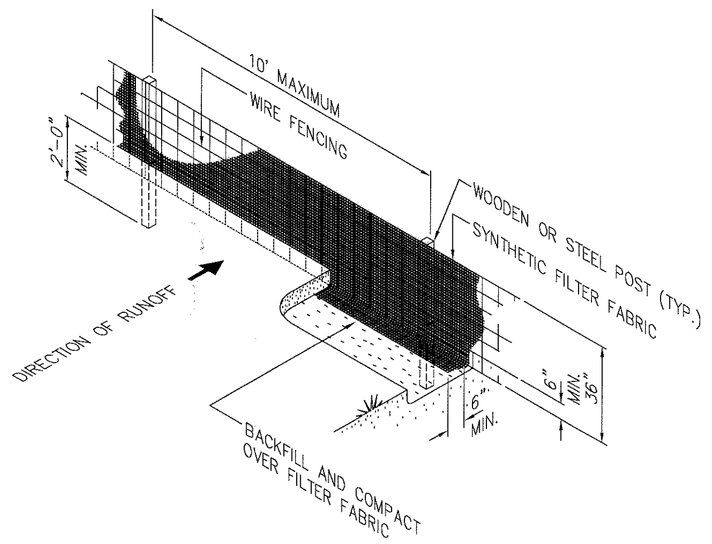
TEMPORARY EROSION CONTROL SEDIMENT BASIN

NOT TO SCALE



TEMPORARY EROSION CONTROL DIVERSION BERM

NOT TO SCALE

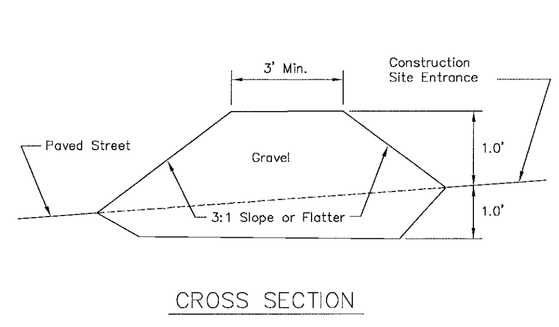


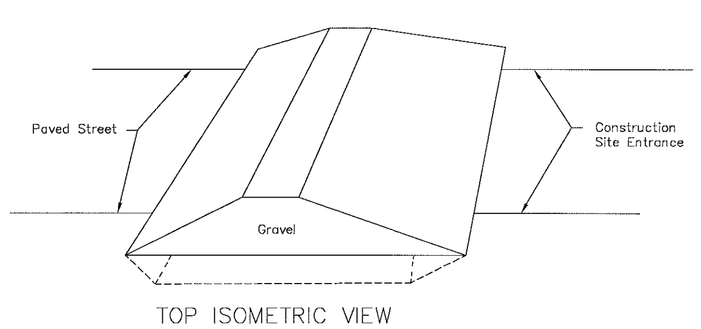
SILT FENCE

NOT TO SCALE

NOTES:

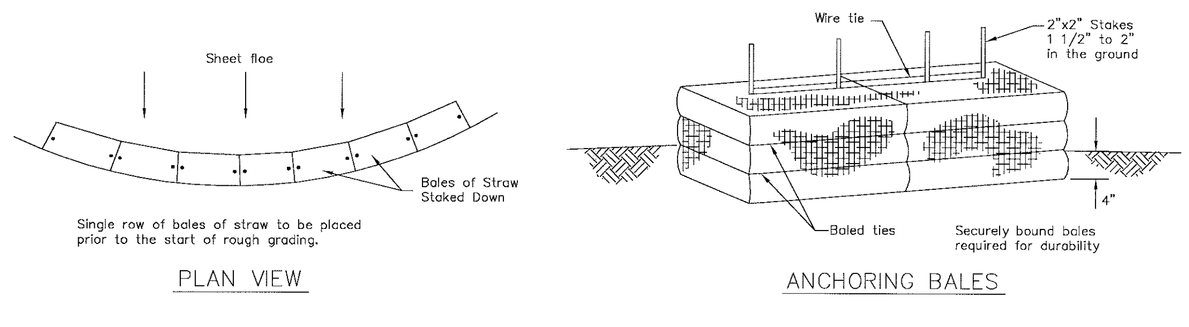
1. DURING THE CONSTRUCTION OF DRAINAGE AND OTHER STRUCTURES REQUIRING EXCAVATION, THE CONTRACTOR SHALL PLACE STRAW BARRIERS AROUND SUCH STRUCTURES TO PREVENT EROSION AND THE MIGRATION OF SEDIMENT TO POINTS OUTSIDE THE CONSTRUCTION AREA. THE STRAW BARRIERS SHALL BE PLACED IN ACCORDANCE WITH THE ATTACHED DETAILS.
2. THE CONTRACTOR SHALL PROVIDE SILT BARRIERS AS DIRECTED BY THE ENGINEER TO CONTROL EROSION AND SEDIMENTATION FROM TAKING PLACE OUTSIDE THE LIMITS OF THE PROJECT. THE SILT BARRIERS SHALL BE PLACED IN ACCORDANCE WITH THE ATTACHED DETAILS, OR AS DIRECTED BY THE ENGINEER.





TEMPORARY EROSION CONTROL GRAVEL INTERCEPTOR BERM

NOT TO SCALE



TEMPORARY EROSION CONTROL SEDIMENT BARRIER

NOT TO SCALE

REV.NO.	DESCRIPTIONS	DATE
	REVISIONS	

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MANATEE COUNTY, FLORIDA

LAKE MANATEE
WATER TREATMENT PLANT
SLUDGE DEWATERING IMPROVEMENTS

TEMPORARY EROSION
CONTROL DETAILS

DATE:	APRIL, 2003
MCE PROJ. #	1024-0033
DRAWN	DKM
DESIGNED	NJS
CHECKED	MAC
PROJ. MGR.	MAC

SCALE
HORIZONTAL:
VERTICAL: NA

M&C FILE NUMBER

DRAWING NUMBER
D4

STATUS: JUNE, 2005 RECORD DRAWINGS
REVISION

4456.020

ATTACHMENT D

TSCP

OPI-1

LEGEND
TL = TRUCK LOADING
ST = SLUDGE THICKENER
SB = SLUDGE BEDS

HARDWIRE I/O INTERCONNECTION

27DI
25DO
14DI
2DO
4AI
3AO

DATA

REMOTE I/O CONNECTED TO PLC VIA FIBER CABLE

VCP-1

LCP-1

EXISTING TRUCK LOADING STATION

START STOP SPEED 0-100%

SPEED 0-100 TSP

AUTO TSP1 TSP2 SELECT

TL ST SB SLUDGE DESTINATION

FROM POTABLE WATERMAIN

HOSE BIBB

LIME SEDIMENTATION BASIN C1

LIME SEDIMENTATION BASIN C2

WASTE LIME SLUDGE PUMP NO. C1

WASTE LIME SLUDGE PUMP NO. C2

CV-XXX

HV-XXX

DCU-2

DPCP

6FE1-WLS (EXIST.)

6WLS

6DE1D1

6PV (EXIST.)

STCP

EMERG S/D

85% S/D

ALARM

ST-M1 RAKE LIFT ST-M2

LIME SLUDGE THICKENER

OVERFLOW WEIR

LAUNDER

HOSE BIBB

REPLACE DECANT PUMP

DECANT PUMP STATION

LIME SLUDGE BED

LIME SLUDGE BED

40E

TO WASTE LIME BACKWASH POND

FROM ALUM SEDIMENTATION BASINS

6WLS1D1

6WLS2D1

6WLS3F1

6TLS11D1

6TLS8D1

6TLS9D1

6TLS12D1

6TLS10D1

6TLS1D1

6TLS2D1

2PW1P1

2PW2P1

2PW8P1

2PW9P1

6FE1-TLS

VFD-1

VFD-2

6CV1

THICKENED SLUDGE PUMP 1

THICKENED SLUDGE PUMP 2

SEAL WATER SYSTEM

SLUDGE HOPPER

6PV1-1

6PV1-2

6PV1-3

6PV1-4

6PV2-1

6PV2-2

6PV2-3

6PV2-4

6PV2-5

6PV2-6

6PV2-7

6PV2-8

6PV2-9

6PV2-10

6PV2-11

6PV2-12

2BV1

2CV2

2BFP1

SYMBOL LEGEND

(TYPICAL OF 12 VALVES THIS SHEET)

REVISIONS

REV.NO.	DESCRIPTIONS	DATE

SEAL

SEAL

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MANATEE COUNTY, FLORIDA

LAKE MANATEE WATER TREATMENT PLANT SLUDGE DEWATERING IMPROVEMENTS

LIME SLUDGE P & ID

DATE:	APRIL, 2003
MCE PROJ. #	1024-0033
DRAWN	DKM
DESIGNED	NJS
CHECKED	MAC
PROJ. MGR.	MAC

SCALE
HORIZONTAL: NA
VERTICAL: NA

MAC FILE NUMBER

DRAWING NUMBER
I1

STATUS: JUNE, 2005 RECORD DRAWINGS

REVISION

4456.021

ATTACHMENT D

PLAN SYMBOLS

	HOME RUN TO PANELBOARD. NO. OF ARROWS INDICATE NO. OF CIRCUITS, HASH MARKS INDICATE NO. OF #12 AWG. CONDUCTORS. NO HASH MARKS INDICATE 2 #12 CONDUCTORS.
	CONDUIT CONCEALED IN WALL, IN SLAB ABOVE, OR ABOVE CEILING
	CONDUIT CONCEALED IN OR BELOW FLOOR OR UNDERGROUND.
	CONDUIT RUN EXPOSED. RUN PARALLEL OR PERPENDICULAR TO STRUCTURE OR WALL.
	FLEXIBLE CONDUIT WITH EQUIPMENT CONNECTION.
	CONCRETE ENCASED DUCTBANK.
A	CEILING MOUNTED LIGHTING FIXTURE, LETTER INDICATES TYPE (TYPICAL).
	WALL MOUNTED LIGHTING FIXTURE.
	FLUORESCENT LIGHTING FIXTURE, CEILING MOUNTED.
	FLUORESCENT STRIP FIXTURE.
	EXTERIOR LUMINARE AND MOUNTING STANDARD.
	EMERGENCY BATTERY PACK LIGHTING FIXTURE.
	EMERGENCY EGRESS LIGHTING FIXTURE WITHOUT BATTERY PACK (SLAVE).
	CEILING OR WALL MOUNTED EXIT LIGHT FIXTURE WITH BATTERY PACK. PROVIDE ARROWS AS REQUIRED.
	FLUORESCENT LIGHTING FIXTURE, WALL MOUNTED.
J	JUNCTION BOX PER N.E.C., FLUSH MOUNTED UNLESS INDICATED OTHERWISE.
	FLUSH OR SURFACE MOUNTED LIGHTING PANELBOARD.
	FLUSH OR SURFACE MOUNTED POWER PANELBOARD.
30	DRY TYPE TRANSFORMER. NO. INDICATES KVA RATING.
	25A, 208V, 3Ø SINGLE RECEPTACLE.
	20A, 125V, 3W DUPLEX RECEPTACLE IN FLUSH OUTLET BOX, 18" ABOVE FINISHED FLOOR.
	20A, 125V, 3W DUPLEX RECEPTACLE IN FLUSH OUTLET BOX, 48" ABOVE FINISHED FLOOR OR 2" ABOVE COUNTER AS REQUIRED.
	20A, 125V, 3W DUPLEX RECEPTACLE IN FLUSH, FLOOR MOUNTED OUTLET BOX.
	20A, 125V, 3W DUPLEX RECEPTACLE, SURFACE MOUNTED.
	50A, 250V, 1Ø, 3W SINGLE RECEPTACLE IN FLUSH OUTLET BOX, 18" ABOVE FINISHED FLOOR.
S	SINGLE POLE SWITCH IN FLUSH OUTLET BOX, 48" ABOVE FINISHED FLOOR, UNLESS OTHERWISE NOTED (TYPICAL).
S_P	SINGLE POLE SWITCH, SURFACE MOUNTED.
S_3	THREE-WAY SWITCH IN FLUSH OUTLET BOX.
S_4	FOUR-WAY SWITCH IN FLUSH OUTLET BOX.
	NON-FUSIBLE DISCONNECT SWITCH, 30A,3P UNLESS OTHERWISE INDICATED.
OR	NON-FUSIBLE DISCONNECT SWITCH, 30A,3P UNLESS OTHERWISE INDICATED, WITH REMOTE CONTROL STATION AS REQUIRED BY ELEMENTARY DIAGRAMS OR SPECS
10	ELECTRIC A.C. MOTOR, NO. INDICATES HORSEPOWER.
M	MOTORIZED VALVE
	COMBINATION MOTOR STARTER
VFD	VARIABLE FREQUENCY DRIVE
T	THERMOSTAT
	ELECTRIC HEATER
LS	LIMIT SWITCH
PS	PRESSURE SWITCH
SV	SOLENOID VALVE
LLS	LIQUID LEVEL SWITCH
FIT	FLOW INDICATING TRANSMITTER
LIT	LEVEL INDICATING TRANSMITTER
FS / O	EMERGENCY SHOWER/EYEWASH
TS	TEMPERATURE SWITCH

SINGLE LINE DIAGRAM SYMBOLS

	COMBINATION MOTOR STARTER
V	VOLTMETER
A	AMMETER
VS	THREE PHASE VOLT SWITCH
AS	THREE PHASE AMP SWITCH
GFI	GROUND FAULT INTERRUPTER
W	WATT HOUR METER
	FUSE
	CAPACITOR
	MOLDED CASE CIRCUIT BREAKER
10	ELECTRIC A.C. MOTOR, NO. INDICATES HORSEPOWER.
	SERVICE OR EQUIPMENT GROUND.
	NON-FUSIBLE DISCONNECT SWITCH, 30A,3P UNLESS OTHERWISE INDICATED.
	NON-FUSIBLE DISCONNECT SWITCH, 30A,3P UNLESS OTHERWISE INDICATED, WITH REMOTE CONTROL STATION AS REQUIRED BY ELEMENTARY DIAGRAMS OR SPECS
	LIGHTING PANELBOARD
	POWER PANELBOARD
	CURRENT TRANSFORMERS
	POTENTIAL TRANSFORMERS
	MANUAL OR AUTOMATIC TRANSFER SWITCH
	LIGHTNING ARRESTER & SURGE CAPACITOR C.E.#9L15ECC001 & G.E.#9L18BBB301 (UNLESS OTHERWISE NOTED)

CONTROL DIAGRAM SYMBOLS

	DUPLEX RECEPTACLE
	NORMALLY OPEN CONTACT
	NORMALLY CLOSED CONTACT
	LIMIT SWITCH, NORMALLY OPEN
	LIMIT SWITCH, NORMALLY CLOSED
	PRESSURE SWITCH, NORMALLY OPEN
	PRESSURE SWITCH, NORMALLY CLOSED
	FLOAT SWITCH, NORMALLY OPEN
	FLOAT SWITCH, NORMALLY CLOSED
	FLOW SWITCH, NORMALLY OPEN
	FLOW SWITCH, NORMALLY CLOSED
	TEMPERATURE SWITCH, NORMALLY OPEN
	TEMPERATURE SWITCH, NORMALLY CLOSED
	NORMALLY OPEN, TIMED TO CLOSE CONTACT
	NORMALLY CLOSED, TIMED TO OPEN CONTACT
	NORMALLY CLOSED, TIMED TO CLOSE CONTACT
	NORMALLY OPEN, TIMED TO OPEN CONTACT

CONTROL DIAGRAM SYMBOLS (CONTINUED)

LS	LIMIT SWITCH
PS	PRESSURE SWITCH
SV	SOLENOID VALVE
LLS	LIQUID LEVEL SWITCH
VS	VIBRATION SWITCH
AR	ALARM RELAY
AT	ALARM TIMER
CR	CONTROL RELAY
M	MOTOR STARTER
TR	TIMING RELAY
A	ALARM INDICATING LIGHT
R	RUN INDICATING LIGHT
	MOMENTARY BREAK PUSHBUTTON OR RESET
K	KEYED SWITCH
	MAINTAINED CONTACT ON-OFF SWITCH
	START/STOP (S/S) CONTROL SWITCH MAINTAINED CONTACT
	THREE POSITION MAINTAINED CONTACT SELECTOR SWITCH
	FUSE
	MOLDED CASE CIRCUIT BREAKER
	CONTROL POWER TRANSFORMER
	REMOTE TERMINAL BLOCK POINT

ABBREVIATIONS

A	AMPERES
ACCU	AIR COOLED CONDENSING UNIT
AFF	ABOVE FINISHED FLOOR
AHU	AIR HANDLING UNIT
AIC	AMPS INTERRUPTING CURRENT
ALR	ALARM RELAY
APR	ACID PUMP RELAY
ATS	AUTOMATIC TRANSFER SWITCH
BKR	BREAKER
BLDG	BUILDING
CAB	CABINET
CIR	CIRCUIT
CU	COPPER
DISC	DISCONNECT
ELEC	ELECTRICAL
EM	EMERGENCY
ENCL	ENCLOSURE
ETM	ELAPSED TIME METER
EUH	ELECTRIC UNIT HEATER
EWC	ELECTRIC WATER COOLER
EWH	ELECTRIC WATER HEATER
EXH	EXHAUST
EXIST	EXISTING
FPC	FLORIDA POWER CORPORATION
FST	FEED ANTI-SCALE TIMER
FVNR	FULL VOLTAGE NON-REVERSING
FVR	FEED/FLUSH VALVE RELAY
GEN	GENERATOR
GFI	GROUND FAULT INTERRUPTER
GND	GROUND
GRS	GALVANIZED RIGID STEEL
HOA	HAND-OFF-AUTOMATIC
HOR	HAND-OFF-REMOTE
HP	HORSEPOWER
HPS	HIGH PRESSURE SODIUM
HSP	HIGH SERVICE PUMP
INSTR	INSTRUMENTATION
ISO	ISOLATION

ABBREVIATIONS (CONTINUED)

KVA	KILOVOLT-AMPERES
KW	KILOWATT
LCR	LOW CHEMICAL RELAY
LOR	LOCK ON RELAY
LPT	LOW PRESSURE TIMER
LTG	LIGHTING
MAX	MAXIMUM
MCC	MOTOR CONTROL CENTER
MFR	MANUFACTURER
MIN	MINIMUM
MLO	MAIN LUGS ONLY
MTD	MOUNTED
NEC	NATIONAL ELECTRIC CODE
NEUT	NEUTRAL
NTS	NOT TO SCALE
OC	ON CENTER
OH	OVERHEAD
P	POLE
PCP	PUMP CONTROL PANEL
PFCC	POWER FACTOR CORRECTION CAPACITOR
PFT	PRE FLUSH TIMER
PHT	PRODUCT HIGH PH TIMER
PLT	PRODUCT LOW PH TIMER
PNL	PANEL
POT	PRODUCT HIGH COND TIMER
PS	PUMP STATION
PTR	PRODUCT TANK RELAY
PVC	POLYVINYL CHLORIDE
RECPT	RECEPTACLE
ROR	RO PUMP RELAY
SH	SHEILDED
SOR	SHUT DOWN RELAY
SPR	ANTI-SCALE PUMP RELAY
SS	STAINLESS STEEL
SSR	SYSTEM START RELAY
STR	STARTER
SW	SWITCH
SWGR	SWITCHGEAR
TBR	TO BE REMOVED
TC	TIME CLOCK
TR	TRANSFORMER
TYP	TYPICAL
UG	UNDERGROUND
UPS	UNINTERRUPTABLE POWER SUPPLY
V	VOLT
VFD	VARIABLE FREQUENCY DRIVE
W	WATT
W/	WITH
WP	WEATHERPROOF
Ø	PHASE

NOTES

1. DO NOT SCALE THE ELECTRICAL DRAWINGS. REFER TO THE MECHANICAL DRAWINGS & APPROVED MANUFACTURER'S SHOP DRAWINGS FOR THE EXACT LOCATION OF ALL EQUIPMENT.
2. ALL WORK SHALL COMPLY WITH THE NATIONAL ELECTRIC CODE & LOCAL CODES.
3. ALL CONDUITS SHALL HAVE A BOND WIRE SIZED PER TABLE 250-122 OF THE NATIONAL ELECTRIC CODE (UNLESS OTHERWISE NOTED).
4. SHADED TEXT DENOTES EXISTING EQUIPMENT OR STRUCTURES. NON-SLANTED TEXT DENOTES NEW EQUIPMENT, STRUCTURES, & WORK.

REV.NO.	DESCRIPTIONS	DATE
1	INVITATION TO BID	5/19/03

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MANATEE COUNTY, FLORIDA

LAKE MANATEE WATER TREATMENT PLANT SLUDGE DEWATERING IMPROVEMENTS

ELECTRICAL SYMBOLS, NOTES AND ABBREVIATIONS

ELECTRICAL - MECHANICAL INSTRUMENTATION
2101 N. ANDREWS AVE., SUITE 100
FORT LAUDERDALE, FLORIDA 33311
PHONE: (954) 564-3111
FAX: (954) 564-3040

DATE:	MAY, 2003
MCE PROJ. #	1024-0033
DRAWN	KJL/RRM
DESIGNED	SEB
CHECKED	SEB
PROJ. MGR.	SEB

SCALE: HORIZONTAL: AS NOTED; VERTICAL: AS NOTED

M&C DWG NUMBER

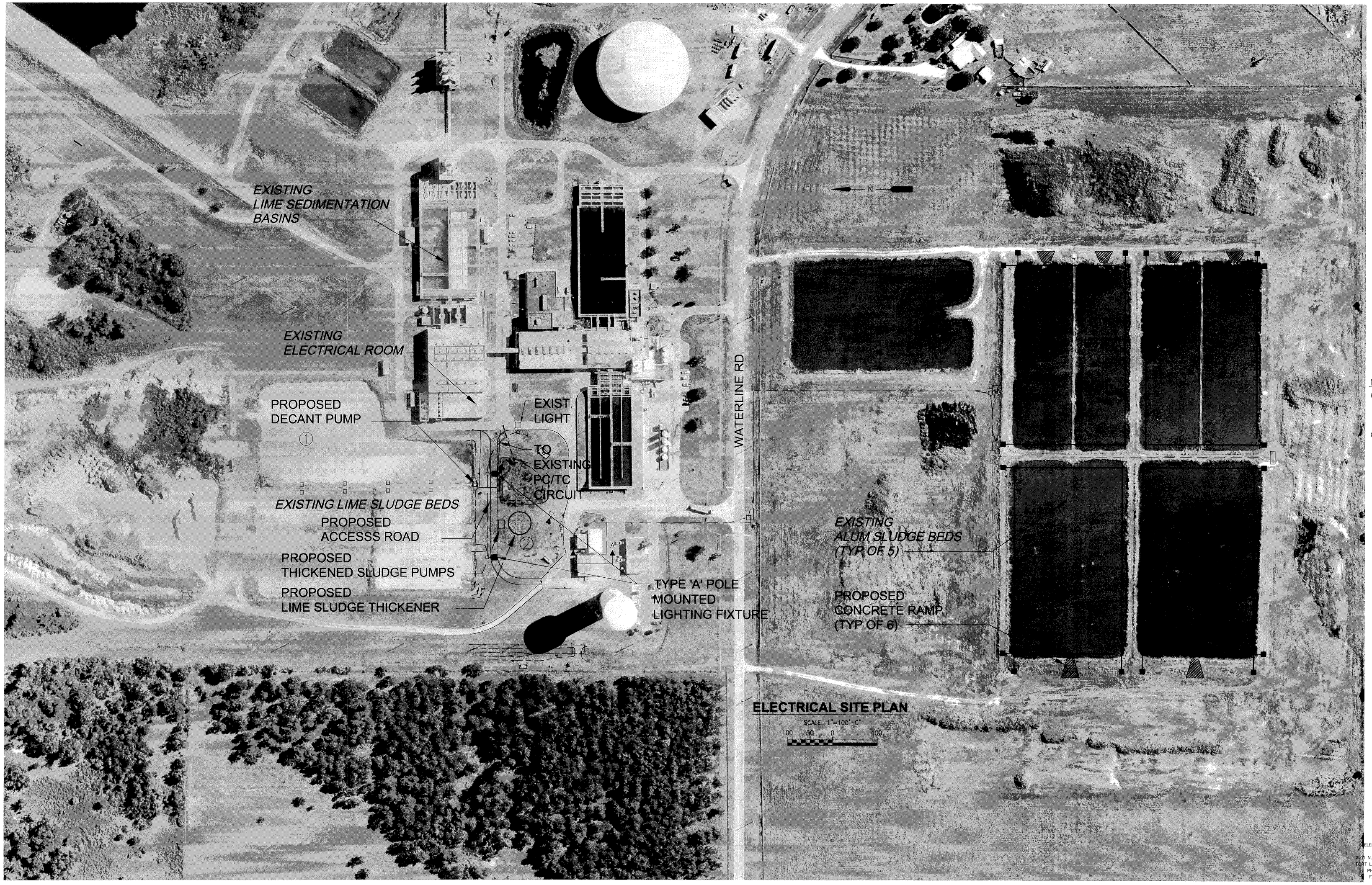
SHEET NUMBER: E-1

STATUS: JUNE, 2005 RECORD DRAWINGS

REVISION

4456.022

ATTACHMENT D



ELECTRICAL SITE PLAN

SCALE: 1"=100'-0"

100 50 0 100

NOTES

① INSTALL NEW DECANT PUMP STATION CP. SEE E-5 FOR REQUIREMENTS.

② TO SLUDGE THICKENER PC LIGHTING

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REV.NO.	DESCRIPTIONS REVISIONS	DATE
1	INVITATION TO BID	5/19/03

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MANATEE COUNTY, FLORIDA

LAKE MANATEE
WATER TREATMENT PLANT
SLUDGE DEWATERING IMPROVEMENTS

SLUDGE PUMP STATION

ELECTRICAL SITE PLAN

DATE:	MAY, 2003
MCE PROJ. #	1024-0033
DRAWN	KJL/RRM
DESIGNED	SEB
CHECKED	SEB
PROJ. MGR.	SEB

SCALE
HORIZONTAL: AS NOTED
VERTICAL: AS NOTED

M&C DWG NUMBER

SHEET NUMBER
E-2

STATUS: JUNE, 2005 RECORD DRAWINGS

REVISION

4456.023

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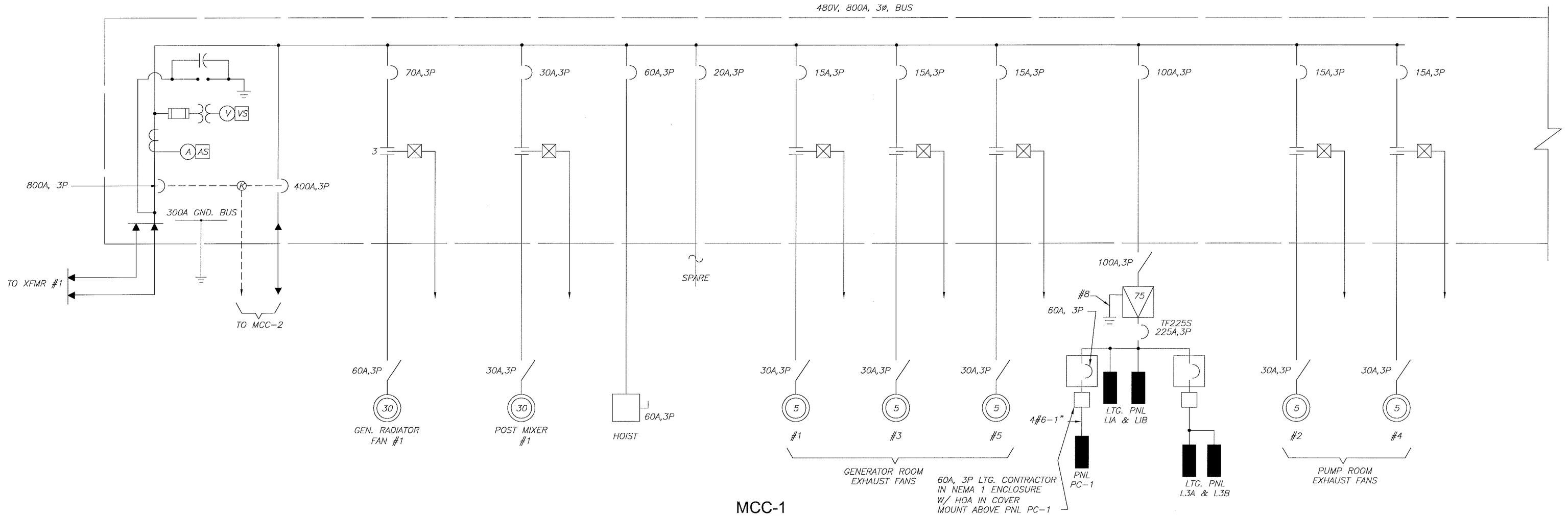

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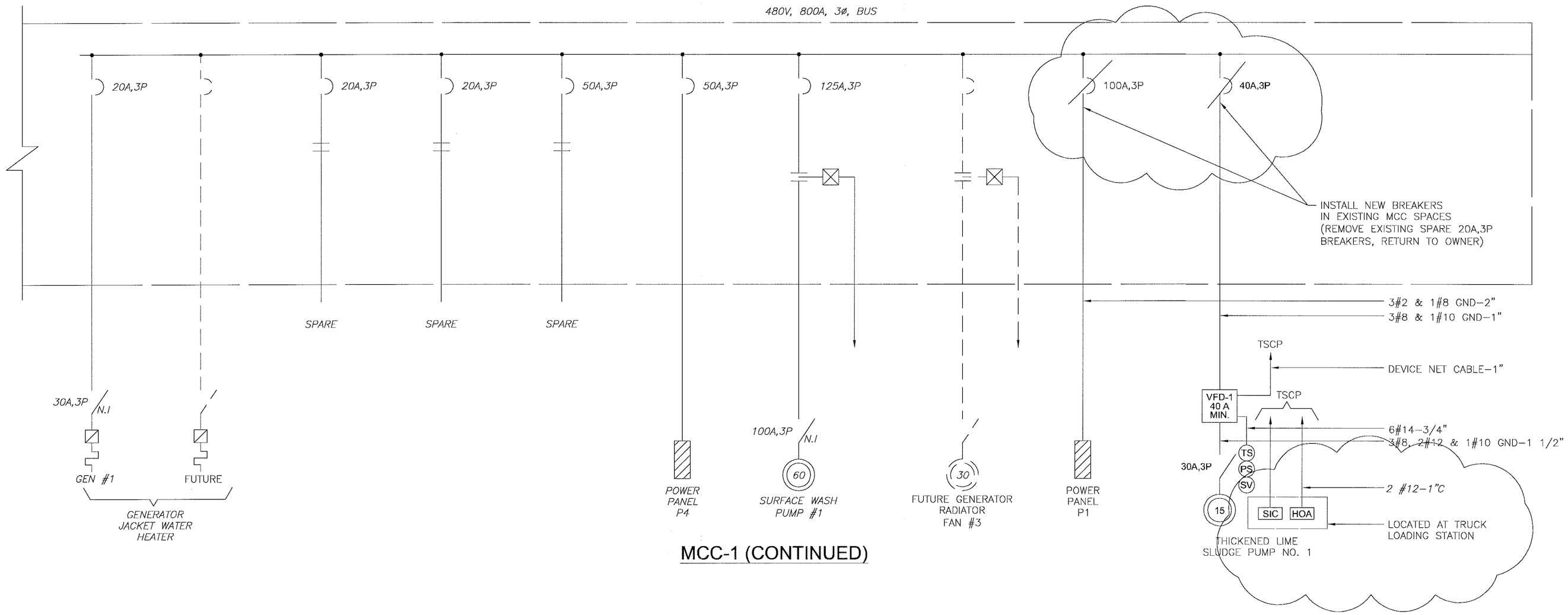

MCC-1 (CONTINUED)

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REV.NO.	DESCRIPTIONS REVISIONS	DATE
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MANATEE COUNTY, FLORIDA

LAKE MANATEE WATER TREATMENT PLANT SLUDGE DEWATERING IMPROVEMENTS

MCC-1

SINGLE LINE DIAGRAM

DATE:	MAY, 2003
MCE PROJ. #	1024-0033
DRAWN	KJL/RRM
DESIGNED	SEB
CHECKED	SEB
PROJ. MGR.	SEB

SCALE
HORIZONTAL: AS NOTED
VERTICAL: AS NOTED

M&C DWG NUMBER

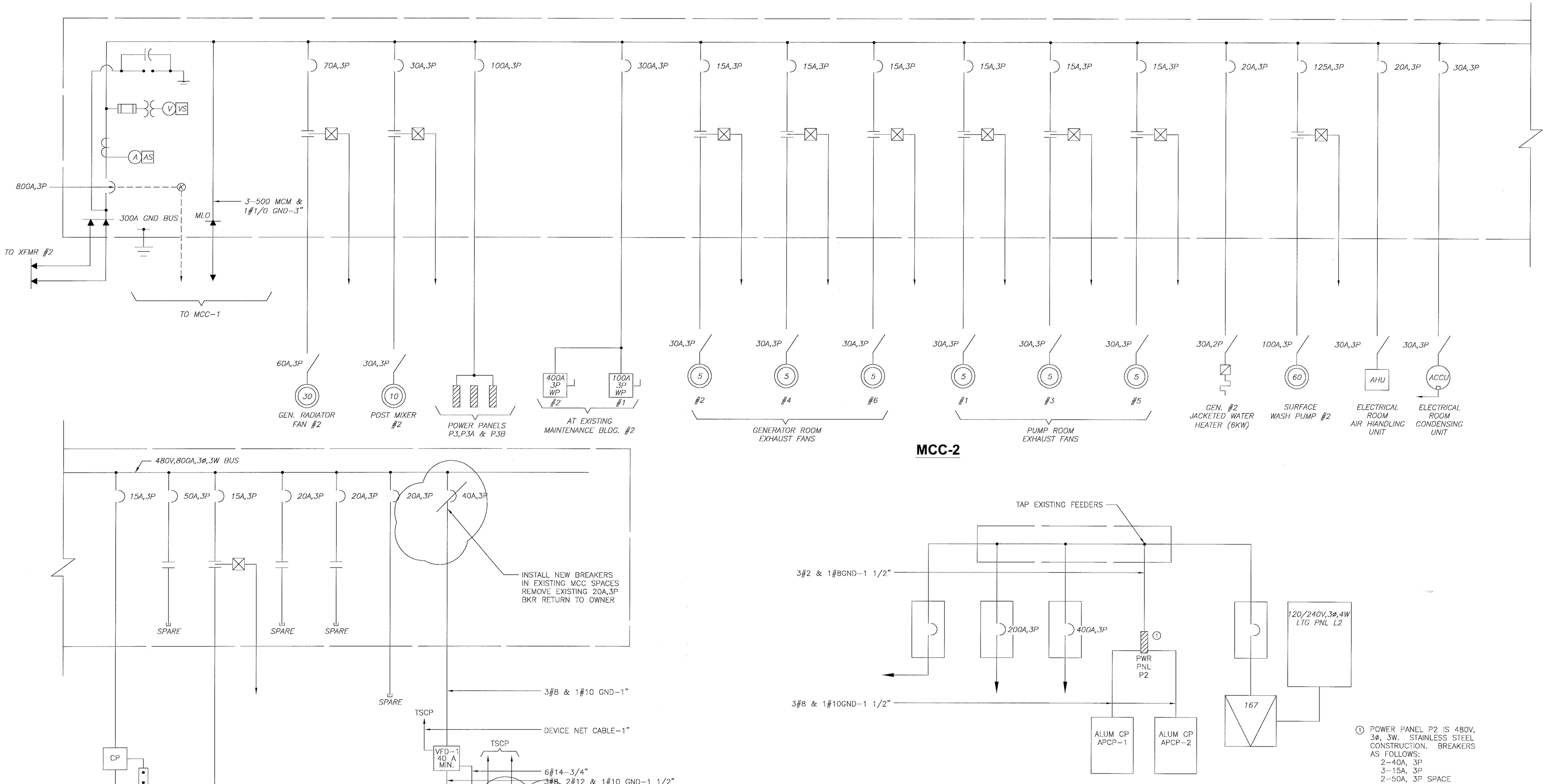
SHEET NUMBER
E-3

STATUS: JUNE, 2005 RECORD DRAWINGS

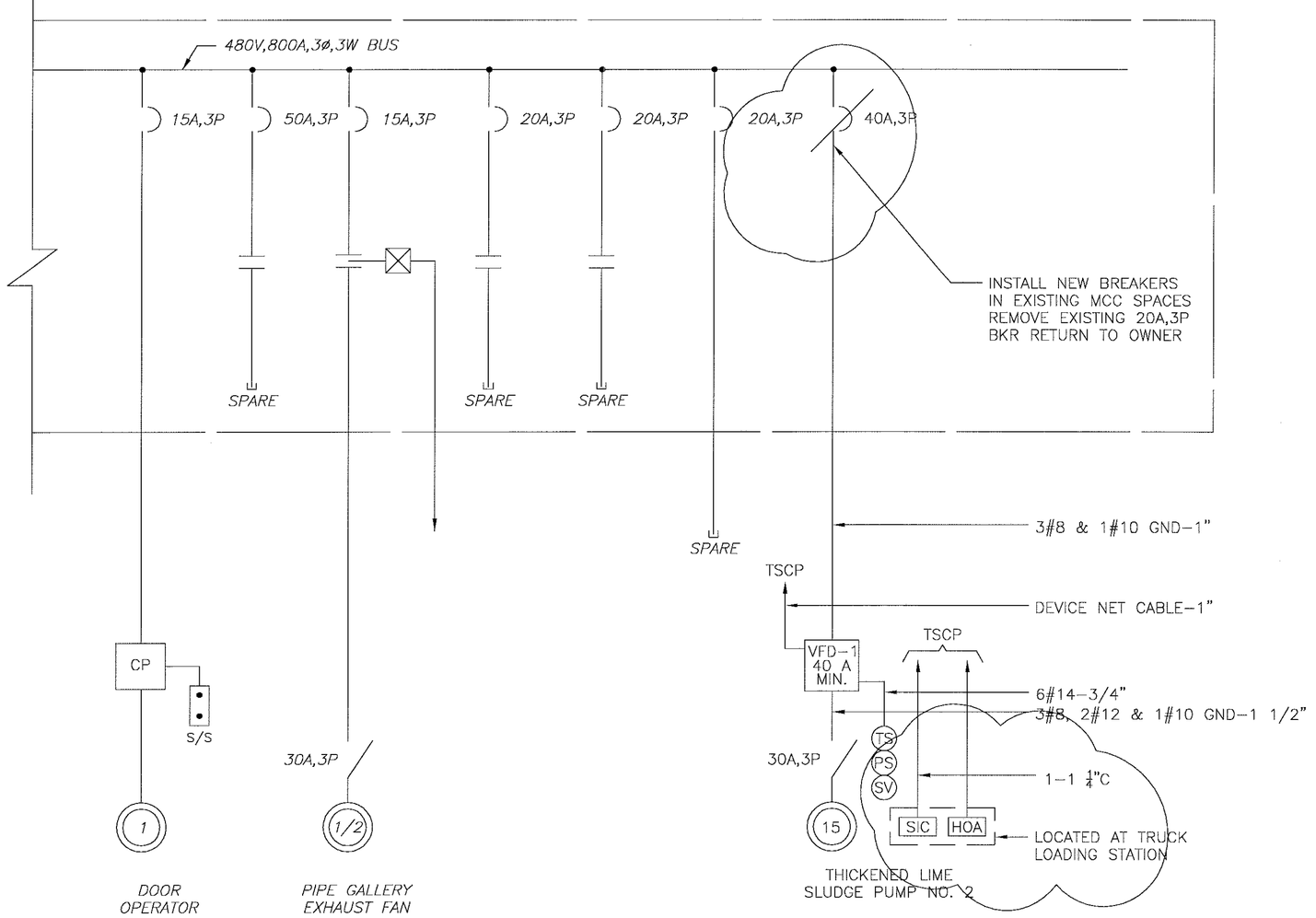
REVISION

4456.024

ATTACHMENT D



MCC-2



MCC-2 (CONT.)

① POWER PANEL P2 IS 480V, 3ø, 3W. STAINLESS STEEL CONSTRUCTION. BREAKERS AS FOLLOWS:
2-40A, 3P
3-15A, 3P
2-50A, 3P SPACE

SINGLE LINE POWER DIAGRAM-SECTION AA (SEE SHEET E-2)

SCALE: N.T.S.

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REV.NO.	DESCRIPTIONS REVISIONS	DATE
1	INVITATION TO BID	5/19/03

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MANATEE COUNTY, FLORIDA

LAKE MANATEE WATER TREATMENT PLANT SLUDGE DEWATERING IMPROVEMENTS

MCC-2

SINGLE LINE DIAGRAM

DATE:	MAY, 2003
MCE PROJ. #	1024-0033
DRAWN	KJL/RRM
DESIGNED	SEB
CHECKED	SEB
PROJ. MGR.	SEB

SCALE
HORIZONTAL: AS NOTED
VERTICAL: AS NOTED

M&C DWG NUMBER

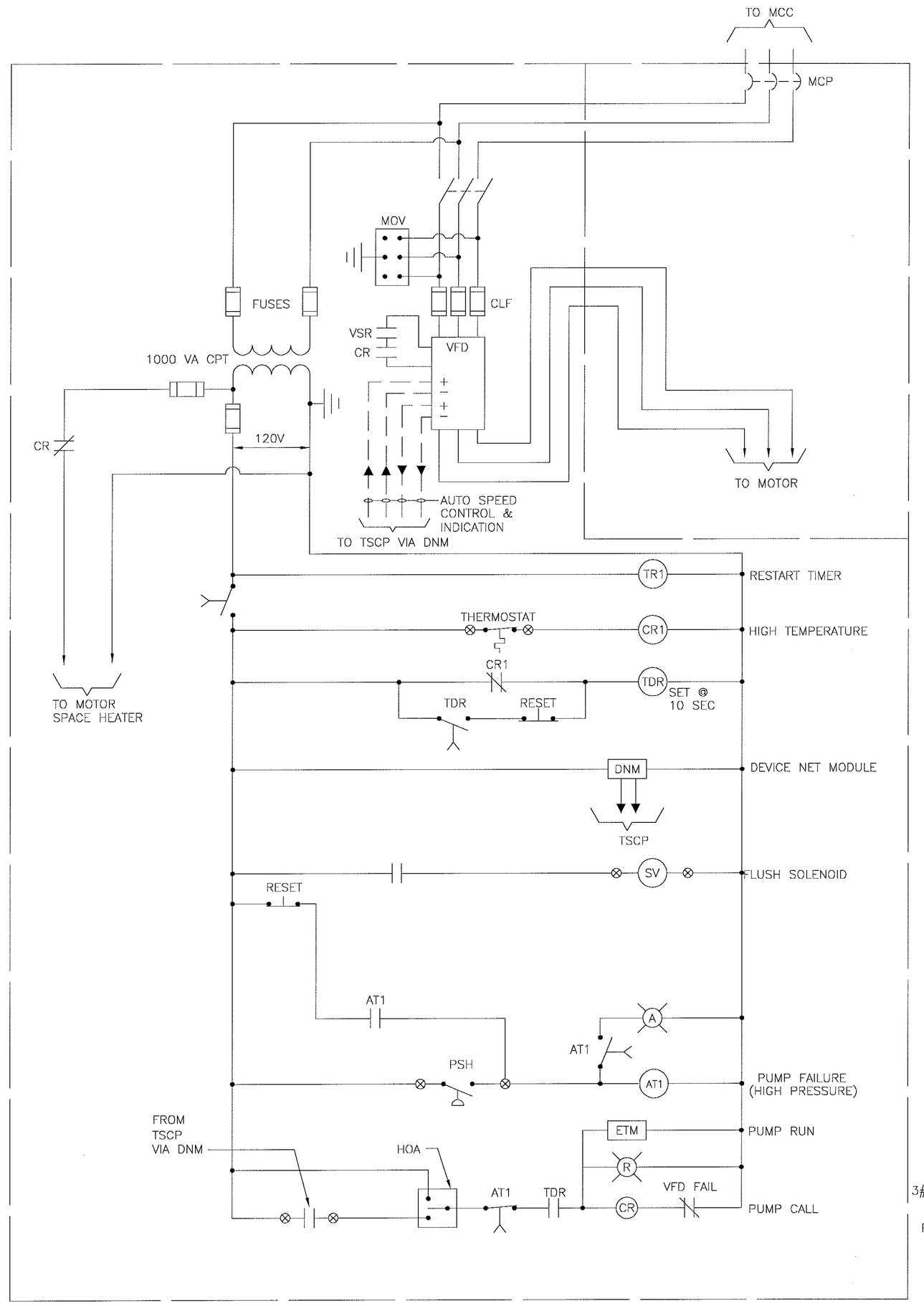
SHEET NUMBER
E-4

STATUS: JUNE, 2005 RECORD DRAWINGS

REVISION

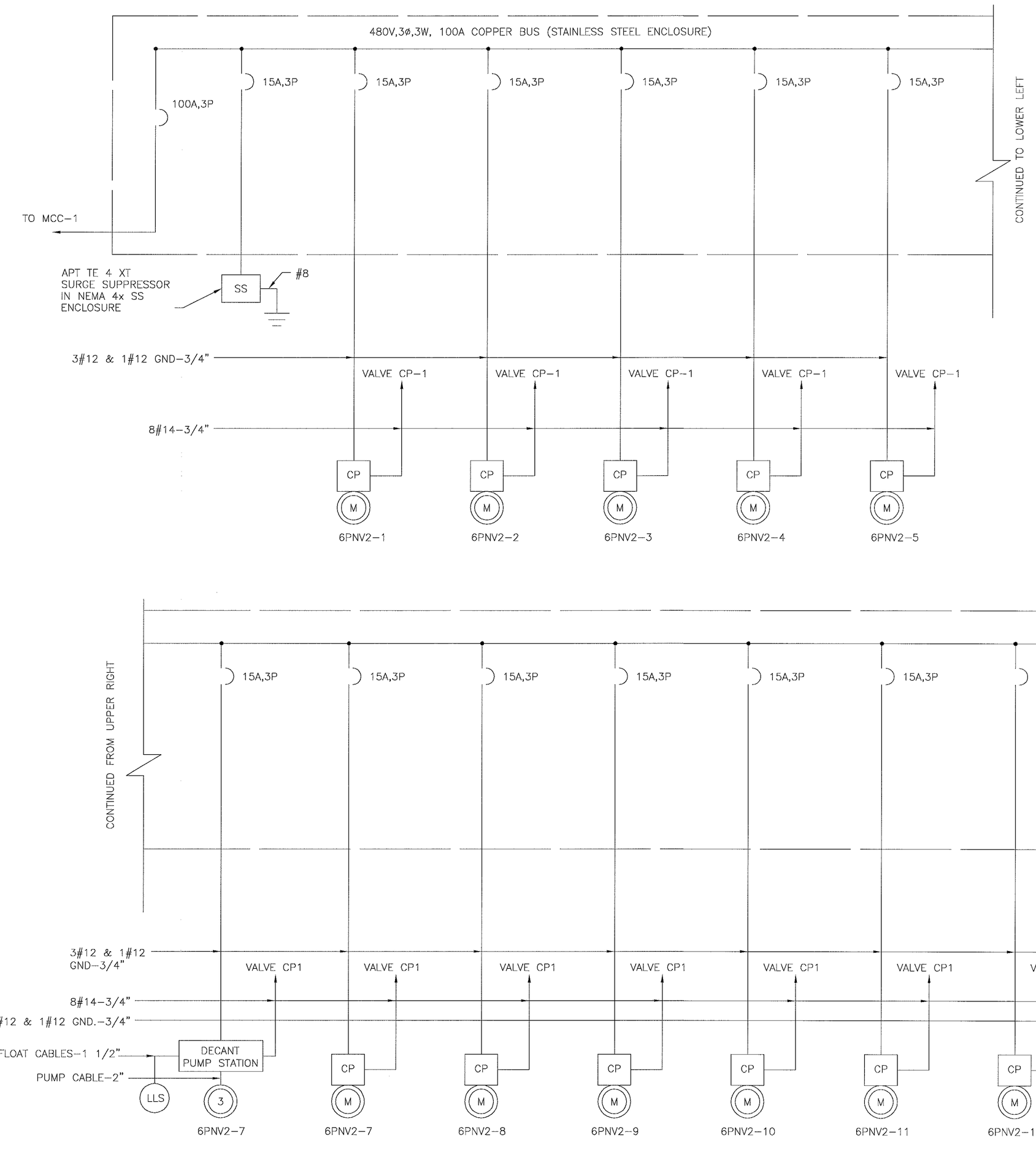
4456.025

ATTACHMENT D



THICKENED LIME SLUDGE PUMP VFD (TYP. 2)

SCALE: N.T.S.



POWER PANEL P1

N.T.S.

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REV.NO.	DESCRIPTIONS	DATE
1	INVITATION TO BID	5/19/03

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MANATEE COUNTY, FLORIDA

LAKE MANATEE WATER TREATMENT PLANT SLUDGE DEWATERING IMPROVEMENTS

SLUDGE PUMP STATION

ELEMENTARY DIAGRAM

DATE:	MAY, 2003
MCE PROJ. #	1024-0033
DRAWN	KJL/RRM
DESIGNED	SEB
CHECKED	SEB
PROJ. MGR.	SEB

SCALE: HORIZONTAL: AS NOTED; VERTICAL: AS NOTED

M&C DWG NUMBER

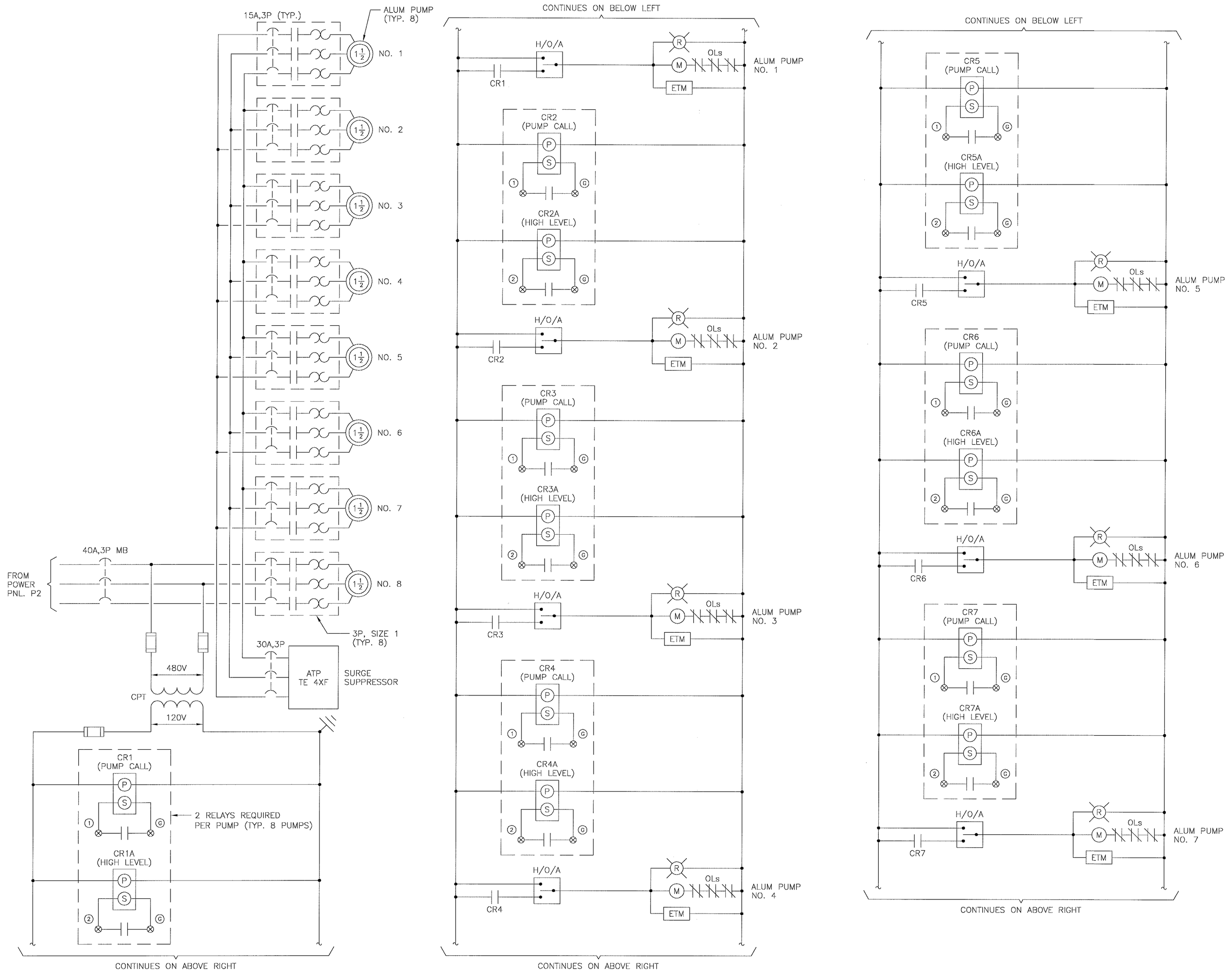
SHEET NUMBER: E-5

STATUS: JUNE, 2005 RECORD DRAWINGS

REVISION

4456.026

ATTACHMENT D



ALUM CONTROL PANEL 1/2

N.T.S.

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ENGINEERING BAILEY CONSULTANTS

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1	INVITATION TO BID	5/19/03

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MANATEE COUNTY, FLORIDA

LAKE MANATEE WATER TREATMENT PLANT SLUDGE DEWATERING IMPROVEMENTS

SLUDGE PUMP STATION

ELEMENTARY CONTROL DIAGRAM

DATE:	MAY, 2003
MCE PROJ. #	1024-0033
DRAWN	KJL/RRM
DESIGNED	SEB
CHECKED	SEB
PROJ. MGR.	SEB

SCALE
HORIZONTAL: AS NOTED
VERTICAL: AS NOTED

M&C DWG NUMBER

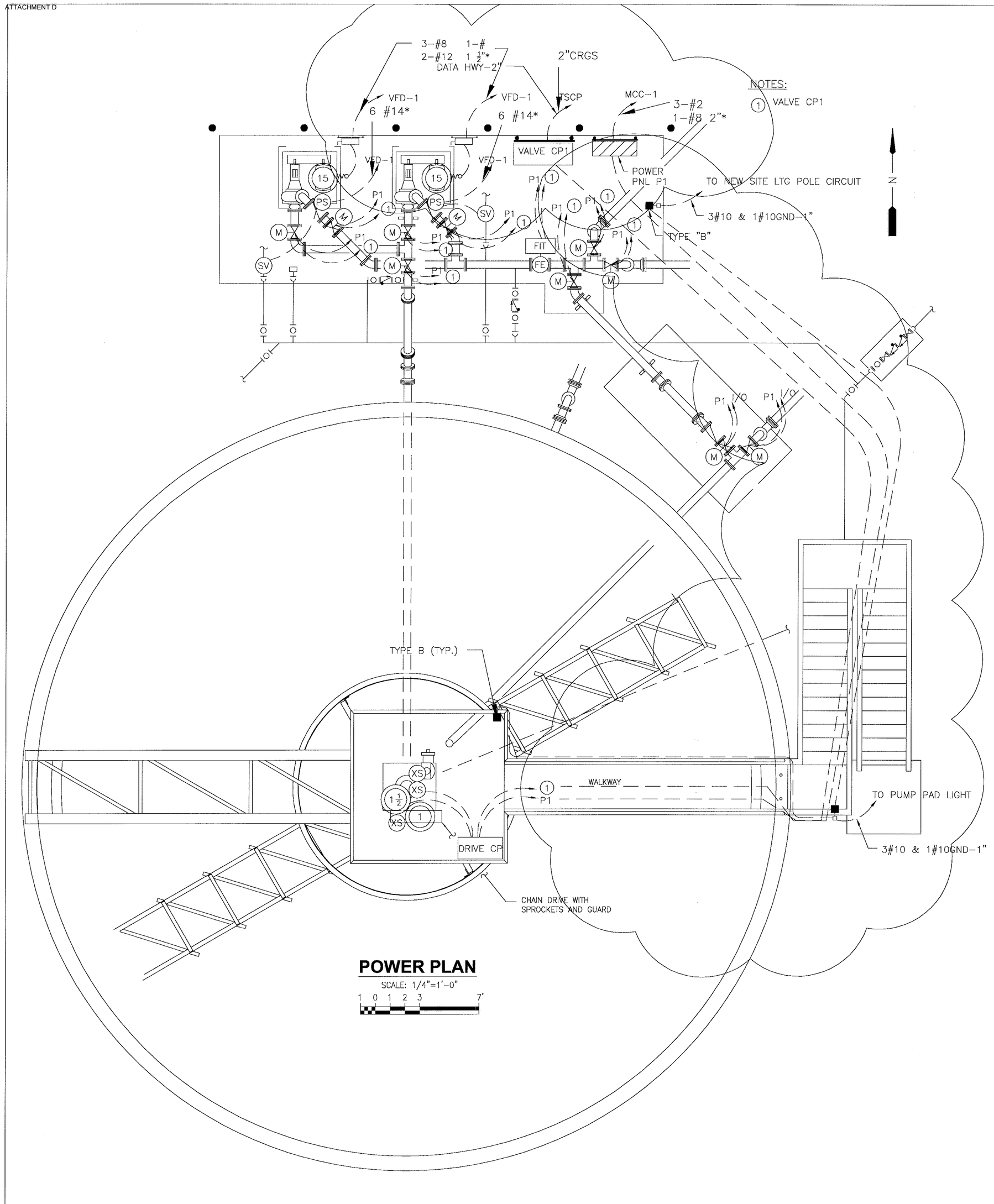
SHEET NUMBER
E-6

STATUS: JUNE, 2005 RECORD DRAWINGS

REVISION

4456.027

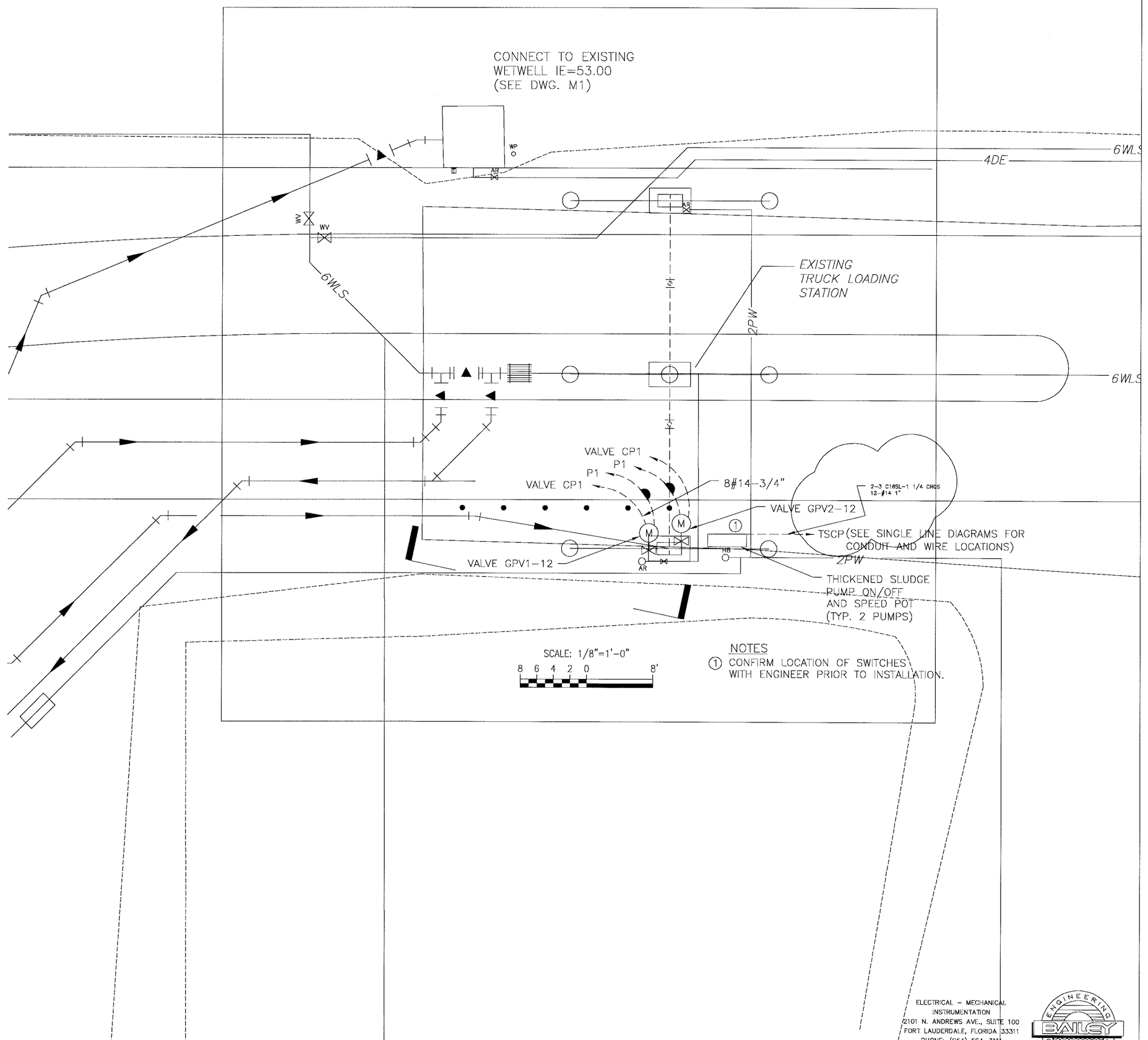
ATTACHMENT D



POWER PLAN

SCALE: 1/4"=1'-0"

1 0 1 2 3 7'



SCALE: 1/8"=1'-0"

8 6 4 2 0 8'

NOTES

1 CONFIRM LOCATION OF SWITCHES WITH ENGINEER PRIOR TO INSTALLATION.

REV.NO.	DESCRIPTIONS	DATE
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MANATEE COUNTY, FLORIDA

LAKE MANATEE
WATER TREATMENT PLANT
SLUDGE DEWATERING IMPROVEMENTS

SLUDGE PUMP STATION

ELECTRICAL PLAN

DATE:	MAY, 2003
MCE PROJ. #	1024-0033
DRAWN	KJL/RRM
DESIGNED	SEB
CHECKED	SEB
PROJ. MGR.	SEB

SCALE
HORIZONTAL: AS NOTED
VERTICAL: AS NOTED

M&C DWG NUMBER

SHEET NUMBER
E-7

STATUS: JUNE, 2005 RECORD DRAWINGS

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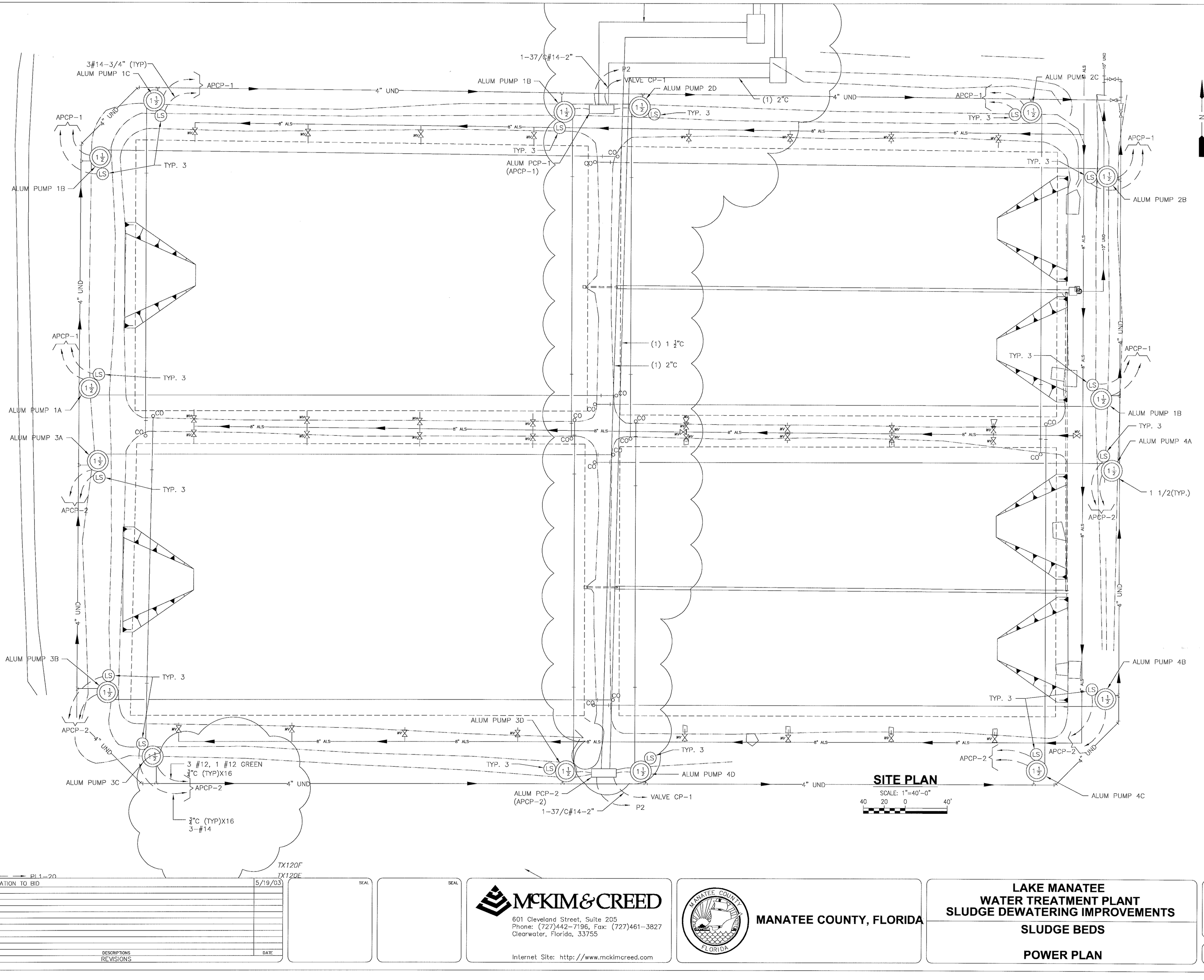
4456.028

ATTACHMENT D



SITE PLAN

SCALE: 1"=40'-0"

40 20 0 40'

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MANATEE COUNTY, FLORIDA

LAKE MANATEE
WATER TREATMENT PLANT
SLUDGE DEWATERING IMPROVEMENTS

SLUDGE BEDS

POWER PLAN

DATE:	MAY, 2003
MCE PROJ. #	1024-0033
DRAWN	KJL/RRM
DESIGNED	SEB
CHECKED	SEB
PROJ. MGR.	SEB

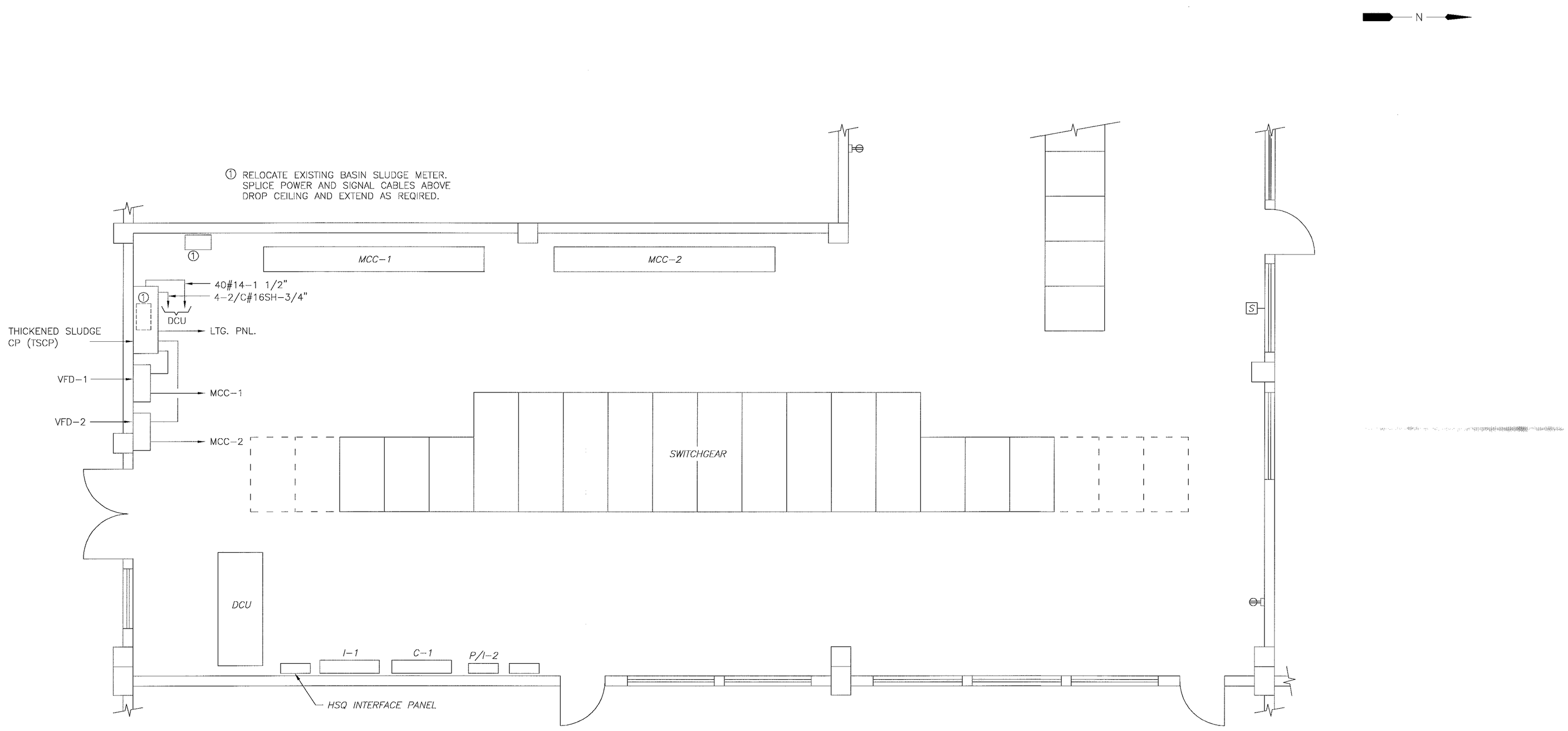
SCALE
HORIZONTAL: AS NOTED
VERTICAL: AS NOTED

M&C DWG NUMBER
SHEET NUMBER
E-8

STATUS: JUNE, 2005 RECORD DRAWINGS
REVISION

4456.029

ATTACHMENT D



EXISTING ELECTRICAL/GENERATOR BUILDING
ELECTRICAL ROOM MODIFICATIONS

SCALE: 1/4"=1'-0"

1 0 1 2 3 7'

ELECTRICAL – MECHANICAL
INSTRUMENTATION
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REV.NO.	DESCRIPTIONS	DATE
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MANATEE COUNTY, FLORIDA

LAKE MANATEE
WATER TREATMENT PLANT
SLUDGE DEWATERING IMPROVEMENTS

ELECTRICAL ROOM PLANS

DATE:	MAY, 2003
MCE PROJ. #	1024-0033
DRAWN	KJL/RRM
DESIGNED	SEB
CHECKED	SEB
PROJ. MGR.	SEB

SCALE
HORIZONTAL: AS NOTED
VERTICAL: AS NOTED

M&C DWG NUMBER

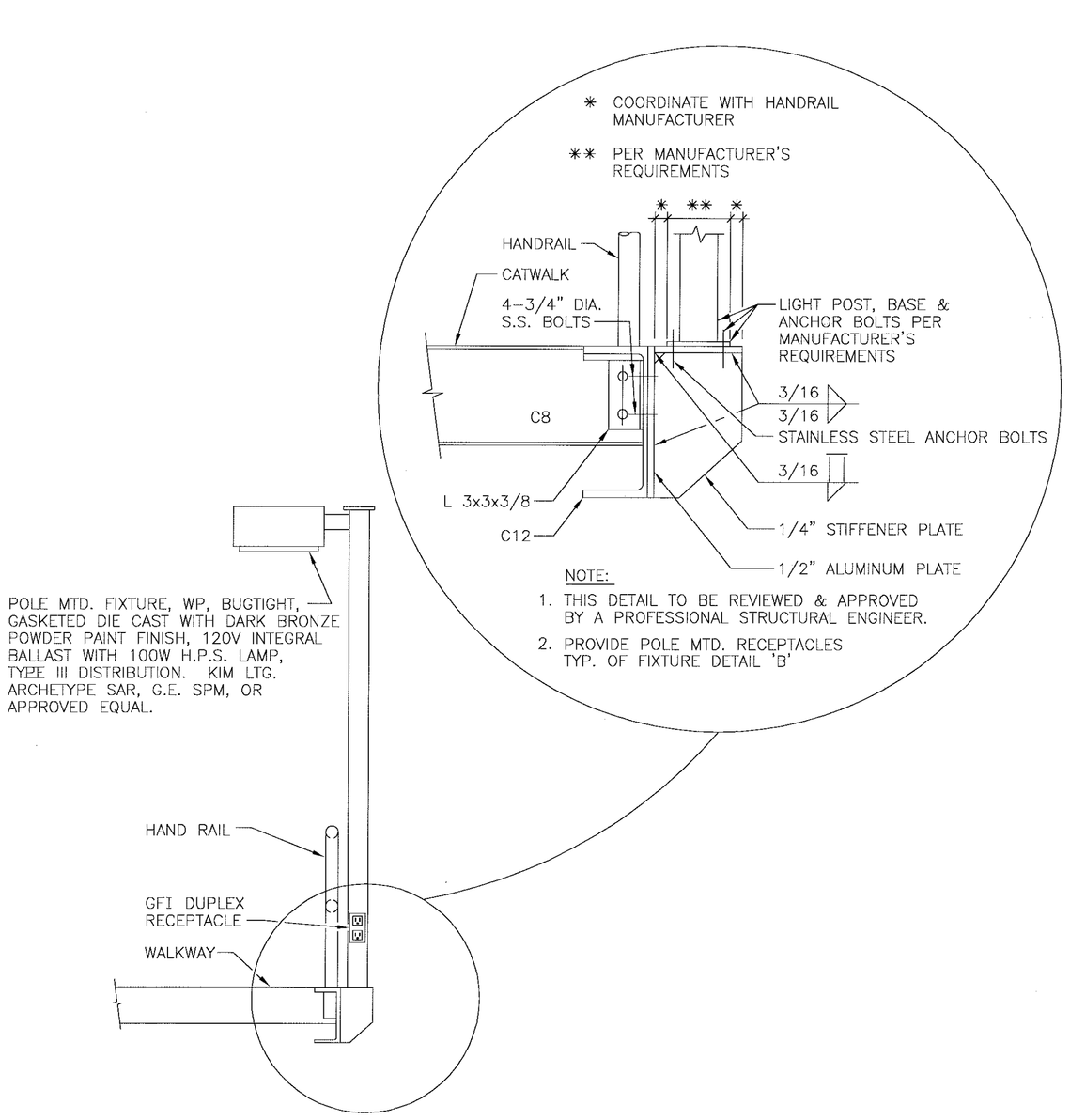
SHEET NUMBER
E-9

STATUS: **JUNE, 2005 RECORD DRAWINGS**

REVISION

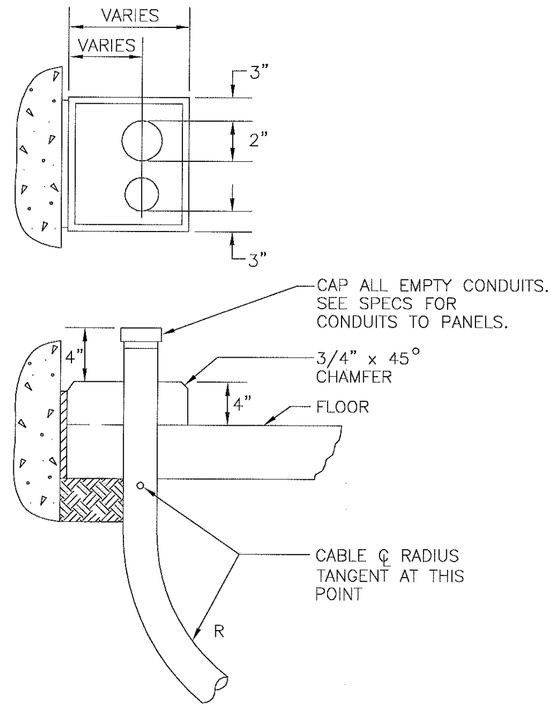
4456-030

ATTACHMENT D



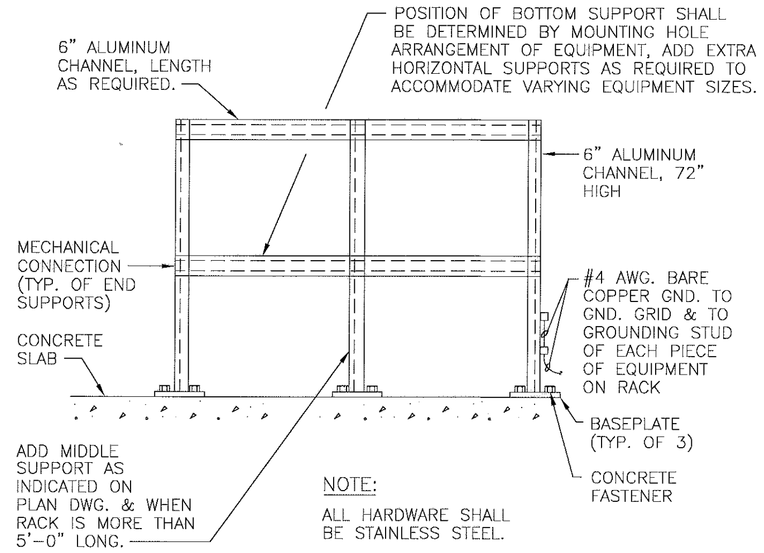
TYPE "B" WALKWAY POLE MTD. FIXTURE DETAIL

N.T.S.



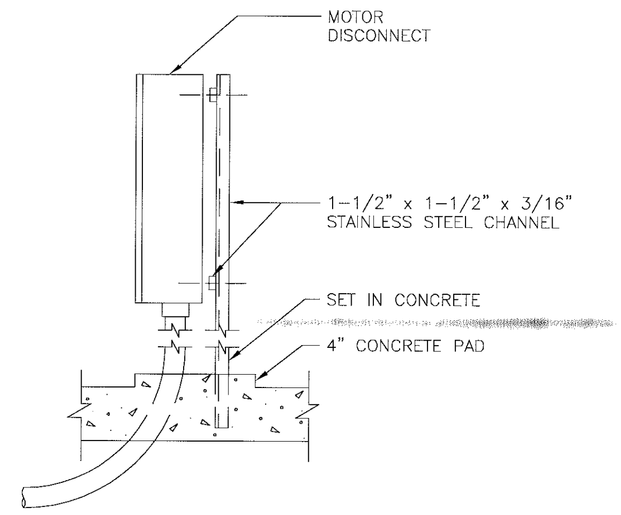
TYPICAL CONDUIT THRU SLAB

N.T.S.



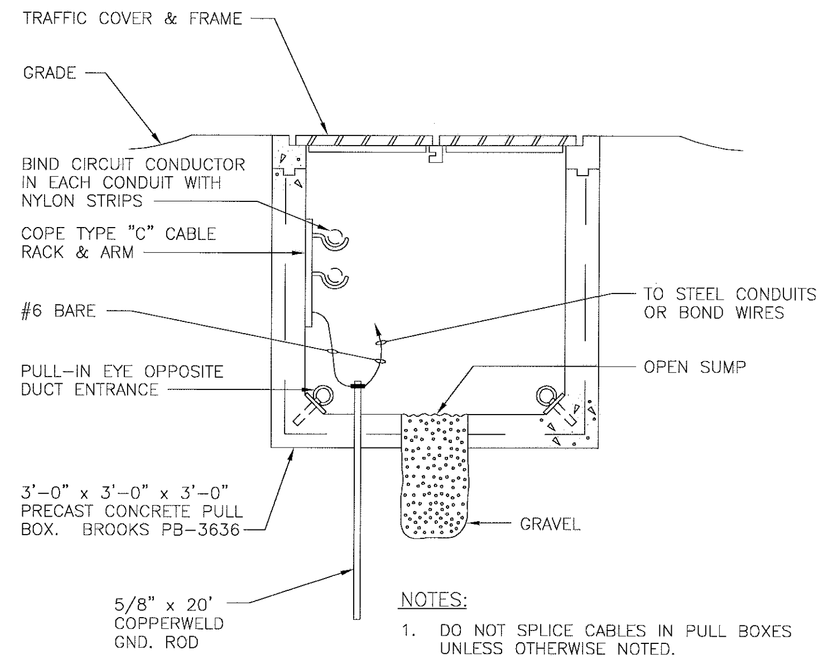
EQUIPMENT RACK DETAIL

N.T.S.



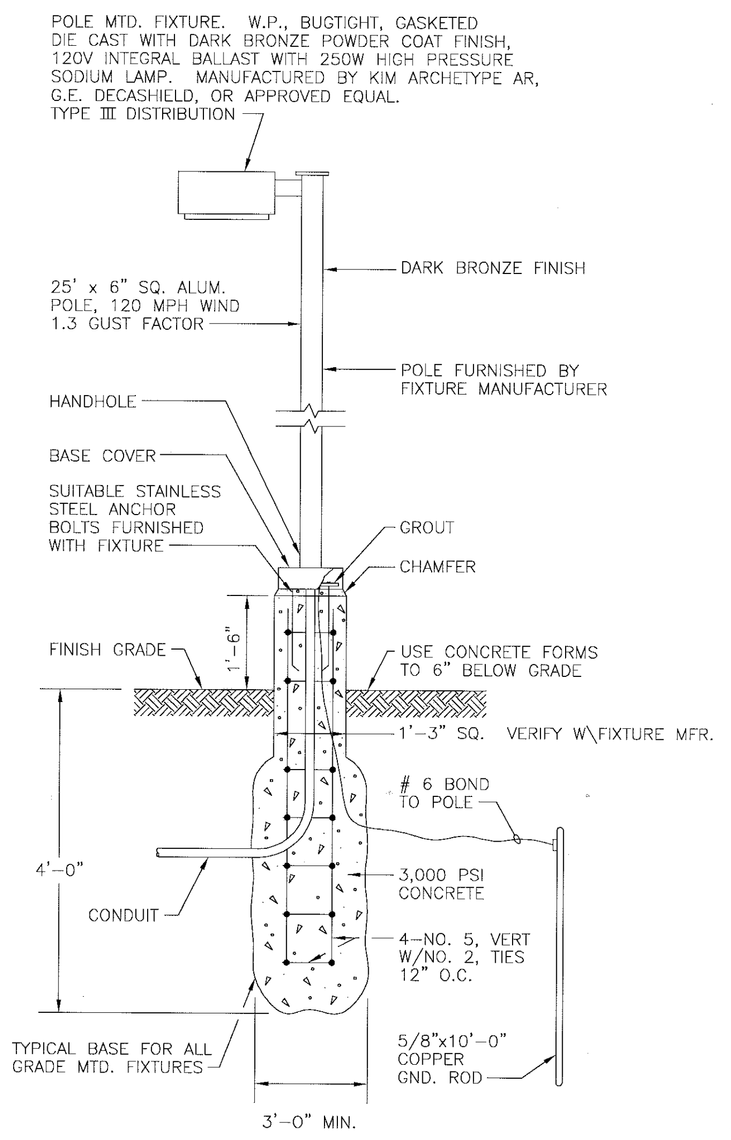
TYPICAL DISCONNECT

N.T.S.



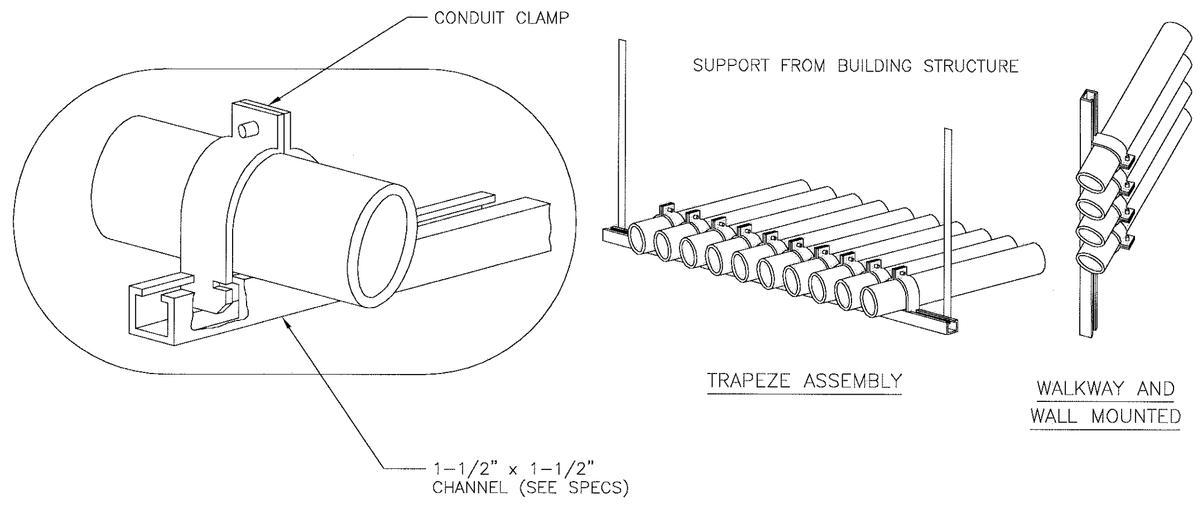
PULL BOX DETAIL

N.T.S.



TYPE "A" POLE MOUNTED FIXTURE DETAIL

N.T.S.



CONDUIT PIPE STRAP MOUNTING DETAILS

N.T.S.

ELECTRICAL - MECHANICAL
INSTRUMENTATION
2101 N. ANDREWS AVE., SUITE 100
FORT LAUDERDALE, FLORIDA 33311
PHONE: (954) 564-3111
FAX: (954) 564-3040

REV.NO.	DESCRIPTIONS REVISIONS	DATE
1	INVITATION TO BID	5/19/03

SEAL

SEAL

McKIM&CREED
601 Cleveland Street, Suite 205
Phone: (727)442-7196, Fax: (727)461-3827
Clearwater, Florida, 33755
Internet Site: http://www.mckimcreed.com

MANATEE COUNTY, FLORIDA

LAKE MANATEE WATER TREATMENT PLANT SLUDGE DEWATERING IMPROVEMENTS

ELECTRICAL DETAILS

DATE:	MAY, 2003
MCE PROJ. #	1024-003.3
DRAWN	KJL/RRM
DESIGNED	SEB
CHECKED	SEB
PROJ. MGR.	SEB

SCALE
HORIZONTAL: AS NOTED
VERTICAL: AS NOTED

M&C DWG NUMBER

SHEET NUMBER
E-10

STATUS: JUNE, 2005 RECORD DRAWINGS

REVISION

4456.031


Find address or place
ATTACHMENT E
~1.5 ac.
Project Area
DAM RD
172 ST E
100m
400

FLORIDA DEPARTMENT OF Environmental Protection

Southwest District Office
13051 North Telecom Parkway #101
Temple Terrace, Florida 33637-0926

Ron DeSantis
Governor

Jeanette Nuñez
Lt. Governor

Noah Valenstein
Secretary

In the matter of an
Application for Permit by:

Mr. Mike Gore,
Utilities Director
Manatee County Government
4410 66th Street West
Bradenton, FL 34206
mike.gore@mymanatee.org

DEP File No. 0133068-1428-WC/MA
Manatee County

NOTICE OF PERMIT

Enclosed is Permit Number 0133068-1428-WC/MA to construct public water system components, issued pursuant to Section 403.087, Florida Statutes.

This permit is final and effective on the date filed with the clerk of the Department unless a petition is filed in accordance with the paragraphs below or unless a request for extension of time in which to file a petition is filed within the required timeframe and conforms to Rule 62-110.106(4), Florida Administrative Code. Upon timely filing of a petition or a request for an extension, this permit will not be effective until further Order of the Department.

A person whose substantial interests are affected by this permit may petition for an administrative proceeding (hearing) in accordance with sections 120.569 and 120.57 of the Florida Statutes. The petition must contain the information set forth below and must be filed (received) with the Agency Clerk for the Department of Environmental Protection, Office of General Counsel, Mail Station 35, 3900 Commonwealth Boulevard, Tallahassee, Florida 32399-3000, within 14 days of receipt of this Notice. Petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. Failure to file a petition within this time period shall constitute a waiver of any right such person may have to request an administrative determination (hearing) under sections 120.569 and 120.57 of the Florida Statutes. Any subsequent intervention will only be at the approval of the presiding officer upon motion filed pursuant to Rule 28-106.205, of the Florida Administrative Code.

A petition must contain the following information:
(a) The name and address of each agency affected and each agency's file or identification number, if known;
(b) The name, address, and telephone number of the petitioner; the name, address, and telephone number of the petitioner's representative, if any, which shall be the address for service purposes during the course of the proceeding; and an explanation of how the petitioner's substantial interests will be affected by the agency determination;
(c) A statement of how and when the petitioner received notice of the agency decision;
(d) A statement of all disputed issues of material fact. If there are none, the petition must so indicate;

(e) A concise statement of the ultimate facts alleged, including the specific facts which petitioner contends warrant reversal or modification of the Department's action;
(f) A statement of the specific rules or statutes the petitioner contends requires reversal or modification of the Department's action, including an explanation of how the alleged facts relate to the specific rules or statutes; and
(g) A statement of the relief sought by petitioner, stating precisely the action that the petitioner wants the Department to take.

A petition that does not dispute the materials facts on which the Department's action is based shall state that no such facts are in dispute and otherwise contain the same information as set forth above, as required by Rule 28-106.301, of the Florida Administrative Code.

Because the administrative hearing process is designed to formulate final agency action, the filing of a petition means that, the Department's final action may be different from the position taken by it in this Notice. Persons whose substantial interests will be affected by any such final decision of the Department on the petition have the right to petition to become a party to the proceeding, in accordance with the requirements set forth above.

When the Order (Permit) is final, any party to the Order has the right to seek judicial review of the Order pursuant to section 120.68 of the Florida Statutes, by filing a Notice of Appeal pursuant to Rule 9.110 of the Florida Rules of Appellate Procedure, with the Clerk of the Department in the Office of General Counsel, Mail Station 35, 3900 Commonwealth Boulevard, Tallahassee, Florida 32399-3000; and by filing a copy of the notice of appeal accompanied by the applicable filing fees with the appropriate district court of appeal. The notice of appeal must be filed within 30 days from the date when the final order is filed with the Clerk of the Department.

Executed in Hillsborough County, Florida.
STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL PROTECTION

for Pamala Vazquez
Program Administrator
Permitting & Waste Cleanup Program
Southwest District

CERTIFICATION OF SERVICE

The undersigned duly designated deputy agency clerk hereby certifies that this Notice of Permit Issuance and all copies were mailed/electronically transmitted before the close of business on March 23, 2021 to those persons listed.

FILING AND ACKNOWLEDGEMENT

Filed, on this date, under section 120.52(7), Florida Statutes, with the designated Department Clerk, receipt of which is hereby acknowledged.

Clerk — Date: March 23, 2021

Copies Furnished to: Sandeep Sethi, P.E., Carollo Engineering, Inc., ssethi@carollo.com
James Brock, FDEP SWD, James.Brock@floridadep.gov
Larisa Orekhova, FDEP SWD, Larisa.Orekhova@floridadep.gov

FLORIDA DEPARTMENT OF Environmental Protection

Southwest District Office
13051 North Telecom Parkway #101
Temple Terrace, Florida 33637-0926

Ron DeSantis
Governor

Jeanette Nuñez
Lt. Governor

Noah Valenstein
Secretary

ELECTRONIC CORRESPONDENCE

PERMITTEE:
Manatee County Government
Mike Gore, Utilities Director
4410 66th Street West
Bradenton, FL 34206
mike.gore@mymanatee.org

PWS ID NUMBER: 641-1132
PERMIT NUMBER: 0133068-1428-WC/MA
DATE OF ISSUE: **March 23, 2021**
EXPIRATION DATE: **March 22, 2026**
COUNTY: Manatee
PROJECT: Lake Manatee WTP Filter Upgrade Project

This permit is issued under the provisions of Chapter 403, Florida Statutes (F.S.), and Florida Administrative Code (F.A.C.) Chapters 62-4, 62-550, 62-555, 62-560 and 62-699. The above named permittee is hereby authorized to perform the work or operate the facility shown on the application and approved drawings, plans, and other documents attached hereto or on file with the Department and made a part hereof and specifically described as follows:

TO CONSTRUCT: A new submerged ultrafiltration membrane system (UF) to retrofit the existing multimedia filters serving the surface water trains at the Lake Manatee County Water Treatment Plant (LMWTP).

PROPOSED CONSTRUCTION INCLUDES:

1. A new 10,600 sq ft chemical building;
2. A 45ft diameter (1,600 sq ft) neutralized equalization tank;
3. A 2,580 sq ft containment area for two new neutralization tanks and transfer pumps with associated shelter.
4. Modifications to two post-mix basins with a storage capacity of 44,579 gallons each at the post-mix A including:
    a. Modifications of concrete baffle and construction of pedestal to install screens.
    b. Openings for screens.
5. Two mixers rated at 7.5 HP each at the post-mix A;
6. Modifications to one post-mix basin with a storage capacity of 121,777 gallons at post-mix B including:
    a. Modifications to the east wall by creating an opening.
    b. Adding a partition wall to create two post-mix basins approximately half the volume as the original.
    c. Construction of concrete pedestals to install screens.
7. Two pre-screens (3ftx15ft) at the post-mix A1, with 500 micron mesh size;
8. Two pre-screens (3ftx15ft) at the post-mix A 2, with 500 micron mesh size;
9. Four pre-screens (4ftx15ft) at the post-mix B, with 500 micron mesh size;

10. Twelve polymeric hollow fiber membrane trains with a net production capacity of 52 MGD;

11. Twelve end-suction centrifugal pumps each rated at 40 HP and operating at 3,950 gpm at 25 feet TDH for permeate pumping. (Refinement of previous permit construction list item No. 11.: Twelve end-suction centrifugal pumps or equivalent each rated at 75 HP, operating at 4,200 gpm at approximately 50 feet of TDH for permeate pumping.);

12. Three 5,000 gallon backpulse storage tanks;

13. Three vertical turbine centrifugal pumps with VFD (2 in service and one standby) each rated at 100HP and operating at 5,072 gpm at 63 feet of TDH for backpulse pumping;

14. An air scour system with three blowers (2 in service and 1 standby) each rated at 20 HP;

15. Two air compressors rated at 10 HP each;

16. Two ultrafiltration CIP and neutralization systems for membrane cleaning.

17. Two 8,000 gallon hot water tanks each equipped with immersion heaters;

18. Two horizontal end-suction centrifugal pumps (one in service and one standby) rated each at 10 HP and operating at 1000 gpm at 19ft TDH for hot water pumping;

19. Two 8,000 gallon CIP storage tanks;

20. Four 316 stainless steel end-suction centrifugal pumps (two in service and two standby) rated each at 20 HP and operating at 1140 gpm at 39ft TDH for CIP pumping;

21. Two 19,900 gallon neutralization tanks equipped with one mixer each;

22. Three end-suction centrifugal pumps each rated at 20 HP and operating at 2000gpm at 25ft TDH for neutralization waste pumping;

23. A 200,000 gallon equalization basin for equalization of neutralized waste;

24. Three pumps each rated at 2.0 HP and operating at 16.6 gpm at a max 100 psi. for transferring bulk sodium hypochlorite to a day tank;

25. One 200 gallon sodium hypochlorite day storage tank;

26. Three liquid chemical diaphragm-type metering pumps (two in service and one on standby) operating at 16.6 gpm each for feeding sodium hypochlorite;

27. A 3,500 gallon citric acid storage tank;

28. Three liquid chemical diaphragm-type metering pumps (two in service and one on standby) operating at 6.1 gpm each for feeding citric acid;

29. A 8,400 gallon caustic soda storage tank;

30. Three liquid chemical diaphragm-type metering pumps (two in service and one on standby) operating at 0.9 gpm each for feeding caustic soda for the CIP system;

31. Two liquid chemical diaphragm-type metering pumps (one in service and one on standby) operating at 2.4 gpm for feeding caustic soda to the neutralization tanks;

32. Three liquid chemical diaphragm-type metering pumps (two in service and one on standby) operating at 0.01 gpm each for feeding caustic soda to the post-mix A basins;

33. Two liquid chemical diaphragm-type metering pumps (one in service and one on standby) operating at 0.03 gpm for feeding caustic soda to the post-mix B basins;

34. A 4,700 gallon hydrochloric acid storage tank;

35. Three liquid chemical diaphragm-type metering pumps (two in service and one on standby) operating at 4.1 gpm for feeding hydrochloric acid to the CIP system;

36. Two liquid chemical diaphragm-type metering pumps (one in service and one on standby) operating at 4.1 gpm for feeding hydrochloric acid to the neutralization tanks;

37. A 3,150 gallon sodium bisulfite storage tank;

38. Two liquid chemical diaphragm-type metering pumps (one in service and one on standby) operating at 4 gpm for feeding sodium bisulfite;

39. Associated piping, electrical, instrumentation and appurtenances related to the UF system;

There is no change to the permitted maximum day treatment capacity of the plant, which is 84.0 MGD.

IN ACCORDANCE WITH: preliminary design report, engineering drawings and related documents, prepared by Sandeep Sethi, P.E., Carollo Engineers, Inc.

LOCATION: The new submerged ultrafiltration membrane system will be installed at the Lake Manatee Water Treatment Plant, located at 17915 Waterline Road, Bradenton, in Manatee County, Florida.

A. General Conditions

The permittee shall be aware of and operate under the Permit Conditions below. These applicable conditions are binding upon the permittee and enforceable pursuant to Chapter 403, Florida Statutes. [F.A.C. Rule 62-555.533(1)]

1. The terms, conditions, requirements, limitations and restrictions set forth in this permit, are "permit conditions" and are binding and enforceable pursuant to Sections 403.141, 403.727, or 403.859 through 403.861, F.S. The permittee is placed on notice that the Department will review this permit periodically and may initiate enforcement action for any violation of these conditions.

2. This permit is valid only for the specific processes and operations applied for and indicated in the approved drawings or exhibits. Any unauthorized deviation from the approved drawings, exhibits, specifications, or conditions of this permit may constitute grounds for revocation and enforcement action by the Department.

3. As provided in Subsections 403.087(6) and 403.722(5), F.S., the issuance of this permit does not convey any vested rights or any exclusive privileges. Neither does it authorize any injury to public or private property or any invasion of personal rights, nor any infringement of federal, state, or local laws or regulations. This permit is not a waiver of or approval of any other department permit that may be required for other aspects of the total project which are not addressed in this permit.

4. This permit conveys no title to land or water, does not constitute State recognition or acknowledgment of title, and does not constitute authority for the use of submerged lands unless herein provided and the necessary title or leasehold interests have been obtained from the State. Only the Trustees of the Internal Improvement Trust Fund may express State opinion as to title.

5. This permit does not relieve the permittee from liability for harm or injury to human health or welfare, animal, or plant life, or property caused by the construction or operation of this permitted source, or from penalties therefore; nor does it allow the permittee to cause pollution in contravention of Florida Statutes and Department rules, unless specifically authorized by an order from the Department.

6. The permittee shall properly operate and maintain the facility and systems of treatment and control (and related appurtenances) that are installed and used by the permittee to achieve compliance with the conditions of this permit, as required by Department rules. This provision includes the operation of backup or auxiliary facilities or similar systems when necessary to achieve compliance with the conditions of the permit and when required by Department rules.

7. The permittee, by accepting this permit, specifically agrees to allow authorized Department personnel, upon presentation of credentials or other documents as may be required by law and at reasonable times (reasonable time may depend on the nature of the concern being investigated), access to the premises where the permitted activity is located or conducted to:

    a. Have access to and copy any records that must be kept under conditions of the permit;
    b. Inspect the facility, equipment, practices, or operations regulated or required under this permit; and
    c. Sample or monitor any substances or parameters at any location reasonably necessary to assure compliance with this permit or Department rules.

8. If, for any reason, the permittee does not comply with or will be unable to comply with any condition or limitation specified in this permit, the permittee shall immediately provide the Department with the following information:

    a. A description of and cause of noncompliance; and
    b. The period of noncompliance, including dates and times; or, if not corrected, the anticipated time the noncompliance is expected to continue, and steps being taken to reduce, eliminate, and prevent recurrence of the noncompliance. The permittee shall be responsible for any and all damages which may result and may be subject to enforcement action by the Department for penalties or for revocation of this permit.

9. In accepting this permit, the permittee understands and agrees that all records, notes, monitoring data and other information relating to the construction or operation of this permitted source which are submitted to the

Department may be used by the Department as evidence in any enforcement case involving the permitted source arising under the Florida Statutes or Department rules, except where such use is prescribed by Sections 403.111 and 403.73, F.S. Such evidence shall only be used to the extent it is consistent with the Florida Rules of Civil Procedure and appropriate evidentiary rules.

10. The permittee agrees to comply with changes in Department rules and Florida Statutes after a reasonable time for compliance; provided, however, the permittee does not waive any other rights granted by Florida Statutes or Department rules. A reasonable time for compliance with a new or amended surface water quality standard, other than those standards addressed in Rule 62-302.500, shall include a reasonable time to obtain or be denied a mixing zone for the new or amended standard.

11. This permit is transferable only upon Department approval in accordance with Rule 62- 4.120 and 62-730.300, F.A.C., as applicable. The permittee shall be liable for any non-compliance of the permitted activity until the transfer is approved by the Department.

12. This permit or a copy thereof shall be kept at the work site of the permitted activity.

13. This permit also constitutes:

    a. Determination of Best Available Control Technology (BACT)
    b. Determination of Prevention of Significant Deterioration (PSD)
    c. Certification of compliance with State Water Quality Standards (Section 401, PL 92-500)
    d. Compliance with New Source Performance Standards

14. The permittee shall comply with the following:

    a. Upon request, the permittee shall furnish all records and plans required under Department rules. During enforcement actions, the retention period for all records will be extended automatically unless otherwise stipulated by the Department.

    b. The permittee shall hold at the facility or other location designated by this permit records of all monitoring information (including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation) required by the permit, copies of all reports required by this permit, and records of all data used to complete the application for this permit. These materials shall be retained at least three years from the date of the sample, measurement, report, or application unless otherwise specified by Department rule.

    c. Records of monitoring information shall include:
        i. the date, exact place, and time of sampling or measurements;
        ii. the person responsible for performing the sampling or measurements;
        iii. the dates analyses were performed;
        iv. the person responsible for performing the analyses;
        v. the analytical techniques or methods used;
        vi. the results of such analyses.

15. When requested by the Department, the permittee shall within a reasonable time furnish any information required by law which is needed to determine compliance with the permit. If the permittee becomes aware the relevant facts were not submitted or were incorrect in the permit application or in any report to the Department, such facts or information shall be corrected promptly.

B. Regulatory Section

1. All construction must be in accordance with this permit. Before commencing work on project changes for which a construction permit modification is required per 62-555.536(1), the permittee shall submit to the Department a written request for a permit modification. Each such request shall be accompanied by one copy of a revised construction permit application, the proper processing fee and one copy of either a revised preliminary design report or revised drawings, specifications and design data. [F.A.C. Rule 62-555.536].

2. Permitted construction or alteration of public water supply systems must be supervised during construction by a professional engineer registered in the State of Florida if the project was designed under the responsible charge of a professional engineer licensed in the State of Florida. The permittee must retain the service of a professional engineer registered in the State of Florida to observe that construction of the project is in accordance with the engineering plans and specifications as submitted in support of the application for this permit. [F.A.C. Rule 62-555.520(3)].

3. If prehistoric or historic artifacts, such as pottery or ceramics, stone tools or metal implements, dugout canoe remains, or any other physical remains that could be associated with Native American cultures, or early colonial or American settlement are encountered at any time within the project site area, the permitted project should cease all activities involving subsurface disturbance in the immediate vicinity of such discoveries. The permittee, or other designee, should contact the Florida Department of State, Division of Historical Resources, Compliance and Review Section at 850.245.6333 or 800.847.7278, as well as the appropriate permitting agency office. Project activities should not resume without verbal and/or written authorization from the Division of Historical Resources and the permitting agency. In the event that unmarked human remains are encountered during permitted activities, all work shall stop immediately and the proper authorities notified in accordance with Section 872.05, *Florida Statutes*.

4. If delays will cause project completion to extend beyond the expiration date of this permit, the permittee shall submit to the Department a request to extend the expiration date of this permit including the appropriate processing fee. This request shall specify the reasons for the delay and shall be submitted to the Department for approval prior to the expiration date of this permit. Note that no specific construction permit shall be extended so as to remain in effect longer than five years. [F.A.C. Rule 62-555.536(4)].

5. In accordance with General Condition #11 of this permit, this permit is transferable only upon Department approval. Persons proposing to transfer this permit must apply jointly for a transfer of the permit within 30 days after the sale or legal transfer of ownership of the permitted project that has not been cleared for service by the Department using form, 62-555.900(8), Application for Transfer of a PWS Construction Permit along with the appropriate fee. [F.A.C. Rule 62-555.536(5)]

6. This permit satisfies Drinking Water permitting requirements only and does not authorize construction or operation of this facility prior to obtaining all other necessary permits from other program areas within the Department, or required permits from other state, federal, or local agencies.

7. If gasoline contamination is found at the construction site, work shall be stopped and the proper authorities notified. With the approval of the Department, ductile iron pipe and fittings, and solvent resistant gaskets materials shall be used in the contaminated area. The ductile pipe shall be used in the contaminated area. The ductile iron pipe shall extend 100 feet beyond any solvent noted. Any contaminated soil that is excavated shall be placed on an impermeable mat, covered with waterproof covering, and held for disposal. <u>If the site cannot be properly cleaned, then consultation with the Department is necessary prior to continuing with the project construction.</u>

8. This permit does not constitute approval of construction on jurisdictional wetland areas; therefore such approval must be obtained separately from the Water Management District or from DEP ERP Section, as applicable, Permittee shall provide a copy of the permit approval to the Department if water main installation involves activities on wetlands.

9. Permittee shall ensure that the well and drinking water treatment facilities will be protected to prevent tampering, vandalism, and sabotage as required by Rule 62-555.315(1) & 62-555.320(5), F.A.C.

C. Construction Standards

1. All products, including paints, which shall come into contact with potable water, either directly or indirectly, shall conform with National Sanitation Foundation (NSF) International, Water Chemicals Codex, Food Chemicals Codex, American Water Works Association (AWWA) Standards and the Food and Drug Administration, as provided in Rule 62-555.320(3), F.A.C.

2. Water supply facilities, including mains, pipe, fittings, valves, fire hydrants and other materials shall be installed in accordance with the latest applicable AWWA Standards and Department rules and regulations. The system shall be pressure and leak tested in accordance with AWWA Standard C600 C603, or C605, as applicable, and disinfected in accordance with AWWA Standard C651-653, as well as in accordance with Rule 62-555.340, F.A.C.

3. The installation or repairs of any public water system, or any plumbing in residential or nonresidential facilities providing water for human consumption, which is connected to a public water system shall be lead free in accordance with Rule 62-555.322, F.A.C.

4. When any existing asbestos cement (AC) pipes are replaced under this permit, the permittee shall do so in accordance with the applicable rules of Federal Asbestos Regulation and Florida DEP requirements. For specific requirements applicable to AC pipes, the permittee should contact the Air and Waste Management section managers prior to commencing any such activities at 813.470.5700. Please be aware that a notification is required to be submitted to the Department for a regulated project.

5. Setback distances between potable water wells and sanitary hazards shall be in accordance with 62-555.312, F.A.C. Reclaimed water land application areas must not be located within the setback distance from potable water supply wells established in Chapter 62-610, F.A.C.

6. The new or altered aboveground piping at the drinking water treatment plant shall be color coded and labeled as recommended in Section 2.14 of "Recommended Standards for Water Works, 1997 Edition". [F.A.C. Rule 62-555.320(10)]

7. Permittee shall ensure that there shall be no cross-connection with any non-potable water source in accordance with Rule 62-555.360, F.A.C.

8. The hydropneumatic tank that will be utilized for this project must meet ASME code requirements for the construction and installation of unfired pressure vessels, as provided in Rule 62-555.320(20), F.A.C., and Section 7.2 of *Recommended Standards for Water Works*, a manual adopted by reference in Rule 62-555.330(3), F.A.C.

D. Operational Requirements

1. The facility has been classified as a Category II, Class A water treatment plant. Accordingly, the lead or chief operator must be Class A or higher. Proof of staffing by a Class C or higher operator for 24 hours/day for 7 days/week must be provided. [F.A.C. Rule 62-699.310]

2. The supplier of water shall operate and maintain the public water system so as to comply with applicable standards in F.A.C. Rule 62-550 and 62-555.350.

3. The permittee shall provide an operation and maintenance manual for the new or altered treatment facilities to fulfill the requirements under subsection 62-555.350(13), F.A.C. The manual shall contain operation and control procedures, and preventative maintenance and repair procedures, for all plant equipment and shall be made available for reference at the plant or at a convenient location near the plant. Bound and indexed equipment manufacturer manuals shall be considered sufficient to meet the requirements of the subsection.

4. The permittee shall submit a monthly operations report (MOR) DEP Form 62-555.900(2), to the Department no later than the tenth of each succeeding month.

5. The permittee shall have complete record drawings produced for the project in accordance with Rule 62-555.530(4), F.A.C.

6. The permittee or suppliers of water shall telephone the State Warning Point (SWP), at 1-800-320-0519 immediately (i.e., within two hours) after discovery of any actual or suspected sabotage or security breach, or any suspicious incident, involving a public water system in accordance with the F.A.C. Rule 62-555.350(10).

E. Monitoring Provisions

1. Permittee shall follow the guidelines of Chapters 62-550, 62-555, and 62-560, F.A.C., regarding public drinking water system standards, monitoring, reporting, permitting, construction, and operation.

   This facility is a Community Water System as defined in F.A.C. Rule 62-550.200(12) and shall comply with the applicable chemical, radiological, lead and copper, and bacteriological monitoring requirements of F.A.C. Rule 62-550. Such requirements shall be initiated within the quarter that the water treatment facility is placed into service (i.e. January—March or April—June, the preceding are examples of quarters) and the results submitted to the Department.

2. The water treatment plant shall maintain throughout the distribution system a minimum combined chlorine residual of 0.6 mg/l or its equivalent. A minimum system pressure of 20 psi must be maintained throughout the system. Also, safety equipment shall be provided and located outside of chlorine room. [F.A.C. 62-555.320(12)d]

3. To address copper pipe corrosion control and potential black water issues, permittee shall collect at least one sample of raw water from each new well in accordance with F.A.C. Rule 62-555.315(5). The sample shall be analyzed for alkalinity, dissolved iron, dissolved oxygen (D.O.), pH, total sulfide, and turbidity, and the results shall be submitted to the Department.

F. Clearance Requirements

1. The permittee must instruct the engineer of record to request system clearance from the Department within sixty (60) days of completion of construction, testing and disinfecting the system. Bacteriological test results shall be considered unacceptable if the test were completed more than 60 days before the Department received the results. [F.A.C. Rule 62-555.340(2)(c)]

   Permitted construction or alteration of a public water system may not be placed into service until a letter of clearance has been issued by this Department. [F.A.C. Rule 62-555.345]

2. Prior to placing this project into service, Permittee shall submit, at a minimum, all of the following to the Department for evaluation and approval for operation, as provided in Rules 62-555.340 and 62-555.345, F.A.C.:

   a. the engineer's *Certification of Construction Completion and Request for Clearance to Place Permitted PWS Components Into Operation* {DEP Form 62-555.900(9)};

   b. certified record drawings, if there are any changes noted for the permitted project.

   c. copy of a satisfactory pressure test of the process piping performed in accordance with AWWA Standards. [F.A.C. Rule 62-555.320(21)(a)(1)]

3. The new facilities shall be cleaned, disinfected, and bacteriologically cleared in accordance with Chapter 62-555, F.A.C. The bacteriological clearance data representative of the storage tank (two samples on consecutive days), the well discharge piping and distribution system and the untreated well water (two samples per day for 5 consecutive days collected at least six hours apart for each of the two wells) shall be submitted to the Department with the engineer's certification of construction completion. [Section 62-555.340 and 62-555.315(6)(b), F.A.C.]

   In order to facilitate the issuance of a letter of clearance, the Department requests that all of the above information be submitted as one package.

Executed in Hillsborough County, Florida

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL PROTECTION

for Pamala Vazquez
Program Administrator
Permitting & Waste Cleanup Program
Southwest District

DESIGN-BUILD AGREEMENT

for

[PROJECT NAME]

between

MANATEE COUNTY (AS OWNER)

and

_____ (AS DESIGN-BUILDER)

TABLE OF CONTENTS FOR DESIGN-BUILD AGREEMENT

DESIGN-BUILD AGREEMENT
FOR
[PROJECT NAME]

THIS AGREEMENT ("Agreement") is made and entered into by and between Manatee County, a political subdivision of the State of Florida, referred to herein as "Owner", and the firm of _____, incorporated in the State of _____ and registered and licensed to do business in the State of Florida (License #_____), referred to herein as "Design-Builder", for the following project: _____.

WHEREAS, the Owner intends to design, engineer and construct **[PROJECT DESCRIPTION]**, the improvements being hereinafter referred to and defined as the "Project"; and

WHEREAS, Owner desires Design-Builder to provide the professional design, architectural, engineering and construction management services requisite to the implementation of the Project, and

WHEREAS, in response to Owner's Request for Proposal No. _____ (the "RFP"), Design-Builder has submitted its Proposal (the "RFP Proposal") to provide the services.

NOW THEREFORE, the Owner and the Design-Builder, in consideration of the mutual covenants hereinafter set forth, the sufficiency of which is hereby acknowledged, agree as follows:

ARTICLE I
GENERAL PROVISIONS

1.1 Owner's Criteria. This Agreement is based on the criteria set forth in this Section 1.1, hereinafter referred to as the "Owner's Criteria".

(Note the disposition for the following items by inserting the requested information or a statement such as "not applicable" or "unknown at time of execution." If the Owner intends to provide a set of design documents, and the requested information is contained in the design documents, identify the design documents and insert "see Owner's design documents" where appropriate)

A. Owner's Program. The Owner's program for the Project:

(Set forth the program, identify documentation in which the program is set forth, or state the manner in which the program will be developed.)

B. Owner's Design Requirements. The Owner's design requirements for the Project and related documentation:

(Identify below, or in an attached exhibit, the documentation that contains the Owner's design requirements, including any performance specifications for the Project.)

C. Physical Characteristics. The Project's physical characteristics:

(Identify or describe, if appropriate, size, location, dimensions, or other pertinent information, such as geotechnical reports, site, boundary and topographic surveys, traffic and utility studies, availability of public and private utilities and services, legal description of the site, etc.)

D. Budget. The Owner's budget for the Work to be provided by the Design-Builder is set forth below:

(Provide total for Owner's budget, and if known, a line item breakdown of costs.)

E. Milestones. The Owner's design and construction milestone dates:

(1) Design phase milestone dates:

(2) Submission of Design-Builder's Proposal:

(3) Phased completion dates:

(4) Substantial Completion dates:

(5) Other milestone dates:

F. Architect/Engineer, Consultants and Contractors. The Owner requires the Design-Builder to retain the necessary Architect/Engineer, Consultants and Contractors at the Design-Builder's cost. The Architect/Engineer and any Consultants performing design services shall be selected in accordance with the process set forth in Section 287.055, Florida Statutes.

G. Additional Criteria. Additional Owner's Criteria upon which the Agreement is based:

(Identify special characteristics or needs of the Project not identified elsewhere, such as sustainability, energy efficiency, and historic preservation requirements.)

H. Laws and Regulations. The Design-Builder shall confirm that the information included in the Owner's Criteria complies with applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities. If the Owner's Criteria conflicts with applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, the Design-Builder shall notify the Owner of the conflict.

I. Criteria Changes. If there is a change in the Owner's Criteria, the Owner and the Design-Builder shall execute a Modification in accordance with Article VI.

J. Digital Transmissions. If Instruments of Service or any other information or documentation is to be transmitted in digital form, the parties shall endeavor to establish necessary protocols governing such transmissions.

1.2 Project Team.

A. Owner's Representative. The Owner identifies the following representative in accordance with Section 7.1.A:

(List name, address and other information.)

B. Reviewers. The person or entities, in addition to the Owner's representative, who are required to review the Design-Builder's Submittals are as follows:

(List name, address and other information.)

C. Consultants. The Owner will retain the following consultants and separate contractors:

(List discipline, scope of work, and, if known, identify by name and address.)

D. Design-Builder's Representative. The Design-Builder identifies the following representative in accordance with Section 3.1.B:

(List name, address and other information.)

E. Changes to Representatives. Neither the Owner's nor the Design-Builder's representative shall be changed without ten (10) days' written notice to the other party.

1.3 Dispute Resolution. Claims, disputes or other matters in question between the parties to this Agreement shall be resolved as provided in Article XVII hereof.

1.4 Definitions. For purposes of this Agreement, the following terms shall have the following meanings.

A. Acceptance: The acceptance of the Project into the Owner's operating public infrastructure.

B. Application for Payment: The form accepted by the Owner's Representative which is to be used by Design-Builder in requesting progress or final payments and which is to include such supporting documentation as is required by the Design-Build Documents.

C. Architect/Engineer: The Architect/Engineer is the person or entity providing design services for the Design-Builder for all or a portion of the work, and is lawfully licensed to practice architecture or engineering in the State of Florida. The Architect/Engineer is referred to throughout the Design-Build Documents as if singular in number.

D. Certificate for Payment: The form approved and accepted by the Owner, which is to be used by the Owner in approving progress payments or final payment.

E. Change Order: A written order signed by the Owner and the Design-Builder authorizing a change in the Project Plans and/or Specifications and, if necessary, a corresponding adjustment in the Contract Sum and/or Contract Time, pursuant to Article VI.

F. Consultant: A Consultant is a person or entity providing professional services for the Design-Builder for all or a portion of the Work, and is referred to throughout the Design-Build Documents as if singular in number. A Consultant shall be lawfully licensed to provide the required professional services in the State of Florida.

G. Contractor: A Contractor is a person or entity performing all or a portion of the construction, required in connection with the Work, for the Design-Builder. A Contractor shall be lawfully licensed in the State of Florida. The Contractor is referred to throughout the Design-Build Documents as if singular in number and means a Contractor or an authorized representative of the Contractor.

H. Days: Calendar days except when specified differently. When time is referred to in the Design-Build Documents by days, it will be computed to exclude the first and include the last day of such period. If the last day of any such period falls on a Saturday or Sunday or legal holiday, such day will be omitted from the computation.

I. Defective: When modifying the term "Work", referring to Work that is unsatisfactory, faulty or deficient, or does not conform to the Design-Build Documents, or that does not meet the requirements of any inspection, reference standard, test or approval referred to in the Design-Build Documents, or that has been damaged prior to Owner's Representative approval of final payment (unless responsibility for the protection thereof has been assumed by Owner).

J. Design-Build Amendment: The Design-Build Amendment is the amendment to this Agreement to be executed pursuant to Section 4.4.C., hereof, accepting the Design-Builder's Proposal and setting forth the Contract Sum or guaranteed maximum price, and the Contract Time and Substantial Completion Date.

K. Design-Build Documents: The Design-Build Documents consist of this Agreement between Owner and Design-Builder and its attached Exhibits (hereinafter, the "Agreement"), other documents listed in this Agreement, and Modifications issued after execution of this Agreement. The Design-Build Documents shall not be construed to create a contractual

relationship of any kind between any persons or entities other than the Owner and the Design-Builder.

L. Design-Builder: The Design-Builder is the firm identified in the preamble of this Agreement, and is referred to throughout the Design-Build Documents as if singular in number. The term "Design-Builder" means the Design-Builder or the Design-Builder's authorized representative.

M. Design-Builder's Proposal: The proposal to be prepared by Design-Builder and submitted to Owner pursuant to and in accordance with Section 4.4 of this Agreement.

N. Field Directive: A written order issued by the Owner or Design-Builder which orders minor changes in the Work, but which does not involve a change in the Contract Sum or the Contract Time.

O. Final Completion Date: The date upon which the Project is fully constructed and all Work required on the Project and Project Site is fully performed as verified in writing by the Owner's Representative.

P. Force Majeure: Those conditions constituting excuse from performance as described in and subject to the conditions set forth in Article XIV.

Q. Instruments of Service: Instruments of Service are representations, in any medium of expression now known or later developed, of the tangible and intangible creative work performed by the Design-Builder, Contractor(s), Architect/Engineer and Consultant(s) under their respective agreements. Instruments of Service may include, without limitation, studies, surveys, models, sketches, drawings, specifications, digital models and other similar materials.

R. Modification: A Modification is (1) a written amendment to the Agreement signed by both parties, including the Design-Build Amendment, (2) a Change Order, or (3) a Work Directive Change.

S. Notice to Proceed: Written notice by Owner (after execution of the Design-Build Amendment) to the Design-Builder fixing the date on which the Contract Time will commence to run and on which Design-Builder shall start to perform (ten (10) days from date of such notice) its obligations under the Design-Build Documents.

T. Owner: Manatee County, a political subdivision of the State of Florida.

U. Owner's Representative: The Deputy Director, Project Management, Public Works Department, or such other individual designated by the County Administrator, from time to time, pursuant to written notice in accordance with the Design-Build Documents.

V. Payment and Performance Bond: The Payment and Performance Bond security posted pursuant to Section 3.1.S to guarantee payment and performance by the Design-Builder of its obligations hereunder.

W. Procurement Ordinance: The Manatee County Procurement Code, Chapter 2-26 of the Manatee County Code of Laws, as amended from time to time.

X. Progress Report: A report to Owner that includes all information required pursuant to the Design-Build Documents and submitted in accordance with Section 3.1.J, hereof.

Y. Project: The total construction of which the Work performed under the Contract Documents may be the whole or a part and which may include construction by Owner and by separate contractors. For the purposes of the Design-Build Documents, the term Project shall include all areas of proposed improvements and all areas which may reasonably be judged to have an impact on the Project.

Z. Project Costs: The costs incurred by the Design-Builder to plan, construct and equip the Project and included within, and paid as a component of, the Contract Sum.

AA. Project Manager: _____, the Design-Builder's primary representative or such other individual designated by Design-Builder, subject to the prior written consent of Owner.

BB. Project Plans and Specifications: The one hundred percent (100%) construction drawings and specifications, and any changes, supplements, amendments or additions thereto approved by the Owner, which shall also include any construction drawings and final specifications required for the repair or construction of the Project, as provided herein.

CC. Project Schedule: The schedule and sequence of events for the commencement, progression and completion of the Project, developed pursuant to Section 3.1.K, as such schedule may be amended as provided herein.

DD. Project Site: The site depicted in the Project Plans and Specifications, inclusive of all rights of way, temporary construction easements or licensed or leased sovereign lands.

EE. Punch List Completion Date: The date set forth in the Certificate of Substantial Completion when all previously incomplete or unsatisfactory items, as identified by the Design-Builder, the Architect/Engineer and/or the Owner shall be completed by the Design-Builder in a competent and workmanlike manner.

FF. Purchasing Official: The individual designated to serve as the Manatee County Purchasing Official pursuant to the Procurement Ordinance.

GG. Submittal: A submittal is any submission to the Owner for review and approval demonstrating how the Design-Builder proposes to conform to the Design-Build Documents for those portions of the Work for which the Design-Build Documents require Submittals. Submittals include, but are not limited to, shop drawings, product data, and samples. Submittals are not Design-Build Documents unless incorporated into a Modification.

HH. Substantial Completion and Substantially Complete: The stage in the progress of the Work when the Work or designated portion thereof is sufficiently complete in accordance with the Design-Build Documents so that the Owner can occupy or utilize the Work for its intended use; provided, however, that as a condition precedent to Substantial Completion, the Owner has received all certificates of occupancy or completion and other permits, approvals, licenses, and other documents from any governmental authority which are necessary for the beneficial occupancy of the Project.

II. Substantial Completion Date: The date on which the Project is required to be Substantially Complete, as evidenced by (i) the Owner's signature on a Certificate of Substantial Completion, (ii) written Acceptance of the Project by the Owner, and (iii) approvals of any other authority as may be necessary or otherwise required.

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

KK. Work: The term "Work" means the design, construction, and related services required to fulfill the Design-Builder's obligations under the Design-Build Documents, whether completed or partially completed, and includes all labor, materials, equipment and services provided or to be provided by the Design-Builder. The Work may constitute the whole or a part of the Project.

LL. Work Directive Change: A written directive to Design-Builder, issued on or after the effective date of the Agreement and signed by Owner's Representative, ordering an addition, deletion or revision in the Work, or responding to differing or unforeseen physical conditions under which the Work is to be performed or responding to emergencies.

ARTICLE II
COMPENSATION AND PROGRESS PAYMENTS

2.1 Compensation for Work Performed Prior to Execution of Design-Build Amendment.

A. Timing and Rate. Unless otherwise agreed in writing pursuant to a Modification, payments for Work performed prior to execution of the Design-Build Amendment shall be made monthly. For the Design-Builder's performance of Work prior to the execution of the Design-Build Amendment, the Owner shall compensate the Design-Builder as follows:

(Insert amount of, or basis for, compensation, including compensation for any sustainability services, or indicate the exhibit in which the information is provided. If there will be a limit on the total amount of compensation for Work performed prior to the execution of the Design-Build Amendment, state the amount of the limit.)

B. Hourly Rates. The hourly billing rates for services of the Design-Builder and the Design-Builder's Architect/Engineer, Consultants and Contractors, if any, are set forth below.

(If applicable, attach an exhibit of hourly billing rates or insert them below.)

Individual or Position **Rate**

2.2 Compensation for Reimbursable Expenses Prior to Execution of Design-Build Amendment.

A. Reimbursable Expenses. Reimbursable expenses are in addition to compensation set forth in Section 2.1.A and 2.1.B and include expenses, directly related to the Project, incurred by the Design-Builder and the Design-Builder's Architect/Engineer, Consultants, and Contractors, as follows:

(1) Transportation and authorized out-of-town travel and subsistence;
(2) Dedicated data and communication services, teleconferences, Project web sites, and extranets;
(3) Fees paid for securing approval of authorities having jurisdiction over the Project;
(4) Printing, reproductions, plots, standard form documents;
(5) Postage, handling and delivery;
(6) Expense of overtime work requiring higher than regular rates, if authorized in advance by the Owner;
(7) Renderings, physical models, mock-ups, professional photography, and presentation materials requested by the Owner;
(8) All taxes levied on professional services and on reimbursable expenses; and
(9) Other Project-related expenditures, if authorized in advance by the Owner.

B. Administrative Fee. For Reimbursable expenses, the compensation shall be the expenses the Design-Builder and the Design-Builder's Architect/Engineer, Consultants and Contractor incurred, plus an administrative fee of Percent (__%) of the expenses incurred.

C. Records. Records of Reimbursable Expenses and services performed on the basis of hourly rates shall be available to the Owner at mutually convenient times for a period of two (2) years following execution of the Design-Build Amendment or termination of this Agreement, whichever occurs first.

2.3 Contract Sum and Payment for Work Performed After Execution of Design-Build Amendment. For the Design-Builder's performance of the Work after execution of the Design-Build Amendment, the Owner shall pay to the Design-Builder the Contract Sum in current funds as agreed in the Design-Build Amendment.

2.4 Local Government Prompt Payment Act. Payments shall be made by Owner in accordance with the requirements of Section 218.735, Florida Statutes.

ARTICLE III
GENERAL REQUIREMENTS OF THE WORK

3.1 General.

A. Licensing Requirements. The Design-Builder shall comply with any applicable licensing requirements in the State of Florida.

B. Design-Builder Representative. The Design-Builder shall designate in writing a representative who is authorized to act on the Design-Builder's behalf with respect to the Project (the Design-Builder's "authorized representative").

C. Compliance with Design-Build Documents. The Design-Builder shall perform the Work in accordance with the Design-Build Documents. The Design-Builder shall not be relieved of the obligation to perform the Work in accordance with the Design-Build Documents by the activities, tests, inspections or approvals of the Owner.

D. Compliance with Applicable Laws. The Design-Builder shall perform the Work in compliance with applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities. If the Design-Builder performs Work contrary to applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, the Design-Builder shall assume responsibility for such Work and shall bear the costs attributable to correction.

E. Violations. Neither the Design-Builder nor any Contractor, Consultant, or Architect shall be obligated to perform any act which they believe will violate any applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities. If the Design-Builder determines that implementation of any instruction received from the Owner, including those in the Owner's Criteria, would cause a violation of any applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, the Design-Builder shall notify the Owner in writing. Upon verification by the Owner that a change to the Owner's Criteria is required to remedy the violation, the Owner and the Design-Builder shall execute a Modification in accordance with Article VI.

F. Acts or Omissions. The Design-Builder shall be responsible to the Owner for acts and omissions of the Design-Builder's employees, Architect/Engineer, Consultants, Contractors, and their agents and employees, and other persons or entities performing portions of the Work.

G. Periodic Meetings. The Design-Builder shall schedule and conduct periodic meetings with the Owner to review matters such as procedures, progress, coordination, and scheduling of the Work.

H. Qualified and Licensed Professionals. When applicable law requires that services be performed by licensed professionals, the Design-Builder shall provide those services through qualified, licensed professionals. The Owner understands and agrees that the services of the Design-Builder's Architect/Engineer and the Design-Builder's other Consultants are performed in the sole interest of, and for the exclusive benefit of, the Design-Builder.

I. Permits and Approvals. The Design-Builder, with the assistance of the Owner, shall prepare and file documents required to obtain necessary permits and approvals of governmental authorities having jurisdiction over the Project.

J. Progress Reports. The Design-Builder shall keep the Owner informed of the progress and quality of the Work. Monthly, or otherwise as agreed to by the Owner and Design-Builder, the Design-Builder shall submit written Progress Reports to the Owner, showing estimated percentages of completion and other information identified below:

(1) Work completed for the period;
(2) Project schedule status;
(3) Submittal schedule and status report, including a summary of outstanding Submittals;
(4) Responses to requests for information to be provided by the Owner;
(5) Approved Change Orders and Change Directives;
(6) Pending Change Order and Change Directive status reports;
(7) Tests and inspection reports;
(8) Status report of Work rejected by the Owner;
(9) Status of Claims previously submitted in accordance with Article XVII;
(10) Cumulative total of the Cost of the Work to date including the Design-Builder's compensation and Reimbursable Expenses, if any;
(11) Current Project cash-flow and forecast reports; and
(12) Additional information as agreed to by the Owner and Design-Builder.

In addition, where the Contract Sum is the Cost of the Work with or without a Guaranteed Maximum Price, the Design-Builder shall include the following additional information in its Progress Reports:

(1) Design-Builder's work force report;
(2) Equipment utilization report; and
(3) Cost summary, comparing actual costs to updated cost estimates.

K. Design-Builder's Schedules. The Design-Builder, promptly after execution of this Agreement, shall prepare and submit for the Owner's information a schedule for the Work. The schedule, including the time required for design and construction, shall not exceed time limits current under the Design-Build Documents, shall be revised at appropriate intervals as required by the conditions of the Work and Project, shall be related to the entire Project to the extent required by the Design-Build Documents, shall provide for expeditious and practicable execution of the Work, and shall include allowances for periods of time required for the Owner's review and for approval of submissions by authorities having jurisdiction over the Project. The Design-Builder shall perform the Work in general accordance with the most recent schedules submitted to the Owner.

L. Certifications. Upon the Owner's written request, the Design-Builder shall obtain from the Architect/Engineer Consultants, and Contractors, and furnish to the Owner, certifications with respect to the documents and services provided by the Architect/Engineer, Consultants, and Contractors (a) that, to the best of their knowledge, information and belief, the documents or services to which the certifications relate (i) are consistent with the Design-Build Documents, except to the extent specifically identified in the certificate, and (ii) comply with applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities governing the design of the Project, and (b) that the Owner and its consultants shall be entitled to rely upon the accuracy of the representations and statements contained in the certifications. The Design-Builder's Architect/Engineer, Consultants, and Contractors shall not be required to execute certificates or consents that would require knowledge, services or responsibilities beyond the scope of their services.

M. Design-Builder's Submittals.

(1) Prior to submission of any Submittals, the Design-Builder shall prepare a Submittal schedule, and shall submit the schedule for the Owner's approval. The Owner's approval shall not unreasonably be delayed or withheld. The Submittal schedule shall (i) be coordinated with the Design-Builder's schedule provided in Section 3.1.K, (ii) allow the Owner reasonable time to review Submittals, and (iii) be periodically updated to reflect the progress of the Work. If the Design-Builder fails to submit a Submittal schedule, the Design-Builder shall not be entitled to any increase in Contract Sum or extension of Contract Time based on the time required for review of Submittals.

(2) By providing Submittals the Design-Builder represents to the Owner that it has (i) reviewed and approved them, (ii) determined and verified materials, field measurements and field construction criteria related thereto, or will do so, and (iii) checked and coordinated the information contained within such Submittals with the requirements of the Work and of the Design-Build Documents.

(3) The Design-Builder shall perform no portion of the Work for which the Design-Build Documents require Submittals until the Owner has approved the respective Submittal.

(4) The Work shall be in accordance with approved Submittals except that the Design-Builder shall not be relieved of its responsibility to perform the Work consistent with the requirements of the Design-Build Documents. The Work may deviate from the Design-Build Documents only if the Design-Builder has notified the Owner in writing of a deviation from the Design-Build Documents at the time of the Submittal and a Modification is executed authorizing the identified deviation. The Design-Builder shall not be relieved of responsibility for errors or omissions in Submittals by the Owner's approval of the Submittals.

(5) All professional design services or certifications to be provided by the Design-Builder, including all drawings, calculations, specifications, certifications, shop drawings and other Submittals, shall contain the signature and seal of the licensed design professional preparing them. Submittals related to the Work designed or certified by the licensed design professionals, if prepared by others, shall bear the licensed design professional's written approval. The Owner and its consultants shall be entitled to rely upon the adequacy, accuracy and completeness of the services, certifications or approvals performed by such design professionals.

N. Warranty. The Design-Builder warrants to the Owner that materials and equipment furnished under the Contract will be of good quality and new unless the Design-Build Documents require or permit otherwise. The Design-Builder further warrants that the Work will conform to the requirements of the Design-Build Documents and will be free from defects, except for those inherent in the quality of the Work or otherwise expressly permitted by the Design-Build Documents. Work, materials, or equipment not conforming to these requirements shall be considered defective. The Design-Builder's warranty excludes remedy for damage or defect caused by abuse, alterations to the Work not executed by the Design-Builder, improper or insufficient maintenance, improper operation, or normal wear and tear and normal usage. If required by the Owner, the Design-Builder shall furnish satisfactory evidence as to the kind and quality of materials and equipment.

O. Royalties, Patents and Copyrights.

(1) The Design-Builder shall pay all royalties and license fees.

(2) The Design-Builder shall defend suits or claims for infringement of copyrights and patent rights and shall hold the Owner and its separate contactors and consultants harmless from loss on account thereof, but shall not be responsible for such defense or loss when a particular design, process

or product of a particular manufacturer or manufacturers is required by the Owner, or where the copyright violations are required in the Owner's Criteria. However, if the Design-Builder has reason to believe that the design, process or product required in the Owner's Criteria is an infringement of a copyright or a patent, the Design-Builder shall be responsible for such loss unless such information is promptly furnished to the Owner. If the Owner receives notice from a patent or copyright owner of an alleged violation of a patent or copyright, attributable to the Design-Builder, the Owner shall give prompt written notice to the Design-Builder.

P. Indemnification.

(1) To the fullest extent permitted by law, the Design-Builder shall indemnify and hold harmless the Owner, its officers, agents and employees of any of them from and against claims, damages, losses and expenses, including but not limited to attorney's fees, arising out of or resulting from performance of the Work, provided that such claim, damage, loss or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property, but only to the extent caused by the negligent acts or omissions of the Design-Builder, a subcontractor or anyone directly or indirectly employed by them or anyone for whose acts they may be liable, regardless of whether such claim, damage, loss or expense is caused in part by a party indemnified hereunder. Such obligation shall not be construed to negate, abridge, or reduce other rights or obligations of indemnity which would otherwise exist as to a party or person described in this Section 3.1.P.

(2) The Design-Builder's duty to indemnify and hold harmless the Owner in P.(1) above shall extend to fines, penalties and costs incurred by the Owner as related to any enforcement action taken by local, state, regional or federal regulatory entities. The Owner may deduct any of such fines, penalties and costs as described in this subsection from any unpaid amounts then or thereafter due the Design-Builder. Any of such fines, penalties and costs not so deducted from any unpaid amounts due the Design-Builder shall be payable to the Owner at the demand of the Owner, together with interest from the date of the demand at the maximum allowable rate.

(3) In claims against any person or entity indemnified under this Section 3.1.P by an employee of the Design-Builder, a subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, the indemnification obligation under Section 3.1.P(1) shall not be limited by a limitation on amount or type of damages, compensation or benefits payable by or for the Design-Builder or a subcontractor under workers' compensation acts, disability benefit acts or other employee benefit acts.

(4) With respect to design, engineering and architectural services, the Design-Builder shall indemnify and hold harmless the Owner and its officers, agents and employees, from liabilities, damages, losses, and costs, including, but not limited to reasonable attorneys' fees, to the extent caused by the negligence, recklessness, or intentionally wrongful conduct of the Design-Builder, its design professionals and other persons employed or utilized by the Design-Builder in the performance of this Agreement, including without limitation, defects in design, or errors or omissions of the Design-Builder that result in material cost increases to the Owner.

(5) The Design-Builder shall defend the Owner in any action, lawsuit mediation or arbitration arising from the alleged negligence, recklessness or intentionally wrongful conduct of the Design-Builder and other persons employed or utilized by the Design-Builder in the performance of the Work. So long as Design-Builder, through its own counsel, performs its obligation to defend the Owner pursuant to this Section, Design-Builder shall not be required to pay the Owner's costs associated with the Owner's participation in the defense.

Q. Contingent Assignment of Agreements. Each agreement for a portion of the Work is assigned by the Design-Builder to the Owner, provided that:

(1) assignment is effective only after termination of the Agreement by the Owner for cause pursuant to Sections 16.1 D or 16.2 B, and only for those agreements that the Owner accepts by written notification to the Design-Builder and the Architect/Engineer, Consultants, and Contractors whose agreements are accepted for assignment; and

(2) assignment is subject to the prior rights of the surety, if any, obligated under bond.

When the Owner accepts the assignment of an agreement, the Owner assumes the Design-Builder's rights and obligations under the assigned agreement. Upon such assignment, if the Work has been suspended for more than thirty (30) days, the compensation under the assigned agreement shall be equitably adjusted for increases in cost resulting from the suspension. Upon such assignment to the Owner under this Section 3.1.Q, the Owner may further assign the agreement to a successor design-builder or other entity. If the Owner assigns the agreement to a successor design-builder or other entity, the Owner shall nevertheless remain legally responsible for all of the successor design-builder's or other entity's obligations under this agreement.

R. Design-Builder's Insurance. If and to the extent required by the RFP, the Design-Builder shall furnish insurance coverage for (but not necessarily limited to) workers' compensation, commercial general liability, professional liability, auto liability, excess liability, and builder's risk. The Design-Builder shall furnish to the Owner all appropriate policies and Certificate(s) of Insurance as set forth in Exhibit C.

S. Payment and Performance Bond. Prior to the construction commencement date, the Design-Builder shall obtain, for the benefit of and directed to the Owner, a Payment and Performance Bond satisfying the requirements of Section 255.05, Florida Statutes, covering the faithful performance by the Design-Builder of its obligations under the Design-Build Documents, including but not limited to the construction of the Project on the Project site and the payment of all obligations arising thereunder, including all payments to the Architect/Engineer, Contractors, Consultants, laborers, and materialmen. The surety selected by the Design-Builder to provide the Payment and Performance Bond shall be approved by the Owner prior to the issuance of such Bond, which approval shall not be unreasonably withheld or delayed provided that the surety is rated A or better by Best's Key Guide, latest edition. For Changes in the Work that result in an increase in the Contract Sum, Owner reserves the right to require the Design-Builder to secure and deliver additive riders to the Payment and Performance bond.

ARTICLE IV
WORK PRIOR TO EXECUTION OF THE DESIGN-BUILD AMENDMENT

4.1 General.

A. Information Submitted. Any information submitted by the Design-Builder, and any interim decisions made by the Owner, shall be for facilitating the design process and shall not modify the Owner's Criteria unless the Owner and Design-Builder execute a Modification.

B. Advice and Recommendations. The Design-Builder shall advise the Owner on proposed site use and improvements, selections of materials, and building systems and equipment. The Design-Builder shall also provide the Owner with recommendations, consistent with the Owner's Criteria, on constructability, availability of materials and labor, time requirements for procurement, installation and construction, and factors related to construction cost including, but not limited to, costs of alternative designs or materials, preliminary budgets, life-cycle data, and possible cost reductions.

4.2 Evaluation of the Owner's Criteria.

A. Meetings. The Design-Builder shall schedule and conduct meetings with the Owner and any other necessary individuals or entities to discuss and review the Owner's Criteria as set forth in Section 1.1. The Design-Builder shall thereafter again meet with the Owner to discuss a preliminary evaluation of the Owner's Criteria. The preliminary evaluation shall address possible alternative approaches to design and construction of the Project and include the Design-Builder's recommendations, if any, with regard to accelerated or fast-track scheduling, procurement, or phased construction. The preliminary evaluation shall consider cost information, constructability, and procurement and construction scheduling issues.

B. Report. After the Design-Builder meets with the Owner and presents the preliminary evaluation, the Design-Builder shall provide a written report to the Owner, summarizing the Design-Builder's evaluation of the Owner's Criteria. The report shall also include:

(1) allocations of program functions, detailing each function and their square foot areas;
(2) a preliminary estimate of the cost of the Work, and, if necessary, recommendations to adjust the Owner's Criteria to conform to the Owner's budget;
(3) a preliminary schedule, which shall include proposed design milestones; dates for receiving additional information from, or for work to be completed by, the Owner, anticipated date for the Design-Builder's Proposal, and dates of periodic design review sessions with the Owner; and
(4) the following:

(List additional information, if any, to be included in the Design-Builder's written report.)

C. Review. The Owner shall review the Design-Builder's written report and, if acceptable, provide the Design-Builder with written consent to proceed to the development of the preliminary design as described in Section 4.3. The consent to proceed shall not be construed to modify the Owner's Criteria unless the Owner and Design-Builder execute a Modification.

4.3 Preliminary Design.

A. Submittal. Upon the Owner's issuance of a written consent to proceed under Section 4.2.C, the Design-Builder shall prepare and submit a preliminary design to the Owner. The preliminary design shall include a report identifying any deviations from the Owner's Criteria, and shall include the following:

(1) confirmation of the allocations of program functions;
(2) site plan;
(3) building plans, sections and elevations;
(4) structural systems;
(5) selections of major building systems, including but not limited to mechanical, electrical and plumbing systems; and
(6) outline of specifications or sufficient drawing notes describing construction materials.

The preliminary design may include some combination of physical study models, perspective sketches, or digital modeling.

B. Review. The Owner shall review the preliminary design and, if acceptable, provide the Design-Builder with written consent to proceed to development of the Design-

Builder's Proposal. The preliminary design shall not modify the Owner's Criteria unless the Owner and Design-Builder execute a Modification.

4.4 Design-Builder's Proposal.

A. Submittal. Upon the Owner's issuance of a written consent to proceed under Section 4.3.B, the Design-Builder shall prepare and submit the Design-Builder's Proposal to the Owner. The Design-Builder's Proposal shall include the following:

(1) a list of the preliminary design documents and other information, including the Design-Builder's clarifications, assumptions and deviations from the Owner's Criteria, upon which the Design-Builder's Proposal is based;
(2) the proposed Contract Sum, including the compensation method and, if based upon the cost of the Work plus a fee, a written statement of estimated cost organized by trade categories, allowances, contingencies, Design-Builder's fee, and other items that comprise the Contract Sum;
(3) the proposed date the Design-Builder shall achieve Substantial Completion;
(4) an enumeration of any qualifications and exclusions, if applicable;
(5) a list of the Design-Builder's key personnel, Contractors and suppliers; and
(6) the date on which the Design-Builder's Proposal expires.

B. Local Conditions. Submission of the Design-Builder's Proposal shall constitute a representation by the Design-Builder that it has visited the site and become familiar with local conditions under which the Work is to be completed.

C. Design-Build Amendment. If the Owner and Design-Builder agree on a Design-Builder's Proposal, the Owner and Design-Builder shall execute the Design-Build Amendment setting forth the terms of the agreement.

ARTICLE V
WORK FOLLOWING EXECUTION OF THE DESIGN-BUILD AMENDMENT

5.1 Construction Documents.

A. Preparation; Consistency. Upon the execution of the Design-Build Amendment, the Design-Builder shall prepare Construction Documents. The Construction Documents shall establish the quality levels of materials and systems required. The Construction Documents shall be consistent with the Design-Build Documents.

B. Owner Review. The Design-Builder shall provide the Construction Documents to the Owner for the Owner's information. If the Owner discovers any deviations between the Construction Documents and the Design-Build Documents, the Owner shall promptly

notify the Design-Builder of such deviations in writing. The Construction Documents shall not modify the Design-Build Documents unless the Owner and Design-Builder execute a Modification. The failure of the Owner to discover any such deviations shall not relieve the Design-Builder of the obligation to perform the Work in accordance with the Design-Build Documents.

5.2 Construction.

A. Commencement. Except as permitted in Section 5.2.B, construction shall not commence prior to execution of the Design-Build Amendment.

B. Pre-Amendment Commencement. If the Owner and Design-Builder agree in writing, construction may proceed prior to the execution of the Design-Build Amendment. However, such authorization shall not waive the Owner's right to reject the Design-Builder's Proposal reflected in the Design-Build Amendment.

C. Supervision and Control. The Design-Builder shall supervise and direct the Work, using the Design-Builder's best skill and attention. The Design-Builder shall be solely responsible for, and have control over, construction means, methods, techniques, sequences and procedures, and for coordinating all portions of the Work under the Agreement, unless the Design-Build Documents give other specific instructions concerning these matters.

D. Inspection. The Design-Builder shall be responsible for inspection of portions of Work already performed to determine that such portions are in proper condition to receive subsequent Work.

5.3 Labor and Material

A. Design-Builder to Provide. Unless otherwise provided in the Design-Build Documents, the Design-Builder shall provide and pay for labor, materials, equipment, tools, construction equipment and machinery, water, heat, utilities, transportation, and other facilities and services, necessary for proper execution and completion of the Work, whether temporary or permanent, and whether or not incorporated or to be incorporated in the Work.

B. Substitutions. When a material or system is specified in the Design-Build Documents, the Design-Builder may make substitutions only in accordance with Article VI.

C. Management of Employees. The Design-Builder shall enforce strict discipline and good order among the Design-Builder's employees and other persons carrying out the Work. The Design-Builder shall not permit employment of unfit persons or persons not properly skilled in tasks assigned to them.

5.4 Taxes. The Design-Builder shall pay applicable sales, consumer, use and similar taxes, for the Work provided by the Design-Builder, that are legally enacted when the Design-Build Amendment is executed, whether or not yet effective or merely scheduled to go into effect.

5.5 Permits, Fees, Notices and Compliance with Laws.

A. Permits. Unless otherwise provided in the Design-Build Documents, the Design-Builder shall secure and pay for the building permit as well as any other permits, fees, licenses, and inspections by government agencies, necessary for proper execution of the Work and Substantial Completion of the Project.

B. Unanticipated Site Conditions. If, during the Work, the Design-Builder encounters human remains, or recognizes the existence of burial markers, archaeological sites, or wetlands, not indicated in the Design-Build Documents, the Design-Builder shall immediately suspend any operations that would affect them and shall notify the Owner. Upon receipt of such notice, the Owner shall promptly take any action necessary to obtain governmental authorization required to resume the operations. The Design-Builder shall continue to suspend such operations until otherwise instructed by the Owner but shall continue with all other operations that do not affect those remains or features. Requests for adjustments in the Contract Sum and Contract Time arising from the existence of such remains or features may be made as provided in Article VI.

5.6 Allowances.

A. Allowances. The Design-Builder shall include in the Contract Sum all allowances stated in the Design-Build Documents. Items covered by allowances shall be supplied for such amounts, and by such persons or entities as the Owner may direct, but the Design-Builder shall not be required to employ persons or entities to whom the Design-Builder has reasonable objection. Unless otherwise provided in the Design-Build Documents,

(1) allowances shall cover the cost to the Design-Builder of materials and equipment delivered at the site and all required taxes, less applicable trade discounts;

(2) the Design-Builder's costs for unloading and handling at the site, labor, installation costs, overhead, profit, and other expenses contemplated for stated allowance amounts, shall be included in the Contract Sum but not in the allowances; and

(3) whenever costs are more than or less than allowances, the Contract Sum shall be adjusted accordingly by Change Order. The amount of the Change Order shall reflect (i) the difference between actual costs and the allowances under Section 5.6.A.(1) and (ii) changes in Design-Builder's costs under Section 5.6.A.(2).

B. Owner Selections. The Owner shall make selections of materials and equipment with reasonable promptness, for allowances requiring Owner selection.

5.7 Key Personnel, Contractors and Suppliers.

A. Identification. Except for those persons or entities already identified or required in the Design-Build Amendment, the Design-Builder, as soon as practicable after execution of the Design-Build Amendment, shall furnish in writing to the Owner the names of persons or entities (including those who are to furnish materials or equipment fabricated to a special design) proposed for each principal portion of the Work. The Owner may reply within fourteen (14) days to the Design-Builder in writing stating (1) whether the Owner has reasonable objection to any such proposed person or entity or (2) that the Owner requires additional time for review. Failure of the Owner to reply within the 14-day period shall constitute notice of no reasonable objection.

B. Owner Objections. The Design-Builder shall not employ personnel, or contract with Contractors or suppliers to whom the Owner has made reasonable and timely objection. If the Owner has reasonable objection to a person or entity proposed by the Design-Builder, the Design-Builder shall propose another to whom the Owner has no reasonable objection. If the rejected person or entity was reasonably capable of performing the Work, the Contract Sum and Contract Time shall be increased or decreased by the difference, if any, occasioned by such change, and an appropriate Change Order shall be issued before commencement of the substitute person or entity's Work. However, no increase in the Contract Sum or Contract Time shall be allowed for such change unless the Design-Builder has acted promptly and responsively in submitting names as required.

C. Changes. If the Design-Builder changes any of the personnel, Contractors or suppliers identified in the Design-Build Amendment, the Design-Builder shall notify the Owner and provide the name and qualifications of the new personnel, Contractor or supplier. The Owner may reply within fourteen (14) days to the Design-Builder in writing, stating (1) whether the Owner has reasonable objection to the proposed personnel, Contractor or supplier or (2) that the Owner requires additional time to review. Failure of the Owner to reply within the 14-day period shall constitute notice of no reasonable objection.

5.8 Documents and Submittals at the Site. The Design-Builder shall maintain at the site for the Owner one copy of the Design-Build Documents and a current set of the Construction Documents, in good order and marked currently to indicate field changes and selections made during construction, and one copy of approved Submittals. The Design-Builder shall deliver these items to the Owner in accordance with Section 9.10.B as a record of the Work as constructed.

5.9 Use of Site. The Design-Builder shall confine operations at the site to areas permitted by applicable laws, statutes, ordinances, codes, rules and regulations, lawful orders of public authorities, and the Design-Build Documents, and shall not unreasonably encumber the site with materials or equipment.

5.10 Cutting and Patching. The Design-Builder shall not cut, patch, or otherwise alter fully or partially completed construction by the Owner or a separate contractor except with written

consent of the Owner and of such separate contractor. Such consent shall not be unreasonably withheld. The Design-Builder shall not unreasonably withhold from the Owner or a separate contractor the Design-Builder's consent to cutting or otherwise altering the Work.

5.11 Cleanliness.

A. Cleanliness. The Design-Builder shall keep the premises and surrounding area free from accumulation of waste materials or rubbish caused by operations under the Agreement. At completion of the Work, the Design-Builder shall remove waste materials, rubbish, tools, construction equipment, machinery and surplus materials from and about the Project Site.

B. Reimbursement to Owner. If the Design-Builder fails to clean up as provided in the Design-Build Documents, the Owner may do so and Owner shall be entitled to offset its costs incurred against payments to the Design-Builder.

5.12 Access to Work. The Design-Builder shall provide the Owner and its separate contractors and consultants access to the Work in preparation and progress wherever located. The Design-Builder shall notify the Owner regarding Project safety criteria and programs, which the Owner, and its contractors and consultants, shall comply with while at the site.

5.13 Construction by Owner or by Separate Contractors.

A. Owner's Right to Perform Construction and to Award Separate Contracts.

(1) The Owner reserves the right to perform construction or operations related to the Project with the Owner's own forces, and to award separate contracts in connection with other portions of the Project, or other construction or operations on the site, under terms and conditions identical or substantially similar to this Contract, including those terms and conditions related to insurance and waiver of subrogation. The Owner shall notify the Design-Builder promptly after execution of any separate contract. If the Design-Builder claims that delay or additional cost is involved because of such action by the Owner, the Design-Builder shall make a Claim as provided in Article XVII.

(2) When separate contracts are awarded for different portions of the Project or other construction or operations on the site, the term, "Design-Builder" in the Design-Build Documents in each case shall mean the individual or entity that executes each separate agreement with the Owner.

(3) The Owner shall provide for coordination of the activities of the Owner's own forces, and of each separate contractor, with the Work of the Design-Builder, who shall cooperate with them. The Design-Builder shall participate with other separate contractors and the Owner in reviewing their construction schedules. The Design-Builder shall make any revisions to the

construction schedule deemed necessary after a joint review and mutual agreement. The construction schedules shall then constitute the schedules to be used by the Design-Builder, separate contractors and the Owner until subsequently revised.

(4) Unless otherwise provided in the Design-Build Documents, when the Owner performs construction or operations related to the Project with the Owner's own forces or separate contractors, the Owner shall be deemed to be subject to the same obligations, and to have the same rights, that apply to the Design-Builder under the Agreement.

5.14 Mutual Responsibility.

A. Coordination of Site Uses. The Design-Builder shall afford the Owner and separate contractors reasonable opportunity for introduction and storage of their materials and equipment and performance of their activities, and shall connect and coordinate the Design-Builder's construction and operations with theirs as required by the Design-Build Documents.

B. Reporting of Discrepancies or Defects. If part of the Design-Builder's Work depends upon construction or operations by the Owner or a separate contractor, the Design-Builder shall, prior to proceeding with that portion of the Work, prepare a written report to the Owner, identifying apparent discrepancies or defects in the construction or operations by the Owner or separate contractor that would render it unsuitable for proper execution and results of the Design-Builder's Work. Failure of the Design-Builder to report shall constitute an acknowledgment that the Owner's or separate contractors' completed or partially completed construction is fit and proper to receive the Design-Builder's Work, except as to defects not then reasonably discoverable.

C. Costs. The Design-Builder shall reimburse the Owner for costs the Owner incurs that are payable to a separate contractor because of the Design-Builder's delays, improperly timed activities or defective construction. The Owner shall be responsible to the Design-Builder for costs the Design-Builder incurs because of a separate contractor's delays, improperly timed activities, damage to the Work or defective construction.

D. Damages. The Design-Builder shall promptly remedy damage the Design-Builder wrongfully causes to completed or partially completed construction or to property of the Owner or separate contractors as provided in Section 10.2.E.

E. Cutting and Patching by Owner. The Owner and each separate contractor shall have the same responsibilities for cutting and patching the Work as the Design-Builder has with respect to the construction of the Owner or separate contractors in Section 5.10.

5.15 Owner's Right to Clean Up. If a dispute arises among the Design-Builder, separate contractors and the Owner as to the responsibility under their respective contracts for maintaining

the premises and surrounding area free from waste materials and rubbish, the Owner may clean up and will allocate the cost among those responsible.

ARTICLE VI
CHANGES IN THE WORK

6.1 General. Changes in the Work may be accomplished after execution of the Agreement, and without invalidating the Contract, by Change Order, Work Directive Change or order for a minor change in the Work, subject to the limitations stated in this Article VI and elsewhere in the Design-Build Documents. A Change Order or Work Directive Change shall be based upon agreement among the Owner and Design-Builder; an order for a minor change in the Work may be issued by the Design-Builder alone. Changes in the Work shall be performed under applicable provisions of the Design-Build Documents, and the Design-Builder shall proceed promptly, unless otherwise provided in the Change Order, Work Directive Change or order for a minor change in the Work.

6.2 Minor Changes in the Work. The Owner or Design-Builder shall have authority to order minor changes in the Work not involving adjustment in the Contract Sum or extension of the Contract Time and not inconsistent with the intent of the Design-Build Documents. Such change will be effected by written order signed by the Design-Builder and shall be binding on the Owner and Design-Builder. The Design-Builder shall abide by and perform such minor changes. Such changes shall be effected by a Field Directive or a Work Directive Change. Documentation of changes shall be determined by the construction team, and displayed monthly in the progress reports. Because such changes shall not affect the Contract Sum to be paid to the Design-Builder, they shall not require a Change Order pursuant to Section 6.6.

6.3 Emergencies. In any emergency affecting the safety of persons or property, the Design-Builder shall act at his discretion to prevent threatened damage, injury, or loss. Any increase in the Contract Sum or extension of time claimed by the Design-Builder because of emergency Work shall be determined as provided in Section 6.6. However, whenever practicable, the Design-Builder shall obtain verbal concurrence of the Owner's authorized representative where the act will or may affect the Contract Sum or Contract Time.

6.4 Concealed Conditions. If the Design-Builder encounters conditions at the site that are (1) subsurface or otherwise concealed physical conditions that differ materially from those indicated in the Design-Build Documents or (2) unknown physical conditions of an unusual nature, that differ materially from those ordinarily found to exist and generally recognized as inherent in construction activities of the character provided for in the Design-Build Documents, the Design-Builder shall promptly provide notice to the Owner before conditions are disturbed and in no event later than ten (10) days after first observance of the conditions. The Owner will promptly investigate such conditions and, if the Owner determines that they differ materially and cause an increase or decrease in the Design-Builder's cost of, or time required for, performance of any part of the Work, will recommend an equitable adjustment in the Contract Sum or Contract Time, or

both. If the Owner determines that the conditions at the site are not materially different from those indicated in the Design-Build Documents and that no change in the terms of the Contract is justified, the Owner shall promptly notify the Design-Builder in writing, stating the reasons. If Design-Builder disputes the Owner's determination or recommendation, it may proceed as provided in Article XVII.

6.5 Change Orders; Adjustments to Contract Sum.

The increase or decrease in the Contract Sum resulting from a change authorized pursuant to the Design-Build Documents shall be determined:

(1) By mutual acceptance of a lump sum amount properly itemized and supported by sufficient substantiating data to permit evaluation by the Owner; or

(2) By unit prices stated in the Agreement or subsequently agreed upon; or

(3) By any other method mutually agreeable to Owner and Design-Builder.

If Owner and Design-Builder are unable to agree upon increases or decreases in the Contract Sum and the Design-Builder certifies that the work needs to be commenced prior to any such agreement, the Design-Builder, provided it receives a written Change Order signed by or on behalf of the Owner, shall promptly proceed with the Work involved. The cost of such Work shall then be determined on the basis of the reasonable expenditures of those performing the Work attributed to the change. However, in the event a Change Order is issued under these conditions, the Owner will establish an estimated cost of the Work and the Design-Builder shall not perform any Work whose cost exceeds that estimate without prior written approval by the Owner. In such case, the Design-Builder shall keep and present in such form as the Owner may prescribe an itemized accounting, together with appropriate supporting data of the increase in overall costs of the Project. The amount of any decrease in the Contract Sum to be allowed by the Design-Builder to the Owner for any deletion or change which results in a net decrease in costs will be the amount of the actual net decrease.

6.6 Unit Prices. If unit prices are stated in the Design-Build Documents or subsequently agreed upon, and if the quantities originally contemplated are so changed in a proposed Change Order that application of the agreed unit prices to the quantities of Work proposed will cause substantial inequity to the Owner or Design-Builder, the applicable unit prices and Contract Sum shall be equitably adjusted.

6.7 Owner-Initiated Changes. Without invalidating the Agreement and without notice to any Surety, Owner may, at any time, order additions, deletions or revisions in the Work. These will be authorized by a written amendment, a Field Directive, a Change Order, or a Work Directive Change, as the case may be. Upon receipt of any such document, Design-Builder shall promptly proceed with the Work involved which will be performed under the applicable conditions

of the Design-Build Documents (except as otherwise specifically provided). A Work Directive Change may not change the Contract Sum or the Contract Time; but is evidence that the parties expect that the change directed or documented by a Work Directive Change will be incorporated in a subsequently issued Change Order following negotiations by the parties as to its effect, if any, on the Contract Sum or Contract Time.

6.8 Unauthorized Work. Design-Builder shall not be entitled to an increase in the Contract Sum or an extension of the Contract Time with respect to any Work performed that is not required by the Design-Build Documents.

6.9 Defective Work. Owner and Design-Builder shall execute appropriate Change Orders (or written amendments) covering changes in the Work which are ordered by Owner because of Defective Work, or which may be required because of acceptance of Defective Work, without adjustment to the Contract Sum.

6.10 Estimates for Changes. At any time Owner may request a quotation from Design-Builder for a proposed change in the Work. Within twenty-one (21) calendar days after receipt, Design-Builder shall submit a written and detailed proposal for an increase or decrease in the Contract Sum or Contract Time for the proposed change. Owner shall have twenty-one (21) calendar days after receipt of the detailed proposal to respond in writing. The proposal shall include an itemized estimate of all costs and time for performance that will result directly or indirectly from the proposed change. Unless otherwise directed, itemized estimates shall be in sufficient detail to reasonably permit an analysis by Owner of all material, labor, equipment, subcontracts, overhead costs and fees, and shall cover all Work involved in the change, whether such Work was deleted, added, changed or impacted. Notwithstanding the request for quotation, Design-Builder shall carry on the Work and maintain the progress schedule. Delays in the submittal of the written and detailed proposal will be considered non-prejudicial.

6.11 Form of Proposed Changes. The form of all submittals, notices, Change Orders and other documents permitted or required to be used or transmitted under the Design-Build Documents shall be determined by the Owner. Standard Owner forms shall be utilized.

6.12 Changes to Contract Time. The Contract Time may only be changed pursuant to a Change Order or a written amendment to the Design-Build Documents. Any claim for an extension or shortening of the Contract Time shall be based on written notice delivered by the party making the claim to the other party. Notice of the extent of the claim with supporting data shall be delivered within fifteen (15) days from detection or beginning of such occurrence and shall be accompanied by the claimant's written statement that the adjustment claimed is the entire adjustment to which the claimant has reason to believe it is entitled because of the occurrence of said event. The Contract Time will be extended in an amount equal to time lost due to delays beyond the control of Design-Builder. Such delays shall include, but not be limited to, acts or neglect by Owner or others performing additional Work; or to fires, floods, epidemics, abnormal weather conditions or acts of God. Failure to deliver a written notice of claim within the requisite 15-day period shall constitute a waiver of the right to pursue said claim.

ARTICLE VII
OWNER'S RIGHTS AND RESPONSIBILITIES

7.1 General.

A. Authority of Owner's Representative. The Owner shall designate in writing a representative (the Owner's "authorized representative") who shall have express authority to bind the Owner with respect to all Project matters requiring the Owner's approval or authorization.

B. Owner Decisions. The Owner shall render decisions in a timely manner and in accordance with Design-Builder's schedule agreed to by the Owner.

7.2 Information and Services Required of the Owner.

A. Promptness. The Owner shall furnish information or services required of the Owner by the Design-Build Documents with reasonable promptness.

B. Inspections and Reports. The Owner shall provide, to the extent under the Owner's control and if not required by the Design-Build Documents to be provided by the Design-Builder, the results and reports of prior tests, inspections or investigations conducted for the Project involving structural or mechanical systems, chemical, air and water pollution, hazardous materials, or environmental and subsurface conditions, and information regarding the presence of pollutants at the Project site. Upon receipt of a written request from the Design-Builder, the Owner shall also provide surveys describing physical characteristics, legal limitations and utility locations for the site of the Project, and a legal description of the site under the Owner's control.

C. Land Use. The Owner shall promptly obtain easements, zoning variances, and legal authorizations or entitlements regarding site utilization where essential to the execution of the Project.

D. Cooperation; Permitting. The Owner shall cooperate with the Design-Builder in securing building and other permits, licenses and inspections.

E. Reliance Upon Reports. The services, information, surveys and reports required to be provided by the Owner under this Agreement, shall be furnished at the Owner's expense, and except as otherwise specifically provided in this Agreement or elsewhere in the Design-Build Documents or to the extent the Owner advises the Design-Builder to the contrary in writing, the Design-Builder shall be entitled to rely upon the accuracy and completeness thereof. In no event shall the Design-Builder be relieved of its responsibility to exercise proper precautions relating to the safe performance of the Work.

F. Notice of Defects. If the Owner observes or otherwise becomes aware of a fault or defect in the Work or non-conformity with the Design-Build Documents, the Owner shall give prompt written notice thereof to the Design-Builder.

G. Communications. Except as otherwise provided in the Design-Build Documents or when direct communications have been specially authorized, the Owner shall communicate through the Design-Builder with persons or entities employed or retained by the Design-Builder.

H. Subsurface Conditions. Unless required by the Design-Build Documents to be provided by the Design-Builders, the Owner shall, upon request from the Design-Builder, furnish the services of geotechnical engineers or other consultants for investigation of subsurface, air and water conditions when such services are reasonably necessary to properly carry out the design services furnished by the Design-Builder. In such event, the Design-Builder shall specify the services required. Such services may include, but are not limited to, test borings, test pits, determinations of soil bearing values, percolation tests, evaluations of hazardous materials, ground erosion and resistivity tests, and necessary operations for anticipating subsoil conditions. The services of geotechnical engineer(s) or other consultants shall include preparation and submission of all appropriate reports and professional recommendations.

7.3 Submittals.

A. Review of Submittals. The Owner shall review and approve or take other appropriate action on Submittals. Review of Submittals is not conducted for determining the accuracy and completeness of other details, such as dimensions and quantities, or for substantiating instructions for installation or performance of equipment or systems, or for determining that the Submittals are in conformance with the Design-Build Documents, all of which remain the responsibility of the Design-Builder as required by the Design-Build Documents. The Owner's action will be taken in accordance with the submittal schedule approved by the Owner. In the absence of an approved submittal schedule, the Owner shall accomplish the review of submittals and return same to Design-Builder within fourteen (14) days. The Owner's review of Submittals shall not relieve the Design-Builder of the obligations under Sections 3.1.M, 3.1.N, and 5.2.C. The Owner's review shall not constitute approval of safety precautions or, unless otherwise specifically stated by the Owner, of any construction means, methods, techniques, sequences or procedures. The Owner's approval of a specific item shall not indicate approval of an assembly of which the item is a component.

B. Notice of Non-Conformance. Upon review of the Submittals required by the Design-Build Documents, the Owner shall notify the Design-Builder of any non-conformance with the Design-Build Documents the Owner discovers.

7.4 Site Visits; Limitations. Visits to the site by the Owner shall not be construed to create an obligation on the part of the Owner to make onsite inspections to check the quality or quantity of the Work. The Owner shall neither have control over or charge of, nor be responsible for, the construction means, methods, techniques, sequences or procedures, or for the safety precautions and programs in connection with the Work, because these are solely the Design-Builder's rights and responsibilities under the Design-Build Documents.

7.5 Design-Builder Performance; Limitations. The Owner shall not be responsible for the Design-Builder's failure to perform the Work in accordance with the requirements of the Design-Build Documents. The Owner shall not have control over or charge of, and will not be responsible for acts or omissions of the Design-Builder, Architect/Engineer, Consultants, Contractors, or their agents or employees, or any other persons or entitles performing portions of the Work for the Design-Builder.

7.6 Rejection of Work. The Owner has the authority to reject Work that does not conform to the Design-Build Documents. The Owner shall have authority to require inspection or testing of the Work, whether or not such Work is fabricated, installed or completed. However, neither this authority of the Owner nor a decision made in good faith either to exercise or not to exercise such authority shall give rise to a duty or responsibility of the Owner to the Design-Builder, the Architect/Engineer, Consultants, Contractors, material and equipment suppliers, their agents or employees, or other persons or entities performing portions of the Work.

7.7 Completion Dates. The Owner shall determine the date or dates of Substantial Completion in accordance with Section 9.8 and the date of final completion in accordance with Section 9.10.

7.8 Owner's Right to Stop Work. If the Design-Builder fails to correct Work which is not in accordance with the requirements of the Design-Build Documents as required by Section 11.2 or persistently fails to carry out Work in accordance with the Design-Build Documents, the Owner may issue a written order to the Design-Builder to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, the right of the Owner to stop the Work shall not give rise to a duty on the part of the Owner to exercise this right for the benefit of the Design-Builder or any other person or entity.

7.9 Owner's Right to Carry Out the Work. If the Design-Builder defaults or neglects to carry out the Work in accordance with the Design-Build Documents and fails within a ten-day period after receipt of written notice from the Owner to commence and continue correction of such default or neglect with diligence and promptness, the Owner may, without prejudice to other remedies the Owner may have, correct such deficiencies. In such case, an appropriate Change Order shall be issued deducting from payments then or thereafter due the Design-Builder the reasonable cost of correcting such deficiencies. If payments then or thereafter due the Design-Builder are not sufficient to cover such amounts, the Design-Builder shall pay the difference to the Owner. Notwithstanding any other provisions in the Design-Build Documents to the contrary, the Owner shall be entitled to bring a direct action in the Circuit Court to recover such costs.

7.10 Governmental Body. The Design-Builder recognizes that the Owner is a governmental body with certain procedural requirements to be satisfied. The Design-Builder has and will make reasonable allowance in its performance of services for such additional time as may be required for approvals and decisions by the Owner and any other necessary government agency.

7.11 Pre-Completion Acceptance. The Owner shall have the right to take possession of and use any completed portions of the Work, although the time for completing the entire Work

or such portions may not have expired, but such taking possession and use shall not be deemed an acceptance of any Work not completed in accordance with the Design-Build Documents.

7.12 Ownership and Use of Drawings, Specifications and Other Instruments of Service.

(1) The Design-Builder and the Design-Builder's Consultants shall be deemed the authors and owners of their respective Instruments of Service, including the Project Plans and Specifications, and will retain all common law, statutory and other reserved rights, including copyrights. Submittal or distribution to meet official regulatory requirements or for other purposes in connection with this Project is not to be construed as publication in derogation of the Design-Builder's and the Design-Builder's Consultants' reserved rights.

(2) The Design-Builder, Contractors and material or equipment suppliers are authorized to use and reproduce the drawings and specifications provided to them solely and exclusively for execution of the Work. All copies made under this authorization shall bear the copyright notice, if any, shown on the Project Plans and Specifications or other Instruments of Service. Notwithstanding the reserved rights set forth in Section 7.12(1), the Owner shall have the right at all times to use the Design-Builder's and the Design-Builder's Consultants' Instruments of Service in execution of the Work. The Owner's rights of usage shall survive any termination of this Agreement pursuant to Article XVI. The Design-Builder, Contractors, and material or equipment suppliers may not use the drawings or specifications on other projects or for additions to this Project outside the scope of the Work without the specific written consent of the Owner.

ARTICLE VIII
TIME

8.1 Progress and Completion.

A. Time Limits. Time limits are of the essence in this Agreement. By executing the Design-Build Amendment, the Design-Builder confirms that the Contract Time is a reasonable period for performing the Work.

B. Insurance. The Design-Builder shall not, except by agreement of the Owner in writing, commence the Work prior to the effective date of insurance required by this Agreement. The Contract Time shall not be adjusted because of the Design-Builder's failure to obtain insurance required under this Agreement.

C. Substantial Completion. The Design-Builder shall proceed expeditiously with adequate forces and shall achieve Substantial Completion within the Contract Time.

8.2 Delays and Extensions of Time.

A. Owner Delays. If the Design-Builder is delayed at the time in the commencement or progress of the Work by an act or neglect of the Owner or of a consultant or separate contractor employed by the Owner, or by changes ordered in the Work by the Owner, or by labor disputes, fire, unusual delay in deliveries, unavoidable casualties or other causes beyond the Design-Builder's control, or by delay authorized by the Owner pending resolution pursuant to Article XVII hereof, or by other causes that the Owner determines may justify delay, then the Contract Time shall be extended by Change Order for such reasonable time as the Owner may determine.

B. Claims for Delay. Claims relating to time shall be made in accordance with applicable provisions of Article XVII.

C. Liquidated Damages for Delay. Time is of the essence in the Design-Build Documents and all obligations thereunder. If the Design-Builder fails to achieve Substantial Completion of the Work within the Contract Time and as otherwise required by the Design-Build Documents, the Owner shall be entitled to retain or recover from the Design-Builder, as liquidated damages and not as a penalty, the sum of $_____ per calendar day commencing upon the first day following expiration of the Contract Time and continuing until the actual date of Substantial Completion. Such liquidated damages are hereby agreed to be a reasonable estimate of damages the Owner will incur because of delayed completion of the Work. The Owner may deduct liquidated damages as described in this paragraph from any unpaid amounts then or thereafter due the Design-Builder under this Agreement. Any liquidated damages not so deducted from any unpaid amounts due the Design-Builder shall be payable to the Owner at the demand of the Owner, together with interest from the date of the demand at the maximum allowable rate.

ARTICLE IX
PAYMENT APPLICATIONS AND PROJECT COMPLETION

9.1 Contract Sum. The Contract Sum shall be stated in the Design-Build Amendment.

9.2 Schedule of Values. Where the Contract Sum is based on a stipulated sum or guaranteed maximum price, the Design-Builder, prior to the first Application for Payment after execution of the Design-Build Amendment, shall submit to the Owner a schedule of values allocating the entire Contract Sum to the various portions of the Work and prepared in such form and supported by such data to substantiate its accuracy as the Owner may require. This schedule, unless objected to by the Owner, shall be used as a basis for reviewing the Design-Builder's Applications for Payment.

9.3 Applications for Payment.

A. Submittal; Requirements. At least ten (10) days before the date established for each progress payment, the Design-Builder shall submit to the Owner an itemized Application for Payment for completed portions of the Work. The application shall be notarized, if required, and supported by data substantiating the Design-Builder's right to payment as the Owner may require, such as copies of requisitions from the Architect/Engineer, Consultants, Contractors, and material suppliers, and shall reflect retainage if provided for in the Design-Build Documents.

(1) As provided in Section 6.6, Applications for Payment may include requests for payment because of changes in the Work that have been promptly authorized by Work Directive Changes, or by interim determinations of the Owner but not yet included in Change Orders.

(2) Applications for Payment shall not include requests for portions of the Work for which the Design-Builder does not intend to pay the Architect/Engineer Consultant, Contractor, and material supplier, or other persons or entities providing services or work for the Design-Builder, unless such Work has been performed by others whom the Design-Builder intends to pay.

B. Payments for Services Provided. Unless otherwise provided in the Design-Build Documents, payments shall be made for services provided as well as materials and equipment delivered and suitably stored at the site for subsequent incorporation in the Work. If approved in advance by the Owner, payment may similarly be made for materials and equipment suitably stored off the site at a location agreed in writing. Payment for materials and equipment stored on or off the site shall be conditioned upon compliance by the Design-Builder with procedures satisfactory to the Owner to establish the Owner's title to such materials and equipment or otherwise to protect the Owner's interest, and shall include the costs of applicable insurance, storage and transportation to the site for such materials and equipment stored off the site.

C. Warranties. The Design-Builder warrants that title to all Work, other than Instruments of Service, covered by an Application for Payment will pass to the Owner no later than the time of payment. The Design-Builder further warrants that, upon submittal of an Application for Payment, all Work for which a Certificate for Payment has been previously issued and payments received from the Owner shall, to the best of the Design-Builder's knowledge, information and belief, be free and clear of liens, claims, security interests or encumbrances in favor of the Design-Builder, Architect/Engineer, Consultants, Contractors, material suppliers, or other persons or entities entitled to make a claim by reason of having provided labor, materials and equipment relating to the Work.

9.4 Certificates for Payment. The Owner shall, within seven days after receipt of the Design-Builder's Application for Payment, issue to the Design-Builder a Certificate for Payment indicating the amount the Owner determines is properly due, and notify the Design-Builder in writing of the Owner's reasons for withholding certification in whole or in part as provided in Section 9.5.A.

9.5 Decisions to Withhold Certification.

A. Grounds. The Owner may withhold a Certificate for Payment in whole or in part to the extent reasonably necessary to protect the Owner due to the Owner's determination that the Work has not progressed to the point indicated in the Design-Builder's Application for Payment, or the quality of the Work is not in accordance with the Design-Build Documents. If the Owner is unable to certify payment in the amount of the Application, the Owner will notify the Design-Builder as provided in Section 9.4. If the Design-Builder and Owner cannot agree on a revised amount, the Owner will promptly issue a Certificate for Payment for the amount that the Owner deems to be due and owing. The Owner may also withhold a Certificate for Payment or, because of subsequently discovered evidence, may nullify the whole or a part of a Certificate for Payment previously issued to such extent as may be necessary to protect the Owner from loss for which the Design-Builder is responsible because of:

(1) defective Work, including design and construction, not remedied;
(2) third party claims filed or reasonable evidence indicating probable filing of such claims unless security acceptable to the Owner is provided by the Design-Builder;
(3) failure of the Design-Builder to make payments properly to the Architect/Engineer Consultants, Contractors or others, for services, labor, materials or equipment;
(4) reasonable evidence that the Work cannot be completed for the unpaid balance of the Contract Sum;
(5) damage to the Owner or a separate contractor;
(6) reasonable evidence that the Work will not be completed within the Contract Time, and that the unpaid balance would not be adequate to cover actual or liquidated damages for the anticipated delay; or
(7) repeated failure to carry out the Work in accordance with the Design-Build Documents.

B. Cure. When the above reasons for withholding certification are removed, certification will be made for amounts previously withheld.

C. Issuance of Joint Checks. If the Owner withholds certification for payment under Section 9.5.A(3), the Owner may, at its sole option, issue joint checks to the Design-Builder or any Consultants, Contractor, material or equipment suppliers, or other persons or entities providing services or work for the Design-Builder to whom the Design-Builder failed to make payment for Work properly performed or material or equipment suitably delivered.

9.6 Progress Payments.

A. Payment. After the Owner has issued a Certificate for Payment, the Owner shall make payment in the manner and within the time provided in the Design-Build Documents.

B. Payments by Design-Builder. The Design-Builder shall pay each Architect/Engineer Consultant, Contractor, and other person or entity providing services or work for the Design-Builder no later than the time period required by applicable law, but in no event more than seven days after receipt of payment from the Owner the amount to which the Architect/Engineer Consultant, Contractor, and other person or entity providing services or work for the Design-Builder is entitled, reflecting percentages actually retained from payments to the Design-Builder on account of the portion of the Work performed by the Architect/Engineer, Consultant, Contractor, and other person or entity. The Design-Builder shall, by appropriate agreement with each Architect/Engineer, Consultant, Contractor, and other person or entity providing services or work for the Design-Builder, require each Architect/Engineer, Consultant, Contractor, and other person or entity providing services or work for the Design-Builder to make payments to subcontractors in a similar manner.

C. Requests for Information. The Owner will, on request and if practicable, furnish to the Architect/Engineer, a Consultant, Contractor, and other person or entity providing services or work for the Design-Builder, information regarding percentages of completion or amounts applied for by the Design-Builder and action taken by the Owner on account of portions of the Work done by such Architect/Engineer, Consultant, Contractor, and other person or entity providing services or work for the Design-Builder.

D. Evidence of Payment by Design-Builder. The Owner has the right to request written evidence from the Design-Builder that the Design-Builder has properly paid the Architect/Engineer Consultants, Contractors, and other persons or entities providing services or work for the Design-Builder, amounts paid by the Owner to the Design-Builder for the Work. If the Design-Builder fails to furnish such evidence within seven (7) days, the Owner shall have the right to contact the Architect/Engineer Consultants and Contractors to ascertain whether they have been properly paid. The Owner shall have no obligation to pay or to see to the payment of money to a Consultant or Contractor, except as may otherwise be required by law.

E. Payments to Suppliers. Design-Builder payments to material and equipment suppliers shall be treated in a manner similar to that provided in Sections 9.6.B, 9.6.C and 9.6.D.

F. Acceptance of Work. A Certificate for Payment, a progress payment, or partial or entire use or occupancy of the Project by the Owner shall not constitute acceptance of Work not in accordance with the Design-Build Documents.

9.7 Failure of Payment. If the Owner does not issue a Certificate for Payment, through no fault of the Design-Builder, within the time required by the Design-Build Documents, then the Design-Builder may, upon seven additional days' written notice to the Owner, stop the Work until payment of the amount owing has been received. The Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Design-Builder's reasonable costs of shut-down, delay and start-up.

9.8 Substantial Completion.

A. Substantial Completion Defined. Substantial Completion shall be as defined in Section 1.4. The date of Substantial Completion is the date certified by the Owner in accordance with this Section 9.8.

B. List of Corrections. When the Design-Builder considers that the Work, or a portion thereof which the Owner agrees to accept separately, is substantially complete, the Design-Builder shall prepare and submit to the Owner a comprehensive list of items to be completed or corrected prior to final payment. Failure to include an item on such list does not alter the responsibility of the Design-Builder to complete all Work in accordance with the Design-Build Documents.

C. Inspections; Corrections. Upon receipt of the Design-Builder's list, the Owner shall make an inspection to determine whether the Work or designated portion thereof is substantially complete. If the Owner's inspection discloses any item, whether or not included on the Design-Builder's list, which is not sufficiently complete in accordance with the Design-Build Documents so that the Owner can occupy or utilize the Work or designated portion thereof for its intended use, the Design-Builder shall, before issuance of the Certificate of Substantial Completion, complete or correct such item upon notification by the Owner. In such case, the Design-Builder shall then submit a request for another inspection by the Owner to determine Substantial Completion.

D. Certificate of Substantial Completion. When the Work or designated portion thereof is substantially complete, the Design-Builder will prepare for the Owner's signature a Certificate of Substantial Completion that shall, upon the Owner's signature, establish the date of Substantial Completion, establish responsibilities of the Owner and Design-Builder for security, maintenance, heat, utilities, damage to the Work and insurance, and fix the Punch List Completion Date. Warranties required by the Design-Build Documents shall commence on the date of Substantial Completion of the Work or designated portion thereof unless otherwise provided in the Certificate of Substantial Completion.

E. Submittal; Acceptance. The Certificate of Substantial Completion shall be submitted by the Design-Builder to the Owner for written acceptance of responsibilities assigned to it in the Certificate. Upon the Owner's acceptance, and consent of surety, if any, the Owner shall make payment of retainage applying to the Work or designated portion thereof. Payment shall be adjusted for Work that is incomplete or not in accordance with the requirements of the Design-Build Documents.

9.9 Partial Occupancy or Use.

A. Right of Owner. The Owner may occupy or use any completed or partially completed portion of the Work at any stage when such portion is designated by separate agreement with the Design-Builder, provided such occupancy or use is authorized by public authorities having jurisdiction over the Project. Such partial occupancy or use may commence whether or not the portion is substantially complete, provided the Owner and Design-Builder have accepted in

writing the responsibilities assigned to each of them for payments, retainage, if any, security, maintenance, heat, utilities, damage to the Work and insurance, and have agreed in writing concerning the period for correction of the Work and commencement of warranties required by the Design-Build Documents. When the Design-Builder considers a portion substantially complete, the Design-Builder shall prepare and submit a list to the Owner as provided under Section 9.8.B. Consent of the Design-Builder to partial occupancy or use shall not be unreasonably withheld. The state of the progress of the Work shall be determined by written agreement between the Owner and Design-Builder.

B. Inspection. Immediately prior to such partial occupancy or use, the Owner and Design-Builder shall jointly inspect the area to be occupied or portion of the Work to be used in order to determine and record the condition of the Work.

C. Occupancy Shall Not Constitute Acceptance. Unless otherwise agreed upon, partial occupancy or use of a portion or portions of the Work shall not constitute acceptance of Work not complying with the requirements of the Design-Build Documents.

9.10 Final Completion and Final Payment.

A. Timely Inspection. Upon receipt of the Design-Builder's written notice that the Work is ready for final inspection and acceptance and upon receipt of a final Application for Payment, the Owner will promptly make such inspection. When the Owner finds the Work acceptable under the Design-Build Documents and the Agreement fully performed, the Owner will, subject to Section 9.10.B, promptly issue a final Certificate for Payment.

B. Conditions of Final Payment. Neither final payment nor any remaining retained percentage shall become due until the Design-Builder submits to the Owner:

(1) an affidavit that payrolls, bills for materials and equipment, and other indebtedness connected with the Work, for which the Owner or the Owner's property might responsible or encumbered (less amounts withheld by Owner) have been paid or otherwise satisfied;
(2) a certificate evidencing that insurance required by the Design-Build Documents to remain in force after final payment is currently in effect;
(3) a written statement that the Design-Builder knows of no substantial reason that the insurance will not be renewable to cover the period required by the Design-Build Documents;
(4) consent of surety, if any, to final payment;
(5) as-built drawings and an as-constructed record copy of the Design-Build Documents, marked to indicate field changes and selections made during construction;
(6) all warranty documentation, manufacturer's warranties, product data, maintenance and operations manuals (including parts and technical manuals), and all schematics and handbooks; and

(7) if required by the Owner, other data establishing payment or satisfaction of obligations, such as receipts, or releases and waivers of liens, security interests, or encumbrances, arising out of the Agreement, to the extent and in such form as may be designated by the Owner.

C. Delay; Partial Payment. If, after Substantial Completion of the Work, final completion thereof is materially delayed through no fault of the Design-Builder or by issuance of Change Orders affecting final completion, the Owner shall, upon application by the Design-Builder, and without terminating the Agreement, make payment of the balance due for that portion of the Work fully completed and accepted. If the remaining balance for Work not fully completed or corrected is less than retainage stipulated in the Design-Build Documents, and if bonds have been furnished, the written consent of surety to payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by the Design-Builder to the Owner prior to issuance of payment. Such payment shall be made under the terms and conditions governing final payment, except that it shall not constitute a waiver of claims.

D. Waiver of Owner Claims. The making of final payment shall constitute a waiver of Claims by the Owner except those arising from:

(1) claims arising out of the Agreement and unsettled;
(2) failure of the Work to comply with the requirements of the Design-Build Documents; and
(3) terms of special warranties required by the Design-Build Documents.

E. Waiver of Design-Builder Claims. Acceptance of final payment by the Design-Builder shall constitute a waiver of Claims by the Design-Builder except those previously made in writing and identified by the Design-Builder as unsettled at the time of final Application for Payment.

ARTICLE X
PROTECTION OF PERSONS AND PROPERTY

10.1 Safety Precautions and Programs. The Design-Builder shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the performance of the Agreement.

10.2 Safety of Persons and Property.

A. Prevention. The Design-Builder shall be responsible for precautions for the safety of, and reasonable protection to prevent damage, injury or loss to:

(1) employees on the Work and other persons who may be affected thereby;
(2) the Work and materials and equipment to be incorporated therein, whether in storage on or off the site, under care, custody or control of the Design-

Builder or the Architect/Engineer, Consultants, or Contractors, or other person or entity providing services or work for the Design-Builder; and

(3) other property at the site or adjacent thereto, such as trees, shrubs, lawns, walks, pavements, roadways, or structures and utilities not designed for removal, relocation or replacement during construction.

B. Compliance with Laws and Regulations. The Design-Builder shall comply with, and give notices required by, applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities, bearing on safety of persons or property, or their protection from damage, injury or loss.

C. Safeguards. The Design-Builder shall implement, erect, and maintain, as required by existing conditions and performance of the Agreement, reasonable safeguards for safety and protection, including posting danger signs and other warnings against hazards, promulgating safety regulations, and notifying owners and users of adjacent sites and utilities of the safeguards and protections.

D. Hazardous Materials. When use or storage of explosives or other hazardous materials or equipment, or unusual methods, are necessary for execution of the Work, the Design-Builder shall exercise utmost care, and carry on such activities under supervision of properly qualified personnel.

E. Remedy of Damages and Losses. The Design-Builder shall promptly remedy damage and loss (other than damage or loss insured under property insurance required by the Design-Build Documents) to property referred to in Sections 10.2.A(2) and 10.2.A(3), caused in whole or in part by the Design-Builder, the Architect/Engineer, a consultant, a Contractor, or anyone directly or indirectly employed by any of them, or by anyone for whose acts they may be liable and for which the Design-Builder is responsible under Sections 10.2.A(2) and 10.2.A(3), except damage or loss attributable to acts or omissions of the Owner or anyone directly or indirectly employed by the Owner or by anyone for whose acts the Owner may be liable. The foregoing obligations of the Design-Builder are in addition to the Design-Builder's obligations under Section 3.1.P.

F. Safety Officer. The Design-Builder shall designate a responsible member of the Design-Builder's organization, at the site, whose duty shall be the prevention of accidents. This person shall be the Design-Builder's superintendent unless otherwise designated by the Design-Builder in writing to the Owner.

G. Loading of Construction Site. The Design-Builder shall not permit any part of the construction or site to be loaded so as to cause damage or create an unsafe condition.

H. Injury or Damage to Person or Property. If the Owner or Design-Builder suffers injury or damage to person or property because of an act or omission of the other, or of others for whose acts such party is legally responsible, written notice of the injury or damage, whether or not insured, shall be given to the other party within a reasonable time not exceeding

twenty one (21) days after discovery. The notice shall provide sufficient detail to enable the other party to investigate the matter.

10.3 Hazardous Materials.

A. Design-Builder Responsibility. The Design-Builder is responsible for compliance with any requirements included in the Design-Build Documents regarding hazardous materials. If the Design-Builder encounters a hazardous material or substance not addressed in the Design-Build Documents, and if reasonable precautions will be inadequate to prevent foreseeable bodily injury or death to persons resulting from a material or substance, including but not limited to asbestos or polychlorinated biphenyl (PCB), encountered on the site by the Design-Builder, the Design-Builder shall, upon recognizing the condition, immediately stop Work in the affected area and report the condition to the Owner in writing.

B. Owner Responsibility. Upon receipt of the Design-Builder's written notice, the Owner shall obtain the services of a licensed laboratory to verify the presence or absence of the material or substance reported by the Design-Builder and, in the event such material or substance is found to be present, to cause it to be rendered harmless. Unless otherwise required by the Design-Build Documents, the Owner shall furnish in writing to the Design-Builder the names and qualifications of persons or entities who are to perform tests verifying the presence or absence of such materials or substances or who are to perform the task of removal or safe containment of such materials or substances. The Design-Builder will promptly reply to the Owner in writing stating whether or not the Design-Builder has reasonable objection to the persons or entities proposed by the Owner. If the Design-Builder has an objection to a person or entity proposed by the Owner, the Owner shall propose another to whom the Design-Builder has no reasonable objection. When the material or substance has been rendered harmless, Work in the affected area shall resume upon written agreement of the Owner and Design-Builder. By Change Order, the Contract Time shall be extended appropriately and the Contract Sum shall be increased in the amount of the Design-Builder's reasonable additional costs of shut-down, delay and start-up.

C. Indemnity by Owner. To the fullest extent permitted by law, the Owner shall indemnify and hold harmless the Design-Builder, the Architect/Engineer Consultants, and Contractors, and employees of any of them, from and against claims, damages, losses and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work in the affected area, if in fact the material or substance presents the risk of bodily injury or death as described in Section 10.3.A and has not been rendered harmless, provided that such claim, damage, loss or expense is attributable to bodily injury, sickness, disease or death, or to injury to, or destruction of, tangible property (other than the Work itself), except to the extent that such damage, loss or expense is due to the fault or negligence of the party seeking indemnity. If, without negligence on the part of the Design-Builder, the Design-Builder is held liable by a government agency for the cost of remediation of a hazardous material or substance solely by reason of performing Work as required by the Design-Build Documents, the Owner shall also indemnify the Design-Builder for all cost and expense thereby incurred.

D. Limitations on Indemnity. The Owner shall not be responsible under this Section 10.3 for materials or substances the Design-Builder brings to the site unless such materials or substances are required by the owner's Criteria. The Owner shall be responsible for materials or substances required by the Owner's Criteria, except to the extent of the Design-Builder's fault or negligence in the use and handing of such materials or substances.

E. Indemnity by Design-Builder. The Design-Builder shall indemnify the Owner for the cost and expense the Owner incurs (1) for remediation of a material or substance the Design-Builder brings to the site and negligently handles, or (2) where the Design-Builder fails to perform its obligations under Section 10.3.A, except to the extent that the cost and expense are due to the Owner's fault or negligence.

10.4 Emergencies. In an emergency affecting safety of persons or property, the Design-Builder shall act, at the Design-Builder's discretion, to prevent threatened damage, injury or loss.

ARTICLE XI
UNCOVERING AND CORRECTION OF WORK

11.1 Uncovering of Work. The Owner may request to examine a portion of the Work that the Design-Builder has covered to determine if the work has been performed in accordance with the Design-Build Documents. If such Work is in accordance with the Design-Build Documents, the Owner and Design-Builder shall execute a Change Order to adjust the Contract Time and Contract Sum, as appropriate. If such Work is not in accordance with the Design-Build Documents, the costs of uncovering and correcting the Work shall be at the Design-Builder's expense and the Design-Builder shall not be entitled to a change in the Contract Time unless the condition was caused by the Owner or a separate contractor in which event the Owner shall be responsible for payment of such costs and the Contract Time will be adjusted as appropriate.

11.2 Correction of Work.

A. Duty to Correct Work. The Design-Builder shall promptly correct Work rejected by the Owner or failing to conform to the requirements of the Design-Build Documents, whether discovered before or after Substantial Completion and whether or not fabricated, installed or completed. Costs of correcting such rejected Work, including additional testing and inspections, the cost of uncovering and replacement, and compensation for any design consultant employed by the Owner whose expenses and compensation were made necessary thereby, shall be at the Design-Builder's expense.

B. After Substantial Completion.

(1) In addition to the Design-Builder's obligations under Section 3.1.N, if, within three years after the date of Substantial Completion of the Work or designated portion thereof or after the date for commencement of warranties established under Section 9.9.A, or by terms of an applicable special

warranty required by the Design-Build Documents, any of the Work is found not to be in accordance with the requirements of the Design-Build Documents, the Design-Builder shall correct it promptly after receipt of written notice from the Owner to do so unless the Owner has previously given the Design-Builder a written acceptance of such condition. The Owner shall give such notice promptly after discovery of the condition. During the three-year period for correction of the Work, if the Owner fails to notify the Design-Builder and give the Design-Builder an opportunity to make the correction, the Owner waives the rights to require correction by the Design-Builder and to make a claim for breach of warranty. If the Design-Builder fails to correct nonconforming Work within a reasonable time during that period after receipt of notice from the Owner, the Owner may correct it in accordance with Section 7.9.

(2) The three-year period for correction of Work shall not be extended by corrective Work performed by the Design-Builder pursuant to this Section 11.2.

C. Removal of Uncorrected Work. The Design-Builder shall remove from the site portions of the Work that are not in accordance with the requirements of the Design-Build Documents and are neither corrected by the Design-Builder nor accepted by the Owner.

D. Cost of Damage to Construction. The Design-Builder shall bear the cost of correcting destroyed or damaged construction of the Owner or separate contractors, whether completed or partially completed, caused by the Design-Builder's correction or removal of Work that is not in accordance with the requirements of the Design-Build Documents.

E. No Limitation on Obligation to Correct Work. Nothing contained in this Section 11.2 shall be construed to establish a period of limitation with respect to other obligations the Design-Builder has under the Design-Build Documents. Establishment of the three-year period for correction of Work as described in Section 11.2.B relates only to the specific obligation of the Design-Builder to correct the Work, and has no relationship to the time within which the obligation to comply with the Design-Build Documents may be sought to be enforced, nor to the time within which proceedings may be commenced to establish the Design-Builder's liability with respect to the Design-Builder's obligation other than specifically to correct the Work.

11.3 Acceptance of Nonconforming Work. If the Owner prefers to accept Work that is not in accordance with the requirements of the Design-Build Documents, the Owner may do so instead of requiring its removal and correction, in which case the Contract Sum will be reduced as appropriate and equitable. Such adjustment shall be effected whether or not final payment has been made.

ARTICLE XII
ACCOUNTING RECORDS; OWNERSHIP OF DOCUMENTS

12.1 Accounting Records. Records of expenses pertaining to all services performed shall be kept in accordance with generally accepted accounting principles and procedures.

12.2 Inspection and Audit. The Design-Builder's records shall be open to inspection and subject to examination, audit, and/or reproduction during normal working hours by the Owner's agents or authorized representatives to the extent necessary to adequately permit evaluation and verification of any invoices, payments or claims submitted by the Design-Builder or any of its payees during the performance of the Work. These records shall include, but not be limited to, accounting records, written policies and procedures, subcontractor files (including proposals of successful and unsuccessful bidders), original estimates, estimating worksheets, correspondence, Change Order files (including documentation covering negotiated settlements), and any other supporting evidence necessary to substantiate charges related to the Design-Build Documents. They shall also include, but not be limited to, those records necessary to evaluate and verify direct and indirect costs (including overhead allocations) as they may apply to costs associated with the Design-Build Documents. For the purpose of such audits, inspections, examinations and evaluations, the Owner's agents or authorized representatives shall have access to said records from the effective date of this Agreement, for the duration of Work, and until three (3) years after the date of final payment by the Owner to the Design-Builder pursuant to the Design-Build Documents.

12.3 Access. The Owner's agents or authorized representatives shall have access to the Design-Builder's facilities and all necessary records to conduct audits in compliance with this Article. The Owner's agents or authorized representatives shall give the Design-Builder reasonable advance notice of intended inspections, examinations, and/or audits.

12.4 Ownership of Documents. Upon completion of the Work or termination of this Agreement, all records, documents, tracings, plans, specifications, maps, evaluations, reports, transcripts and other technical data, other than working papers, prepared or developed by the Design-Builder under the Design-Build Documents, shall be delivered to and become the property of the Owner. The Design-Builder at its own expense may retain copies for its files and internal use.

ARTICLE XIII
PUBLIC CONTRACT LAWS

13.1 Equal Opportunity Employment.

A. Employment. The Design-Builder shall not discriminate against any employee or applicant for employment because of race, creed, sex, color, national origin, disability or age, and will take affirmative action to ensure that all employees and applicants are afforded

equal employment opportunities without discrimination because of race, creed, sex, color, national origin, disability or age. Such action will be taken with reference to, but shall not be limited to, recruitment, employment, job assignment, promotion, upgrading, demotion, transfer, layoff or termination, rates of training or retraining, including apprenticeship and on-the-job training.

B. Participation. No person shall, on the grounds of race, creed, sex, color, national origin, disability or age, be excluded from participation in, be denied the proceeds of, or be subject to discrimination in the performance of this Agreement.

13.2 Immigration Reform and Control Act of 1986. Design-Builder acknowledges that it is responsible for complying with the provisions of the Immigration Reform and Control Act of 1986, located at 8 U.S.C. Section 1324, et seq., and regulations relating thereto. Failure to comply with the above statutory provisions shall be considered a material breach and shall be grounds for immediate termination of this Agreement.

13.3 No Conflict of Interest. The Design-Builder warrants that it has not employed or retained any company or person, other than a bona fide employee working solely for the Design-Builder to solicit or secure the Design-Build Documents, and that it has not paid or agreed to pay any person, company, corporation, individual, or firm other than a bona fide employee working solely for the Design-Builder, any fee, commission, percentage, gift or any other consideration, contingent upon or resulting from the award or making of this Agreement.

A. No Interest in Business Activity. By accepting award of this Agreement, the Design-Builder, which shall include its directors, officers and employees, represents that it presently has no interest in and shall acquire no interest in any business or activity which would conflict in any manner with the performance of services required hereunder, including without limitation as described in the Design-Builder's own professional ethical requirements. An interest in a business or activity which shall be deemed a conflict includes but is not limited to direct financial interest in any of the material and equipment manufacturers, suppliers, distributors, or contractors who will be eligible to supply material and equipment for the Project for which the Design-Builder is furnishing its services required hereunder.

B. No Appearance of Conflict. The Design-Builder shall not knowingly engage in any contractual or professional obligations that create an appearance of a conflict of interest with respect to the services provided pursuant to the Design-Build Documents. The Design-Builder has provided the Affidavit of No Conflict, incorporated into the Agreement as Exhibit "B", as a material inducement for Owner entering into this Agreement. If, in the sole discretion of the County Administrator or designee, a conflict of interest is deemed to exist or arise during the term of this Agreement, the County Administrator or designee may terminate this Agreement, effective upon the date so stated in a written notice of termination, without penalty to the Owner.

13.4 Truth in Negotiations. By execution of the Design-Build Documents, the Design-Builder certifies to truth-in-negotiations and that wage rates and other factual unit costs supporting the compensation are accurate, complete and current at the time of contracting.

Further, the original Contract Sum and any additions thereto shall be adjusted to exclude any significant sums where the Owner determines the Contract Sum was increased due to inaccurate, incomplete or non-current wage rates and other factual unit costs. Such adjustments must be made within one (1) year after final payment to the Design-Builder.

13.5 Public Entity Crimes. The Design-Builder is directed to the Florida Public Entity Crimes Act, Section 287.133, Florida Statutes, specifically section (2)(a), and the Owner's requirement that the Design-Builder comply with it in all respects prior to and during the term of this Agreement.

ARTICLE XIV
FORCE MAJEURE, FIRE OR OTHER CASUALTY

14.1 Force Majeure.

A. Unavoidable Delays. Delays in any performance by any party contemplated or required hereunder due to fire, flood, sinkhole, earthquake or hurricane, acts of God, unavailability of materials, equipment or fuel, war, declaration of hostilities, revolt, civil strife, altercation or commotion, strike, labor dispute, or epidemic, archeological excavation, lack of or failure of transportation facilities, or any law, order, proclamation, regulation, or ordinance of any government or any subdivision thereof, or for any other similar cause to those enumerated, beyond the reasonable control and which with due diligence could not have been reasonably anticipated, shall be deemed to be events of Force Majeure and any such delays shall be excused. In the event such party is delayed in the performance of any Work or obligation pursuant to the Design-Build Documents for any of the events of Force Majeure stated in this Section 14.1, the date for performance required or contemplated by the Design-Build Documents shall be extended by the number of calendar days such party is actually delayed

B. Concurrent Design-Builder Delays. If a delay is caused for any reason provided in 14.1.A. or as a result of an extension of time provided by Change Order, and during the same time period a delay is caused by Design-Builder, the date for performance shall be extended as provided in 14.1.A. but only to the extent the time is or was concurrent.

C. Notice; Mitigation. The party seeking excuse for nonperformance based on Force Majeure shall give written notice to the Owner, if with respect to the Design-Builder, or to the Design-Builder, if with respect to the Owner, specifying its actual or anticipated duration. Each party seeking excuse from nonperformance based on Force Majeure shall use its best efforts to rectify any condition causing a delay and will cooperate with the other party, except that neither party shall be obligated to incur any unreasonable additional costs and expenses to overcome any loss of time that has resulted.

14.2 Casualty; Actions by Owner and Design-Builder. During the construction period, if the Project or any part thereof shall have been damaged or destroyed, in whole or in part, the Design-Builder shall promptly make proof of loss; and Owner and Design-Builder shall

proceed promptly to collect, or cause to be collected, all valid claims which may have arisen against insurers or others based upon such damage or destruction. The Design-Builder shall diligently assess the damages or destruction and shall prepare an estimate of the cost, expenses, and other charges, including normal and ordinary compensation to the Design-Builder, necessary for reconstruction of the Project substantially in accordance with the Design-Build Documents. Within fifteen (15) days following satisfaction of the express conditions described in subsections (1), (2) and (3) below, the Design-Builder covenants and agrees diligently to commence reconstruction and to complete the reconstruction or repair of any loss or damage by fire or other casualty to the Project to substantially the same size, floor area, cubic content, and general appearance as prior to such loss or damage:

(1) Receipt by the Owner or the trustee of the proceeds derived from collection of all valid claims against insurers or others based upon such damage or destruction, and receipt of other sums from any source such that the funds necessary to pay the Project cost and any additions to the Project cost necessitated for repair or reconstruction are available;

(2) Written agreement executed by the Design-Builder and the Owner, by amendment to the Design-Build Documents or otherwise, authorizing and approving the repair or reconstruction and any additions to the Project cost necessitated thereby, including any required adjustment to the Contract Sum; and

(3) Final approval by the Owner of the Design-Build Documents for such repair or reconstruction and issuance of any required building permits.

14.3 Approval of Plans and Specifications. The Owner agrees to approve the plans and specifications for such reconstruction or repair if the reconstruction or repair contemplated by such plans and specifications is economically feasible, and will restore the Project, or the damaged portion thereof, to substantially the same condition as prior to such loss or damage, and such plans and specifications conform to the applicable laws, ordinances, codes, and regulations. The Owner agrees that all proceeds of any applicable insurance or other proceeds received by the Owner or the Design-Builder as a result of such loss or damage shall be used for payment of the costs, expenses, and other charges of the reconstruction or repair of the Project.

14.4 Notice of Loss or Damage. The Design-Builder shall promptly give the Owner written notice of any significant damage or destruction to the Project, defined as loss or damage which it is contemplated by Design-Builder will increase the Contract Sum or extend the Substantial Completion Date, stating the date on which such damage or destruction occurred, the then expectations of Design-Builder as to the effect of such damage or destruction on the use of the Project, and the then proposed schedule, if any, for repair or reconstruction of the Project. Loss or damage which the Design-Builder determines will not affect the Contract Sum or Substantial Completion Date will be reported to Owner immediately, and associated corrective actions will be undertaken without delay.

ARTICLE XV
REPRESENTATIONS, WARRANTIES AND COVENANTS

15.1 Representations and Warranties of Design-Builder. The Design-Builder represents and warrants as follows:

The Design-Builder is a construction company, organized under the laws of the State of _____, authorized to transact business in the State of Florida, with _____ as the primary qualifying agent. Design-Builder has all requisite power and authority to carry on its business as now conducted, to own or hold its properties, and to enter into and perform its obligations hereunder and under each instrument to which it is or will be a party, and is in good standing in the State of Florida.

Each Contract Document to which the Design-Builder is or will be a party constitutes, or when entered into will constitute, a legal, valid, and binding obligation of the Design-Builder enforceable against the Design-Builder in accordance with the terms thereof, except as such enforceability may be limited by applicable bankruptcy, insolvency, or similar laws from time to time in effect which affect creditors' rights generally and subject to equal equitable principles in the event that equitable remedies are involved.

There are no pending or, to the knowledge of the Design-Builder, threatened actions or proceedings before any court or administrative agency, within or without the State of Florida, against the Design-Builder or any partner, officer, or agent of the Design-Builder which question the validity of any document contemplated hereunder, or which are likely in any case, or in the aggregate, to materially adversely affect the consummation of the transactions contemplated hereunder, or materially adversely affect the financial condition of the Design-Builder.

The Design-Builder has filed or caused to be filed all federal, state, local, or foreign tax returns, if any, which were required to be filed by the Design-Builder, and has paid, or caused to be paid, all taxes shown to be due and payable on such returns or on any assessments levied against the Design-Builder.

Neither Design-Builder nor any agent or person employed or retained by Design-Builder has acted fraudulently or in bad faith or in violation of any statute or law in the procurement of this Agreement.

The Design-Builder shall timely fulfill or cause to be fulfilled all of the terms and conditions expressed herein which are within the control of the Design-Builder or which are the responsibility of the Design-Builder to fulfill. The Design-Builder shall be solely responsible for the means and methods of construction.

It is recognized that neither the Design-Builder nor the Owner has control over the cost of labor, materials, or equipment, over a Contractor's methods of determining bid prices, or over competitive bidding, market, or negotiating conditions.

During the term of the Design-Build Documents, and the period of time that the obligations of the Design-Builder under the Design-Build Documents shall be in effect, the Design-Builder shall cause to occur and to continue to be in effect those instruments, documents, certificates, and events contemplated by the Design-Build Documents that are applicable to, and the responsibility of, the Design-Builder.

The Design-Builder shall assist and cooperate with the Owner and shall accomplish the construction of the Project in accordance with the Design-Build Documents and the Project Plans and Specifications, and will not knowingly violate any laws, ordinances, rules, regulations, or orders that are or will be applicable thereto.

The Design-Builder warrants and guarantees to Owner that all Work will be in accordance with the Design-Build Documents and will not be defective, and that Owner, representatives of Owner and governmental agencies with jurisdictional interests will have access to the Work at reasonable times for their observation, inspecting and testing. Design-Builder shall give Owner timely notice of readiness of the Work for all required approvals and shall assume full responsibility, including costs, in obtaining required tests, inspections, and approval certifications and/or acceptance, unless otherwise stated by Owner.

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

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

If Design-Builder fails within seven (7) days after written notice to correct defective Work, or fails to perform the Work in accordance with the Design-Build Documents, or fails to comply with any other provision of the Design-Build Documents, Owner may correct and remedy any such deficiency to the extent necessary to complete corrective and remedial action. Owner may exclude Design-Builder from all or part of the site, take possession of all or part of the Work,

Design-Builder's tools, construction equipment and machinery at the site or for which Owner has paid Design-Builder but which are stored elsewhere. All direct and indirect costs of Owner in exercising such rights and remedies will be charged against Design-Builder in an amount approved as to reasonableness by Owner and a Change Order will be issued incorporating the necessary revisions.

15.2 Representations of the Owner. To the extent permitted by law, the Owner represents to the Design-Builder that each of the following statements is presently true and accurate:

The Owner is a validly existing political subdivision of the State of Florida.

The Owner has all requisite governmental power and authority to carry on its business as now conducted and to perform its obligations under the Design-Build Documents and each Contract Document contemplated hereunder to which it is or will be a party.

The Design-Build Documents and each document contemplated hereby to which the Owner is or will be a party constitutes, or when entered into will constitute, a legal, valid, and binding obligation of the Owner enforceable against the Owner in accordance with the terms thereof, except as such enforceability may be limited by applicable bankruptcy, insolvency, or similar laws from time to time in effect which affect creditors' rights generally, and subject to usual equitable principles in the event that equitable remedies are involved.

There are no pending or, to the knowledge of the Owner, threatened actions or proceedings before any court or administrative agency against the Owner which question the validity of the Design-Build Documents or any document contemplated hereunder, or which are likely in any case or in the aggregate to materially adversely affect the consummation of the transactions contemplated hereunder or the financial or corporate condition of the Owner.

The Owner shall use due diligence to timely fulfill or cause to be fulfilled all of the conditions expressed in the Design-Build Documents which are within the control of the Owner or which are the responsibility of the Owner to fulfill.

During the pendency of the Work and while the obligations of the Owner under the Design-Build Documents shall be in effect, the Owner shall cause to occur and to continue to be in effect and take such action as may be necessary to enforce those instruments, documents, certificates and events contemplated by the Design-Build Documents that are applicable to and the responsibility of the Owner.

The Owner shall assist and cooperate with the Design-Builder in accomplishing the construction of the Project in accordance with the Design-Build Documents and the Project Plans and Specifications, and will not knowingly violate any laws, ordinances, rules, regulations, orders, contracts, or agreements that are or will be applicable thereto or, to the extent permitted by law, enact or adopt any resolution, rule, regulation, or order, or approve or enter into any contract or agreement, including issuing any bonds, notes, or other forms of indebtedness, that will result in

the Design-Build Documents or any part thereof, or any other instrument contemplated by and material to the timely and effective performance of a party's obligations hereunder, to be in violation thereof.

ARTICLE XVI
TERMINATION OR SUSPENSION

16.1 Termination or Suspension Prior to Execution of the Design-Build Amendment.

A. Design-Builder Suspension of Services. If the Owner fails to make payments to the Design-Builder in accordance with this Agreement, such failure shall be considered substantial nonperformance and cause for termination or, at the Design-Builder's option, cause for suspension of performance of services under this Agreement. If the Design-Builder elects to suspend the Work, the Design-Builder shall give seven (7) days' written notice to the Owner before suspending the Work. In the event of a suspension of the Work, the Design-Builder shall have no liability to the Owner for delay or damage caused by the suspension of the Work. Before resuming the Work, the Design-Builder shall be paid all sums due prior to suspension and any expenses incurred in the interruption and resumption of the Design-Builder's Work. The Design-Builder's compensation for, and time to complete, the remaining Work shall be equitably adjusted.

B. Owner Suspension. If the Owner suspends the Project, the Design-Builder shall be compensated for the Work performed prior to notice of such suspension. When the Project is resumed, the Design-Builder shall be compensated for expenses incurred in the interruption and resumption of the Design-Builder's Work. The Design-Builder's compensation for, and time to complete, the remaining Work shall be equitably adjusted.

C. Termination by Design-Builder for Suspension. If the Owner suspends the Project for more than ninety (90) cumulative days for reasons other than the fault of the Design-Builder, the Design-Builder may terminate this Agreement by giving not less than seven (7) days' written notice.

D. Termination for Cause. Either party may terminate this Agreement upon not less than seven (7) days' written notice should the other party fail substantially to perform in accordance with the terms of this Agreement through no fault of the party initiating the termination.

E. Owner Termination for Convenience. The Owner may terminate this Agreement upon not less than seven (7) days' written notice to the Design-Builder for the Owner's convenience and without cause.

F. Compensation to Design-Builder. In the event of termination not the fault of the Design-Builder, the Design-Builder shall be compensated for Work properly performed prior to termination, together with Reimbursable Expenses then due and any other expenses directly attributable to termination for which the Design-Builder is not otherwise compensated. In

no event shall the Design-Builder's compensation under this Section 16.1.F be greater than the compensation set forth in Section 2.1.

16.2 Termination or Suspension Following Execution of the Design-Build Amendment.

A. Termination by the Design-Builder.

(1) The Design-Builder may terminate the Agreement if the Work is stopped for a period of thirty (30) consecutive days through no act or fault of the Design-Builder, the Architect/Engineer a consultant, or a Contractor, or their agents or employees, or any other persons or entities performing portions of the Work under direct or indirect contract with the Design-Builder, for any of the following reasons:

i. Issuance of an order of a court or other public authority having jurisdiction that requires all Work to be stopped;

ii. An act of government, such as a declaration of national emergency that requires all Work to be stopped; or

iii. Because the Owner has not issued a Certificate for Payment and has not notified the Design-Builder of the reason for withholding certification as provided in Section 9.6.A, or because the Owner has not made payment on a Certificate for Payment within the time stated in the Design-Build Documents.

(2) The Design-Builder may terminate the Agreement if, through no act or fault of the Design-Builder, the Architect/Engineer a consultant, a Contractor, or their agents or employees or any other persons or entities performing portions of the Work under direct or indirect contract with the Design-Builder, repeated suspensions, delays or interruptions of the entire Work by the Owner as described in Section 16.3. constitute in the aggregate more than one hundred percent (100%) of the total number of days scheduled for completion, or one hundred and twenty (120) days in any 365-day period, whichever is less.

(3) If one of the reasons described in Section 16.2.A(1) or 16.2.A(2) exists, the Design-Builder may, upon seven (7) days' written notice to the Owner, terminate the Agreement and recover from the Owner payment for Work executed, costs incurred by reason of such termination, and damages.

(4) If the Work is stopped for a period of sixty (60) consecutive days through no act or fault of the Design-Builder or any other persons or entities performing portions of the Work under contract with the Design-Builder because the Owner has repeatedly failed to fulfill the Owner's obligations under the Design-Build Documents with respect to matters important to the

progress of the Work, the Design-Builder may, upon seven (7) additional days' written notice to the Owner, terminate the Agreement and recover from the Owner as provided in Section 16.2.A(3).

B. Termination by the Owner for Cause**.**

(1) The Owner may terminate the Agreement if the Design-Builder:

i. Fails to submit the Design-Builder's Proposal by the date required by this Agreement, or if no date is indicated, within a reasonable time consistent with the date of Substantial Completion;
ii. Repeatedly refuses or fails to supply an Architect/Engineer or enough properly skilled Consultants, Contractors, or workers or proper materials;
iii. Fails to make payment to the Architect/Engineer, Consultants, or Contractors for services, materials or labor in accordance with their respective agreements with the Design-Builder;
iv. Repeatedly disregards applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of a public authority; or
v. Is otherwise guilty of substantial breach of a provision of the Design-Build Documents.

(2) When any of the above reasons exist, the Owner may without prejudice to any other rights or remedies of the Owner and after giving the Design-Builder and the Design-Builder's surety, if any, seven (7) days' written notice, terminate employment of the Design-Builder and may, subject to any prior rights of the surety:

i. Exclude the Design-Builder from the site and take possession of all materials, equipment, tools, and construction equipment and machinery thereon owned by the Design-Builder;
ii. Accept assignment of the Architect/Engineer, Consultant and Contractor agreements pursuant to Section 3.1.Q; and
iii. Finish the Work by whatever reasonable method the Owner may deem expedient. Upon written request of the Design-Builder, the Owner shall furnish to the Design-Builder a detailed accounting of the costs incurred by the Owner in finishing the Work.

(3) When the Owner terminates the Agreement for one of the reasons stated in this Section 16.2.B, the Design-Builder shall not be entitled to receive further payment until the Work is finished.

(4) If the unpaid balance of the Contract Sum exceeds costs of finishing the Work and other damages incurred by the Owner and not expressly

waived, such excess shall be paid to the Design-Builder. If such costs and damages exceed the unpaid balance, the Design-Builder shall pay the difference to the Owner. The obligation for such payments shall survive termination of the Agreement. Notwithstanding any other provisions of the Design-Build Documents to the contrary, Owner shall have the right to bring a direct action in the Circuit Court to recover such costs and damages.

16.3 Suspension by the Owner for Convenience.

A. Right to Suspend. The Owner may, without cause, order the Design-Builder in writing to suspend, delay or interrupt the Work in whole or in part for such period of time as the Owner may determine.

B. Adjustment to Contract Time. The Contact Sum and Contract Time shall be adjusted for increases in the cost and time caused by suspension, delay or interruption as described in this Section 16.3. No adjustment shall be made to the extent that:

(1) Performance is, was or would have been so suspended, delayed or interrupted by another cause for which the Design-Builder is responsible; or

(2) An equitable adjustment is made or denied under another provision of the Agreement.

16.4 Termination by the Owner for Convenience.

A. Right to Terminate. The Owner may, at any time, terminate the Agreement for the Owner's convenience and without cause.

B. Obligation of Design-Builder Upon Termination. Upon receipt of written notice from the Owner of such termination for the Owner's convenience, the Design-Builder shall:

(1) Cease operations as directed by the Owner in the notice;

(2) Take actions necessary, or that the Owner may direct, for the protection and preservation of the Work; and

(3) Except for Work directed to be performed prior to the effective date of termination stated in the notice, terminate all existing Project agreements, including agreements with the Architect/Engineer, Consultants, Contractors, and purchase orders, and enter into no further Project agreements and purchase orders.

C. Compensation. In case of such termination for the Owner's convenience,

the Design-Builder shall be entitled to receive payment for Work properly executed, and costs incurred by reason of such termination.

ARTICLE XVII
CLAIMS AND DISPUTE RESOLUTION

17.1 Claims.

A. Definition. For purposes of this Agreement, a "claim" shall mean a demand or assertion by one of the parties seeking, as a matter of right, payment of money, or other relief with respect to the terms of the Agreement. The term "claim" also includes other disputes and matters in question between the Owner and Design-Builder arising out of or relating to the Agreement. The responsibility to substantiate Claims shall rest with the party making the claim.

B. Owner to Decide Disputes. The Owner shall reasonably decide all questions and disputes, of any nature whatsoever, that may arise in the execution and fulfillment of the services provided for under the Design-Build Documents, in accordance with the Procurement Ordinance.

C. Finality. The decision of the Owner upon all claims, questions, disputes and conflicts shall be final and conclusive, and shall be binding upon all parties to the Design-Build Documents, subject to judicial review as provided in Section 17.1.F below.

D. No Damages for Delay. In at any time Design-Builder is delayed in the performance of Design-Builder's responsibilities under the Design-Build Documents as the result of a default or failure to perform in a timely manner by Owner or Owner's agents or employees, Design-Builder shall not be entitled to any damages except for compensation specifically authorized in Article II. Design-Builder's sole remedy will be a right to extend the time for performance. Nothing herein shall preclude Design-Builder from any available remedy against any responsible party other than Owner. Design-Builder shall be responsible for liquidated damages for delay pursuant to Section 8.2.C of this Agreement.

E. Permitted Claims Procedure. Where authorized or permitted under the Design-Build Documents, all claims for additional compensation by Design-Builder, extensions of time affecting the Substantial Completion Date, for payment by the Owner of costs, damages or losses due to casualty, force majeure, Project site conditions or otherwise, shall be governed by the following:

(1) All claims must be submitted as a request for Change Order in the manner as provided in Article VI.

(2) The Design-Builder must submit a notice of claim to Owner's authorized representative within fifteen (15) days of when the Design-Builder was or should have been aware of the fact that an occurrence was likely to cause

delay or increased costs. Failure to submit a claim within the requisite 15-day period shall constitute a waiver of the right to pursue said claim.

(3) Within twenty (20) days of submitting its notice of claim, the Design-Builder shall submit to the Owner's authorized representative its request for Change Order, which shall include a written statement of all details of the claim, including a description of the Work affected.

(4) After receipt of a request for Change Order, the Owner's authorized representative shall deliver to the Contractor, within twenty (20) days after receipt of request, its written response to the claim.

(5) In the event the Owner and Design-Builder are unable to agree on the terms of a Change Order, the Owner shall have the option to instruct the Design-Builder to proceed with the Work. In that event, the Owner shall agree to pay for those parts of the Work, the scope and price of which are not in dispute. The balance of the disputed items in the order to proceed will be resolved after completion of the Work, based upon completed actual cost.

(6) The rendering of a decision by Owner with respect to any such claim, dispute or other matter (except any which have been waived by the making or acceptance of final payment) will be a condition precedent to any exercise by Owner or Design-Builder of such right or remedies as either may otherwise have under the Design-Build Documents or by laws or regulations in respect of any such claim, dispute or other matter.

F. Contract Claims and Disputes. After completion of the process set forth in Section 17.1.E above, any unresolved dispute under this Agreement shall be decided by the Purchasing Official in accordance with Section 2-26-63 of the Manatee County Code of Laws, subject to an administrative hearing process as provided in Section 2-26-64. The decision of the Board of County Commissioners in accordance with Section 2-26-64 of the Manatee County Code of Laws shall be the final and conclusive County decision subject to exclusive judicial review in circuit court by a petition for certiorari.

G. Claims for Consequential Damages. The Design-Builder and Owner waive claims against each other for consequential damages arising out of or relating to this Agreement. This mutual waiver includes:

(1) Damages incurred by the Owner for rental expenses, for losses of use, income, profit, financing, business and reputation, and for loss of management or employee productivity or of the services of such persons, unless such damages or losses are covered by insurance placed by the Contractor; and

(2) Damages incurred by the Design-Builder for principal office expenses including the compensation of personnel stationed there, for losses of

financing, business and reputation, and for loss of profit except anticipated profit arising directly from the Work.

This mutual waiver is applicable, without limitation, to all consequential damages due to either party's termination in accordance with Article XVI. Nothing contained in this Section 17.1.G shall be deemed to preclude assessment of liquidated direct damages, when applicable, in accordance with the requirements of the Design-Build Documents.

ARTICLE XVIII
MISCELLANEOUS PROVISIONS

18.1 Governing Law; Venue. This Agreement shall be governed by the laws of the State of Florida. Venue for any petition for writ of certiorari or other court action allowed by this Agreement shall be in the Circuit Court of the Twelfth Judicial Circuit in and for Manatee County, Florida.

18.2 Successors and Assigns. The Owner and Design-Builder, respectively, bind themselves, their partners, successors, assigns and legal representatives to the covenants, agreements and obligations contained in the Design-Build Documents. Except as provided in Section 3.2.Q, neither party to the Agreement shall assign the Agreement as a whole without written consent of the other. If either party attempts to make such an assignment without such consent, that party shall nevertheless remain legally responsible for all obligations under the Agreement.

18.3 Headings and Captions. The headings and captions of articles, sections and paragraphs used in this Agreement are for convenience of reference only and are not intended to define or limit their contents, nor are they to affect the construction of or to be taken into consideration in interpreting this Agreement.

18.4 Severability. The provisions of this Agreement are declared by the parties hereto to be severable. In the event any term or provision of this Agreement shall be held invalid by a court of competent jurisdiction, such invalid term or provision should not affect the validity of any other term or provision hereof; and all such terms and provisions hereof shall be enforceable to the fullest extent permitted by law as if such invalid term or provision had never been part of this Agreement. However, if any term or provision of this Agreement is held to be invalid due to the scope or extent thereof, then, to the extent permitted by law, such term or provision shall be automatically deemed modified in order that it may be enforced to the maximum scope and extent permitted by law.

18.5 Attorney's Fees and Costs. In any claim dispute procedure or litigation arising from this Agreement, each party hereto shall be solely responsible for paying its attorney's fees and costs.

18.6 Relationship of the Parties. The Design-Builder accepts the relationship of trust and confidence established by this Agreement and covenants with the Owner to exercise the

Design-Builder's best skill and judgment in furthering the interests of the Owner; to perform all of the Work in a good and workmanlike manner; to furnish efficient construction administration, management services and supervision; to furnish at all times an adequate supply of workers and materials; and to perform the Work in an expeditious and economical manner consistent with the Owner's interests.

18.7 Notices. All notices, comments, consents, objections, approvals, waivers, and elections under this Agreement shall be in writing and shall be given only by hand delivery for which a receipt is obtained, or certified mail, prepaid with confirmation of delivery requested, or by electronic mail with delivery confirmation. All such communications shall be addressed to the applicable addressees set forth below or as any party may otherwise designate in the manner prescribed herein.

To the Owner: _____

_____

_____

_____

Email: _____

To the Design-Builder: _____

_____

_____

_____

Email: _____

Notices, comments, consents, objections, approvals, waivers, and elections shall be deemed given when received by the party for whom such communication is intended at such party's address herein specified, or such other physical address or email address as such party may have substituted by notice to the other.

18.8 Public Records Law. The Design-Builder shall comply with the Florida Public Records Act (Chapter 119, Florida Statutes), and shall:

A. Keep and maintain public records required by the Owner to perform the services called for in this Agreement.
B. Upon request from the Owner's custodian of public records, provide the Owner with a copy of the requested records or allow the records to be inspected or copied within a reasonable time at a cost that does not exceed the cost provided in Chapter 119, Florida Statutes or as otherwise provided by law.
C. Ensure that public records that are exempt or confidential and exempt from public records disclosure requirements are not disclosed except as authorized

by law for the duration of this Agreement and following completion of this Agreement if the Design-Builder does not transfer the records to the Owner.

D. Upon completion of this Agreement, transfer, at no cost, to the Owner all public records in possession of the Design-Builder or keep and maintain such public records. If the Design-Builder transfers all public records to the Owner upon completion of the Agreement, the Design-Builder shall destroy any duplicate public records that are exempt or confidential and exempt from public records disclosure requirements. If the Design-Builder keeps and maintains public records upon completion of the Agreement, the Design-Builder shall meet all applicable requirements for retaining public records. All records stored electronically must be provided to the Owner, upon request from the Owner's custodian of public records, in a format that is compatible with the information technology systems of the Owner.

IF THE DESIGN-BUILDER HAS QUESTIONS REGARDING THE APPLICATION OF CHAPTER 119, FLORIDA STATUTES, TO THE DESIGN-BUILDER'S DUTY TO PROVIDE PUBLIC RECORDS RELATING TO THIS AGREEMENT, CONTACT THE OWNER'S CUSTODIAN OF PUBLIC RECORDS AT 941-748-4501, Ext. 5845; DEBBIE.SCACCIANOCE@MYMANATEE.ORG; POST OFFICE BOX 1000, BRADENTON, FLORIDA 34206.

18.9 Exhibits. Exhibits to this Agreement are as follows:

Exhibit A—Design-Build Amendment

Exhibit B—Affidavit of No Conflict

Exhibit C—Certificate(s) of Insurance

Exhibit D—Payment and Performance Bond

Exhibit E—Standard Forms

1—Application for Payment
2—Certificate of Substantial Completion
3—Final Reconciliation / Warranty / Affidavit
4—Change Order

WHEREFORE, the parties hereto have executed this Agreement as of the date last executed below.

Name of Design-Builder

By: _____

Printed Name: _____

Title: _____

Date: _____

MANATEE COUNTY, a political subdivision of the State of Florida

By: _____

Printed Name: _____

Title: _____

Date: _____

EXHIBIT A
DESIGN-BUILD AMENDMENT

This Amendment ("Amendment") is incorporated into the accompanying Design Build Agreement for _____, dated as of _____ (the "Agreement"), by and between Manatee County, a political subdivision of the State of Florida, referred to herein as "Owner", and the firm of _____, incorporated in the State of _____ and registered and licensed to do business in the State of Florida (License #_____), referred to herein as "Design-Builder".

The Owner and Design-Builder hereby amend the Agreement as follows:

TABLE OF ARTICLES

ARTICLE I
CONTRACT SUM

1.1 Contract Sum. The Owner shall pay the Design-Builder the Contract Sum in current funds for the Design-Builder's performance of the Contract after the execution of this Amendment. The Contract Sum shall be one of the following and shall not include compensation the Owner paid the Design-Builder for Work performed prior to execution of this Amendment:

(Check the appropriate box.)

☐ Stipulated Sum, in accordance with Section 1.2 below

☐ Cost of the Work plus the Design-Builder's Fee, in accordance with Section 1.3 below

☐ Cost of the Work plus the Design-Builder's Fee with a Guaranteed Maximum Price, in accordance with Section 1.4 below

(Based on the selection above, complete Section 1.2, 1.3 or 1.4 below.)

1.2 Stipulated Sum.

A. The Stipulated Sum shall be ____ dollars ($_____), subject to authorized adjustments as provided in the Design-Build Documents.

B. The Stipulated Sum is based upon the following alternates, if any, which are described in the Design-Build Documents and are hereby accepted by the Owner:
(State the numbers or other identification of accepted alternates. If the Owner is permitted to accept other alternates subsequent to the execution of this Amendment, attach a schedule of such other alternates showing the change in Stipulated Sum for each and the deadline by which the alternate must be accepted.)

C. Unit prices, if any:

(Identify item, state the unit price, and state any applicable quantity limitations.)

Item	Units and Limitations	Price per Unit ($0.00)

1.3 Cost of the Work Plus Design-Builder's Fee.

A. The Cost of the Work is as defined in Article V, Cost of the Work.

B. The Design-Builder's Fee:
(State a lump sum, percentage of Cost of the Work or other provision for determining the Design-Builder's Fee, and the method for adjustment to the Fee for changes in the Work.)

1.4 Cost of the Work Plus Design-Builder's Fee With a Guaranteed Maximum Price.

A. The Cost of the Work is as defined in Article V, Cost of the Work.

B. The Design-Builder's Fee:
(State a lump sum, percentage of Cost of the Work or other provision for determining the Design-Builder's Fee, and the method for adjustment to the Fee for changes in the Work.)

C. Guaranteed Maximum Price. The Sum of the Cost of the Work and the Design-Builder's Fee is guaranteed by the Design-Builder not to exceed ____ dollars ($_____), subject to additions and deductions for changes in the work as provided

in the Design-Build Documents. Costs that would cause the Guaranteed Maximum Price to be exceeded shall be paid by the Design-Builder without reimbursement by the Owner.
(Insert specific provisions if the Design-Builder is to participate in any savings.)

D. Itemized Statement of the Guaranteed Maximum Price. Provided below is an itemized statement of the Guaranteed Maximum Price organized by trade categories, allowances, contingencies, alternates, the Design-Builder's Fee, and other items that comprise the Guaranteed Maximum Price.
(Provide information below or reference an attachment.)

E. The Guaranteed Maximum Price is based on the following alternates, if any, which are described in the Design-Build Documents and are hereby accepted by the Owner:
(State the numbers or other identification of accepted alternates. If the Owner is permitted to accept other alternates subsequent to the execution of this Amendment, attach a schedule of such other alternates showing the change in the Cost of the Work and Guaranteed Maximum Price for each and the deadline by which the alternate must be accepted.)

F. Unit prices, if any:
(Identify item, state the unit price, and state any applicable quantity limitations.)

Item	Units and Limitations	Price per Unit ($0.00)

G. Assumptions, if any, on which the Guaranteed Maximum Price is based:

1.5 Payments.

A. Progress Payments.

(1) Based upon Applications for Payment submitted to the Owner by the Design-Builder, the Owner shall make progress payments on account of the Contract Sum to the Design-Builder as provided below and elsewhere in the Design-Build Documents.

(2) The period covered by each Application for Payment shall be one calendar month ending on the last day of the month, or as follows:

(3) With each Application for Payment where the Contract Sum is based upon the Cost of the Work, or the Cost of the Work with a Guaranteed Maximum Price, the Design-Builder shall submit payrolls, petty cash accounts, receipted invoices or invoices with check vouchers attached, and any other evidence required by the Owner to demonstrate that cash disbursements already made by the Design-Builder on account of the Cost of the Work equal or exceed (1) progress payments already received by the Design-Builder, less (2) that portion of those payments attributable to the Design-Builder's Fee; plus (3) payrolls for the period covered by the present Application for Payment.

(4) With each Application for Payment where the Contract Sum is based upon a Stipulated Sum or Cost of the Work with a Guaranteed Maximum Price, the Design-Builder shall submit the most recent schedule of values in accordance with the Design-Build Documents. The schedule of values shall allocate the entire Contract Sum among the various portions of the Work. Compensation for design services, if any, shall be shown separately. Where the Contract Sum is based on the Cost of the Work with a Guaranteed Maximum Price, the Design-Builder's Fee shall be shown separately. The schedule of values shall be prepared in such form and supported by such data to substantiate its accuracy as the Owner may require. This schedule of values, unless objected to by the Owner, shall be used as a basis for reviewing the Design-Builder's Applications for Payment.

(5) In taking action on the Design-Builder's Applications for Payment, the Owner shall be entitled to rely on the accuracy and completeness of the information furnished by the Design-Builder and shall not be deemed to have made a detailed examination, audit or arithmetic verification of the documentation submitted in accordance with Sections 1.5.A(3) or 1.5.A(4), or other supporting data; to have made exhaustive or continuous on-site inspections; or to have made examinations to ascertain how or for what purposes the Design-Builder has used amounts previously paid. Such examinations, audits and verifications, if required by the Owner, will be performed by the Owner's auditors acting in the sole interest of the Owner.

(6) Except with the Owner's prior approval, the Design-Builder shall not make advance payments to suppliers for materials or equipment which have not been delivered and stored at the site.

B. Progress Payments-Stipulated Sum.

(1) Applications for Payment where the Contract Sum is based upon a Stipulated Sum shall indicate the percentage of completion of each portion of the Work as of the end of the period covered by the Application for Payment.

(2) Subject to other provisions of the Design-Builder Documents, the amount of each progress payment shall be computed as follows:

.1 Take that portion of the Contract Sum properly allocable to completed Work as determined by multiplying the percentage completion of each portion of the Work by the share of the Contract Sum allocated to that portion of the Work in the schedule of values, less retainage of five percent (5%). Pending final determination of costs to the Owner of changes in the work, amounts not in dispute shall be included as provided in Section 6.6 of the Agreement;

.2 Add that portion of the Contract Sum properly allocable to materials and equipment delivered and suitably stored at the site for subsequent incorporation in the completed construction (or, if approved in advance by the Owner, suitably stored off the site at a location agreed upon in writing), supported by paid receipts, less retainage of five percent (5%);

.3 Subtract the aggregate of previous payments made by the Owner; and

.4 Subtract amounts, if any, the Owner has withheld or nullified, as provided in Section 9.5 of the Agreement.

(3) The progress payment amount determined in accordance with Section 1.5.B(2) shall be further modified under the following circumstances:

.1 Add, upon Substantial Completion of the Work, a sum sufficient to increase the total payments to the full amount of the Contract Sum, less such amounts as the Owner shall determine for incomplete Work, retainage applicable to such work and unsettled claims; and

.2 Add, if final completion of the Work is thereafter materially delayed through no fault of the Design-Builder, any additional amounts payable in accordance with Section 9.10 of the Agreement.

C. Progress Payments-Cost of the Work Plus a Fee.

(1) Where the Contract Sum is based upon the Cost of the Work plus a fee without a Guaranteed Maximum Price, Applications for Payment shall show the Cost of the Work actually incurred by the Design-Builder through the end of the period covered by the Application for Payment and for which Design-Builder has made or intends to make actual payment prior to the next Application for Payment.

(2) Subject to other provisions of the Design-Build Documents, the amount of each progress payment shall be computed as follows:

.1 Take the Cost of the Work as described in Section 1.5C.(1) above;

.2 Add the Design-Builder's Fee, less retainage of five percent (5%). The Design-Builder's Fee shall be computed upon the Cost of the Work described in the preceding Section 1.5.C(2).1 at the rate stated in Section 1.3.B; or if the Design-Builder's Fee is stated as a fixed sum in that Section, an amount which bears the same ratio to that fixed-sum fee as the Cost of the Work in that Section bears to a reasonable estimate of the probable Cost of the Work upon its completion;

.3 Subtract retainage of five percent (5%) from that portion of the Work that the Design-Builder self-performs;

.4 Subtract the aggregate of previous payments made by the Owner;

.5 Subtract the shortfall, if any, indicated by the Design-Builder in the documentation required by Section 1.5.A(4) or resulting from errors subsequently discovered by the Owner's auditors in such documentation; and

.6 Subtract amounts, if any, for which the Owner has withheld or withdrawn a Certificate of Payment as provided in the Section 9.5 of the Agreement.

(3) The Owner and Design-Builder shall agree upon (1) a mutually acceptable procedure for review and approval of payments to the Architect, Consultants, and Contractors and (2) the percentage of retainage held on agreements with the Architect, Consultants, and Contractors, and the Design-Builder shall execute agreements in accordance with those terms.

D. Progress Payments-Cost of the Work Plus a Fee with a Guaranteed Maximum Price.

(1) Applications for Payment where the Contract Sum is based upon the Cost of the Work Plus a Fee with a Guaranteed Maximum Price shall show the percentage of completion of each portion of the Work as of the end of the period covered by the Application for Payment. The percentage of completion shall be the lesser of (1) the percentage of that portion of the Work which has actually been completed; or (2) the percentage obtained by dividing (a) the expense that had actually been incurred by the Design-Builder on account of that portion of the Work for which

the Design-Builder has made or intends to make actual payment prior to the next Application for Payment by (b) the share of the Guaranteed Maximum Price allocated to that portion of the Work in the schedule of values.

(2) Subject to other provisions of the Design-Build Documents, the amount of each progress payment shall be computed as follows:

.1 Take that portion of the Guaranteed Maximum Price properly allocable to completed Work as determined by multiplying the percentage of completion of each portion of the Work by the share of the Guaranteed Maximum Price allocated to that portion of the Work in the schedule of values. Pending final determination of costs to the Owner of changes in the Work, amounts not in dispute shall be included as provided in Section 6.6 of the Agreement.

.2 Add that portion of the Guaranteed Maximum Price properly allocable to materials and equipment delivered and suitably stored at the site for subsequent incorporation in the Work (or, if approved in advance by the Owner, suitably stored off the site at a location agreed upon in writing), supported by paid receipts;

.3 Add the Design-Builder's Fee less retainage of five percent (5%). The Design-Builder's Fee shall be computed upon the Cost of the Work at the rate stated in Section 1.4.B or, if the Design-Builder's Fee is stated as a fixed sum in that section, shall be an amount that bears the same ratio to that fixed-sum fee as the Cost of the Work bears to a reasonable estimate of the probable Cost of the Work upon its completion;

.4 Subtract retainage of five percent (5%) from that portion of the Work that the Design-Builder self-performs;

.5 Subtract the aggregate of previous payments made by the Owner;

.6 Subtract the shortfall, if any, indicated by the Design-Builder in the documentation required by Section 1.5.A(4) to substantiate prior Applications for Payment, or resulting from errors subsequently discovered by the Owner's auditors in such documentation; and

.7 Subtract amounts, if any, for which the Owner has withheld or nullified a payment as provided in Section 9.5 of the Agreement.

(3) The Owner and Design-Builder shall agree upon (1) a mutually acceptable procedure for review and approval of payments to the Architect, Consultants, and Contractors and (2) the percentage of retainage held on agreements with the Architect, Consultants, and Contractors, and the Design-Builder shall execute agreements in accordance with those terms.

E. Reduction or limitation of retainage.

Upon completion of at least fifty percent (50%) of the Work, as determined by the Owner, the Owner may reduce to two and one-half percent (2.5%) the amount of retainage withheld from each subsequent progress payment.

F. Final Payment.

(1) Final payment, constituting the entire unpaid balance of the Contract Sum, shall be made by the Owner to the Design-Builder not later than 30 days after the Design-Builder has fully performed the Agreement and the requirements of Section 9.10 of the Agreement have been satisfied, except for the Design-Builder's responsibility to correct non-conforming Work discovered after final payment or to satisfy other requirements, if any, which extend beyond final payment.

(2) If the Contract Sum is based on the Cost of the Work, the Owner's auditors will review and report in writing on the Design-Builder's final accounting within 30 days after the Design-Builder delivers the final accounting to the Owner. Based upon the Cost of the Work the Owner's auditors report to be substantiated by the Design-Builder's final accounting, and provided the other conditions of Section 9.10 of the Agreement have been met, the Owner will, within seven days after receipt of the written report of the Owner's auditors, either issue a final Certificate for Payment, or notify the Design-Builder in writing of the reasons for withholding a certificate as provided in Section 9.5.1 of the Agreement.

ARTICLE II
CONTRACT TIME

2.1 Contract Time. Contract Time is the period of time, including authorized adjustments, for Substantial Completion of the Work.

2.2 Substantial Completion. The Design-Builder shall achieve Substantial Completion of the Work not later than ___ (__) days from the date of this Agreement, or as follows:

(Insert number of calendar days. Alternately, a calendar date may be used when coordinated with the date of commencement. If appropriate, insert requirements for earlier Substantial Completion of certain portions of the Work.)

Portion of Work	**Substantial Completion Date**

subject to adjustments of the Contract Time as provided in the Design-Build Documents.
The Design-Builder's failure to achieve Substantial Completion within the Contract Time will result in the Design-Builder being liable for payment to Owner of liquidated damages as set forth in Section 8.2.C of the Agreement.

ARTICLE III
INFORMATION UPON WHICH AMENDMENT IS BASED

3.1 Documents. The Contract Sum and Contract Time set forth in this Amendment are based on the following:

Document	Title	Date	Pages

A. The Supplementary and other Conditions of the Contract:

Document	Title	Date	Pages

B. The Specifications:
(Either list the specifications here or refer to an exhibit to this Amendment.)

Section	Title	Date	Pages

C. The Drawings:
(Either list the drawings here or refer to an exhibit to this Amendment.)

Number	Title	Date

D. The Sustainability Plan, if any:
(If the Owner identified a Sustainable Objective in the Owner's Criteria, identify the document or documents that comprise Sustainability Plan by title, date and

number of pages, and include other identifying information. The Sustainability Plan identifies and describes the Sustainable Objectives; the targeted Sustainable Measures; implementation strategies selected to achieve the Sustainable Measures; the Owner's and Design-Builder's role and responsibilities associated with achieving the Sustainable Measures; the specific details about design reviews; testing or metrics to verify achievement of each Sustainable Measure; and the Sustainability Documentation required for the Project.)

Title	Date	Pages

E. Other identifying information:

F. Allowances and Contingencies:
(Identify any agreed upon allowances and contingencies, including a statement of their basis.)

.1 Allowances

.2 Contingencies

G. Design-Builder's assumptions and clarifications:

H. Deviations from the Owner's Criteria as adjusted by a Modification:

I. To the extent that Design-Builder shall be required to submit any additional Submittals to the Owner for review, indicate any such submission below:

ARTICLE IV
DESIGN-BUILDER'S PERSONNEL, CONTRACTORS AND SUPPLIERS

4.1 Personnel. The Design-Builder's key personnel are identified below:
(Identify name, title and contact information.)

.1 Superintendent

.2 Project Manager

.3 Others

4.2 Consultants, Contractors. The Design-Builder shall retain the following Consultants, Contractors and suppliers, identified below:

(List name, discipline, address and other information.)

ARTICLE V
COST OF THE WORK

5.1 Costs To Be Reimbursed as Part of the Agreement.

A. Labor Cost. Wages of construction workers directly employed by the Design-Builder to perform the construction of the Work at the site or, with the Owner's prior approval, at off-site workshops.

B. With the Owner's prior approval, wages or salaries of the Design-Builder's supervisory and administrative personnel when stationed at the site.
(If it is intended that the wages or salaries of certain personnel stationed at the Design-Builder's principal or other offices shall be included in the Cost of the Work, identify below the personnel to be included, whether for all or only part of their time, and the rates at which their time will be charged to the Work.)

Person included/Status (full-time/part-time)/Rate($0.00)/Rate(unit of time)

(1) Wages and salaries of the Design-Builder's supervisory or administrative personnel engaged at factories, workshops or on the road, in expediting the production or transportation of materials or equipment required for the Work, but only for that portion of their time required for the Work.

(2) Costs paid or incurred by the Design-Builder for taxes, insurance, contributions, assessments and benefits required by law or collective bargaining agreements and, for personnel not covered by such agreements, customary benefits such as sick leave, medical and health benefits, holidays, vacations and pensions, provided such costs are based on wages and salaries included in the Cost of the Work under Section 5.1.A.

(3) Bonuses, profit sharing, incentive compensation and any other discretionary payments paid to anyone hired by the Design-Builder or paid to the Architect/Engineer or any Consultant, Contractor or supplier, with the Owner's prior approval.

C. Contract Costs. Payments made by the Design-Builder to the Architect, Consultants, Contractors and suppliers in accordance with the requirements of their subcontracts.

D. Costs of Materials and Equipment Incorporated in the Completed Construction.

(1) Costs, including transportation and storage, of materials and equipment incorporated or to be incorporated in the completed construction.

(2) Costs of materials described in the preceding Section 5.1.D(1) in excess of those actually installed to allow for reasonable waste and spoilage. Unused excess materials, if any, shall become the Owner's property at the completion of the Work or, at the Owner's option, shall be sold by the Design-Builder. Any amounts realized from such sales shall be credited to the Owner as a deduction from the Cost of the Work.

E. Costs of Other Materials and Equipment, Temporary Facilities and Related Items.

(1) Costs of transportation, storage, installation, maintenance, dismantling and removal of materials, supplies, temporary facilities, machinery, equipment and hand tools not customarily owned by construction workers that are provided by the Design-Builder at the site and fully consumed in the performance of the Work. Costs of materials, supplies, temporary facilities, machinery, equipment and tools that are not fully consumed shall be based on the cost or value of the item at the time it is first used on the Project site less the value of the item when it is no longer used at the Project site. Costs for items not fully consumed by the Design-Builder shall mean fair market value.

(2) Rental charges for temporary facilities, machinery, equipment and hand tools not customarily owned by construction workers that are provided by the Design-Builder at the site, and costs of transportation, installation, minor repairs, dismantling and removal. The total rental cost of any Design-Builder owned item may not exceed the purchase price of any comparable item. Rates of Design-Builder-owned equipment and quantities of equipment shall be subject to the Owner's prior approval.

(3) Costs of removal of debris from the site of the Work and its proper and legal disposal.

(4) Costs of document reproduction, electronic communications, postage and parcel delivery charges, dedicated data and communications service, teleconferences, Project websites, extranets and reasonable petty cash expenses of the site office.

(5) Costs of materials and equipment suitably stored off the site at a mutually acceptable location, with the Owner's prior approval.

F. Miscellaneous Costs.

(1) Premiums for that portion of insurance and bonds required by the Design-Build Documents that can be directly attributed to the Agreement and, with the Owner's prior approval, self-insurance costs for either full or partial amounts of the coverages required by the Design-Build Documents.

(2) Sales, use or similar taxes imposed by a governmental authority that are related to the Work and for which the Design-Builder is liable.

(3) Fees and assessments for the building permit and for other permits, licenses and inspections which the Design-Builder is required by the Design-Build Documents to pay.

(4) Fees of laboratories for tests required by the Design-Build Documents, except those related to defective or nonconforming Work for which reimbursement is excluded by Section 11.2 of the Agreement or by other provisions of the Design-Build Documents, and which do not fall within the scope of Section 5.1.F(3).

(5) Royalties and license fees paid for the use of particular design, process or product required by the Design-Build Documents; the cost of defending suits or claims for infringement of patent rights arising from such requirement of the Design-Build Documents; and payments made in accordance with legal judgments against the Design-Builder resulting from such suits or claims and payments of settlements made with the Owner's consent. However, such costs of legal defenses, judgments and settlements shall not be included in the calculation of the Design-Builder's Fee or subject to the Guaranteed Maximum Price. If such royalties, fees and costs are excluded pursuant to Section 5.1.O of the Agreement or other provisions of the Design-Build Documents, then they shall not be included in the Cost of the Work.

(6) With the Owner's prior written approval, costs for electronic equipment and software directly related to the Work.

(7) Deposits lost for causes other than the Design-Builder's negligence or failure to fulfill a specific responsibility in the Design-Build Documents.

(8) With the Owner's prior written approval, legal, mediation and arbitration costs, including attorney's fees, other than those arising from the disputes between the Owner and Design-Builder, reasonably incurred by the Design-Builder after the execution of the Agreement and in the performance of the Work.

(9) With the Owner's prior written approval, expenses incurred in accordance with the Design-Builder's standard written personnel policy for relocation, and temporary living allowances of, the Design-Builder's personnel required for the Work.

(10) That portion of the reasonable expenses of the Design-Builder's supervisory or administrative personnel incurred while traveling in discharge of duties connected with the Work.

G. Other Costs and Emergencies.

(1) Other costs incurred in the performance of the Work if, and to the extent, approved in advance in writing by the Owner.

(2) Costs incurred in taking action to prevent threatened damage, injury or loss in case of an emergency affecting the safety of persons and property.

(3) Costs of repairing or correcting damaged or nonconforming Work executed by the Design-Builder, Contractors or suppliers, provided that such damaged or nonconforming Work was not caused by negligence or failure to fulfill a specific responsibility of the Design-Builder and only to the extent that the cost of repair or correction is not recovered by the Design-Builder from insurance, sureties, Contractors, suppliers, or others.

H. Related Party Transactions.

(1) The term "related party" shall mean a parent, subsidiary, affiliate or other entity having common ownership or management with the Design-Builder; any entity in which any stockholder in, or management employee of, the Design-Builder owns any interest in excess of ten percent in the aggregate; or any person or entity which has the right to control the business or affairs of the Design-Builder. The term "related party" incudes any member of the immediate family of any person identified above.

(2) If any of the costs to be reimbursed arise from a transaction between the Design-Builder and a related party, the Design-Builder shall notify the Owner of the specific nature of the contemplated transaction, including the identity of the related party and the anticipated cost to be incurred, before any such transaction is consummated or cost incurred. If the Owner, after such notification, authorizes the proposed transaction, then the cost incurred shall be included as a cost to be reimbursed, and the Design-Builder shall procure the Work, equipment, goods or service from the related party, as a Contractor, according to the terms of Section 5.4. If the Owner fails to authorize the transaction, the Design-Builder shall procure the Work, equipment, goods or service from some person or entity other than a related party according to the terms of Section 5.4.

5.2 Costs Not to Be Reimbursed. The Cost of the Work shall not include the items listed below:

A. Salaries and other compensation of the Design-Builder's personnel stationed at the Design-Builder's principal office or offices other than the site office, except as specifically provided in Section 5.1.B;

B. Expenses of the Design-Builder's principal office and offices other than the site offices;

C. Overhead and general expenses, except as may be expressly included in Section 5.1;

D. The Design-Builder's capital expenses, including interest on the Design-Builder's capital employed for the Work;

E. Except as provided in Section 5.1.G(3), costs due to the negligence or failure of the Design-Builder, Contractors and suppliers or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable to fulfill a specific responsibility of the Agreement;

F. Any cost not specifically and expressly described in Section 5.1; and

G. Costs, other than costs included in Change Orders approved by the Owner, that would cause the Guaranteed Maximum Price to be exceeded.

5.3 Discounts, Rebates, and Refunds.

A. Cash discounts obtained on payments made by the Design-Builder shall accrue to the Owner if (1) before making the payment, the Design-Builder included them in an Application for Payment and received payment from the Owner, or (2) the Owner has deposited funds with the Design-Builder with which to make payments; otherwise, cash discounts shall accrue to the Design-Builder. Trade discounts, rebates, refunds and amounts received from sales of surplus materials and equipment shall accrue to the Owner, and the Design-Builder shall make provisions so that they can be obtained.

B. Amounts that accrue to the Owner in accordance with Section 5.3.A shall be credited to the Owner as a deduction from the Cost of the Work.

5.4 Other Agreements.

A. When the Design-Builder has provided a Guaranteed Maximum Price, and a specific bidder (1) is recommended to the Owner by the Design-Builder; (2) is qualified to perform that portion of the Work; and (3) has submitted a bid that conforms to the requirements of the Design-Build Documents without reservations or exceptions, but the Owner requires that another bid be accepted, then the Design-Builder may require that a Change Order be issued to adjust the Guaranteed Maximum Price by the difference between the bid of the person or entity recommended to the Owner by the Design-Builder and the amount of the subcontract or other agreement actually signed with the person or entity designated by the Owner.

B. Agreements between the Design-Builder and Contractors shall conform to the applicable payment provisions of the Design-Build Documents, and shall not be awarded on the basis of cost plus a fee without the prior consent of the Owner. If an agreement between the Design-Builder and a Contractor is awarded on a cost plus a fee basis, the Design-Builder shall provide in the agreement for the Owner

to receive the same audit rights with regard to the Cost of the Work performed by the Contractor as the Owner receives with regard to the Design-Builder in Section 5.5, below.

C. The agreements between the Design-Builder and Architect, Contractors and other Consultants identified in the Agreement shall be in writing. These agreements shall be promptly provided to the Owner upon the Owner's written request.

5.5 Accounting Records. The Design-Builder shall keep full and detailed records and accounts related to the Cost of the Work and exercise such controls as may be necessary for proper financial management under the Agreement and to substantiate all costs incurred. The accounting and control systems shall be satisfactory to the Owner. The Owner and the Owner's auditors shall, during regular business hours and upon reasonable notice be afforded access to, and shall be permitted to audit and copy, the Design-Builder's records and accounts, including complete documentation supporting accounting entities, books, correspondence, instructions, drawings, receipts, subcontracts, Contractor's proposals, purchase orders, vouchers, memoranda and other data relating to the Agreement. The Design-Builder shall preserve these records for a period of three years after final payment, or for such longer periods as may be required by law.

WHEREFORE, the parties hereto have entered into this Amendment as of the date last executed below.

_____
Name of Design-Builder

By: _____

Printed Name: _____

Title: _____

Date: _____

MANATEE COUNTY, a political subdivision of the State of Florida

By: _____

Printed Name: _____

Title: _____

Date: _____