REQUEST FOR PROPOSAL

CITY OF NAPLES
PURCHASING DIVISION
CITY HALL, 735 8TH STREET SOUTH
NAPLES, FL 34102
PH: 239-213-7100 FX: 239-213-7105

NOTIFICATION DATE:	TITLE	NUMBER:	OPENING DATE & TIME:
10/30/12	Port Royal and Public Works Pump Station Request for Professional Engineering Services	004-13	11/20/2012 2:00 PM

PRE-PROPOSAL DATE, TIME AND LOCATION:
A non-mandatory pre-bid meeting will be held on November 7, 2012, 10:00AM at the Purchasing Office, 735 8th Street South, Naples, FL 34102

NAME OF PARTNERSHIP, CORPORATION OR INDIVIDUAL:

MAILING ADDRESS:

PLEASE NOTE THE FOLLOWING:

CITY-STATE-ZIP:	
PH:	**EMAIL:**
FX:	**WEB ADDRESS:**

> **This page must be completed and returned with your proposal.**

AUTHORIZED SIGNATURE	DATE	PRINTED NAME/TITLE

Please initial by all that apply
I acknowledge receipt of the following addendum

_____Addendum #1 _____Addendum #2 _____Addendum #3 _____Addendum #4

of Naples all rights, title, and interest in and to all causes of action it may now or hereafter acquire under the Anti-trust laws of the United States and the State of FL for price fixing relating to the particular commodities or services purchased or acquired by the City of Naples. At the City's discretion, such assignment shall be made and become effective at the time the City tenders final payment to the proposer.

> **Proposals must be submitted in a sealed envelope, marked with proposal number & closing date.**
> **Proposals received after the above closing date and time will not be accepted.**
> **Proposal tabulations will be available on the City of Naples web site www.naplesgov.com**

GENERAL CONDITIONS

TO INSURE ACCEPTANCE OF THE PROPOSAL, PLEASE FOLLOW THESE INSTRUCTIONS. ANY AND ALL SPECIAL CONDITIONS, ATTACHED HERETO, HAVE PRECEDENCE.

1. SEALED PROPOSAL: All proposals must be submitted in a sealed envelope. The face of the envelope shall contain the proposal name and proposal number. Proposals not submitted on attached proposal form shall be rejected. All proposals are subject to the conditions specified herein. Those which do not comply with these conditions are subject to rejection.

2. EXECUTION OF PROPOSAL: Proposal must contain a manual signature of authorized representative in the proposal section. Proposal must be typed or printed in ink. Use of erasable ink is not permitted. All corrections made by proposer to his proposal must be initialed.

3. NO PROPOSAL: If not submitting a proposal, respond by returning the Statement of No Proposal and explain the reason in the spaces provided. Failure to respond 3 times in succession without justification shall be cause for removal of the supplier's name from the proposal mailing list. NOTE: To qualify as a respondent, proposer must submit a "NO PROPOSAL," and it must be received no later than the stated proposal opening date and hour.

4. PROPOSAL OPENING: Shall be public, on the date and at the time specified on the proposal form. It is the proposer's responsibility to assure that his proposal is delivered at the proper time and place of the proposal opening. Proposals which for any reason are not so delivered will not be considered. Offers by telegram; telephone; or fax are not acceptable. Proposal files may be examined during normal working hours.

5. WITHDRAWAL OF PROPOSALS: Withdrawal of a proposal within sixty (60) days after the opening of proposals is subject to suspension or debarment in accordance with Policy 7-4 for up to three years.

6. PRICES, TERMS and PAYMENT: Firm Prices shall be proposal and include all packing, handling, shipping charges and delivery to the destination shown herein. Proposer is encouraged to offer cash discount for prompt invoice payment. Terms of less than 20 days will not be considered.

A. TAXES: The City of Naples does not pay Federal Excise and Sales taxes on direct purchases of tangible personal property. See exemption number on face of purchase order. This exemption does not apply to purchases of tangible personal property made by contractors who use the tangible personal property in the performance of contracts for the improvement of City-owned real property.

B. MISTAKES: Proposers are expected to examine the specifications, delivery schedule, proposal prices, extensions, and all instructions pertaining to supplies and services. Failure to do so will be at proposer's risk. In case of mistake in extension, the unit price will govern.

C. CONDITION AND PACKAGING: It is understood and agreed that any item offered or shipped as a result of this proposal shall be a new, current standard production model available at the time of this proposal. All containers shall be suitable for storage or shipment, and all prices shall include standard commercial packaging.

D. SAFETY STANDARDS: Unless otherwise stipulated in the proposal, all manufactured items and fabricated assemblies shall comply with applicable requirements of Occupational Safety and Health Act and any standards there under.

E. UNDERWRITERS' LABORATORIES: Unless otherwise stipulated in the proposal, all manufactured items and fabricated assemblies shall carry U.L. approval and re-examination listing where such has been established.

F. PAYMENT: Payment will be made by the buyer after the items awarded to a vendor have been received, inspected, and found to comply with award specifications, free of damage or defect and properly invoiced. All invoices shall bear the purchase order number. Payment for partial shipments shall not be made unless specified in the proposal. Failure to follow these instructions may result in delay in processing

invoices for payment. In addition, the purchase order number must appear on bills of lading, packages, cases, delivery lists and correspondence.

7. DELIVERY: Unless actual date of delivery is specified (or if specified delivery cannot be met), show number of days required to make delivery after receipt of purchase order in space provided. Delivery time may become a basis for making an award (see Special Conditions). Delivery shall be within the normal working hours of the user, Monday through Friday, unless otherwise specified.

8. MANUFACTURERS' NAMES AND APPROVED EQUIVALENTS: Any manufacturers' names, trade names, brand names, information and/or catalog numbers listed in a specification are for information and not intended to limit competition. The proposer may offer any brand for which he is an authorized representative, which meets or exceeds the specification for any item(s). If proposals are based on equivalent products, indicate on the proposal form the manufacturer's name and number. Proposer shall submit with his proposal, cuts, sketches, and descriptive literature, and/or complete specifications. Reference to literature submitted with a previous proposal will not satisfy this provision. The proposer shall also explain in detail the reason(s) why the proposed equivalent will meet the specifications and not be considered an exception thereto. Proposals which do not comply with these requirements are subject to rejection. Proposals lacking any written indication of intent to quote an alternate brand will be received and considered in complete compliance with the specifications as listed on the proposal form.

9. INTERPRETATIONS: Any questions concerning conditions and specifications shall be directed in writing to this office for receipt no later than ten (10) days prior to the proposal opening. Inquiries must reference the date of proposal opening and proposal number. Failure to comply with this condition will result in proposer waiving his right to dispute the proposal.

10. CONFLICT OF INTEREST: All proposal awards are subject to Section 2-973 Conflict of Interest, City of Naples Code of Ordinances, which states: *"No public officer or employee shall have or hold any employment or contractural relationship with any business entity or any agency which is subject to the regulation of or is doing business with the city; nor shall an officer or employee have or hold any employment or contractual relationship that will create a continuing or frequently recurring conflict between his private interests and the performance of his public duties or that would impede the full and faithful discharge of his public duties. Any member of the city council or any city officer or employee who willfully violates this section shall be guilty of malfeasance in office or position and shall forfeit his office or position. Violation of this section with the knowledge, express or implied, of the person or corporation contracting with or making a sale to the city shall render the contract or sale voidable by the city manager or the city council."*

11. AWARDS: As the best interest of the City may require, the right is reserved to make award(s) by individual item, group of items, all or none, or a combination thereof; to reject any and all proposals or waive any minor irregularity or technicality in proposals received.

12. ADDITIONAL QUANTITIES: For a period not exceeding ninety (90) days from the date of acceptance of this offer by the buyer, the right is reserved to acquire additional quantities up to but not exceeding those shown on proposal at the prices proposal in this invitation. If additional quantities are not acceptable, the proposal sheets must be noted "PROPOSAL IS FOR SPECIFIED QUANTITY ONLY." (THIS PARAGRAPH DOES NOT APPLY FOR A TERM CONTRACT.)

13. SERVICE AND WARRANTY: Unless otherwise specified, the proposer shall define any warranty service and replacements that will be provided during and subsequent to this contract. Proposers must explain on an attached sheet to what extent warranty and service facilities are provided.

14. SAMPLES: Samples of items, when called for, must be furnished free of expense, on or before proposal opening time and date, and if not destroyed may, upon request, be returned at the proposer's expense. Each individual sample must be labeled with proposer's name, manufacturer's brand name and number, proposal number and item reference. Request for return of samples shall be accompanied by instructions which include shipping authorization and name of carrier and must be received with your

proposal. If instructions are not received within this time, the commodities shall be disposed of by the City of Naples.

15. PROPOSAL PROTEST: The city has formal proposal protest procedures that are available on request.

16. INSPECTION, ACCEPTANCE AND TITLE: Inspection and acceptance will be at destination unless otherwise provided. Title and risk of loss or damage to all items shall be the responsibility of the contract supplier until accepted by the ordering agency, unless loss or damage results from negligence by the ordering

17. DISPUTES: In case of any doubt or difference of opinion as to the items to be furnished hereunder, the decision of the buyer shall be final and binding on both parties.

18. GOVERNMENTAL RESTRICTIONS: In the event any governmental restrictions may be imposed which would necessitate alteration of the material, quality, workmanship or performance of the items offered on this proposal prior to their delivery, it shall be the responsibility of the successful proposer to notify the buyer at once, indicating in his letter the specific regulation which required an alteration. The City reserves the right to accept any such alteration, including any price adjustments occasioned thereby, or to cancel the contract at no expense to the City.

19. LEGAL REQUIREMENTS: Applicable provision of all Federal, State, county and local laws, and of all ordinances, rules, and regulations shall govern development submittal and evaluation of all proposals received in response hereto and shall govern any and all claims and disputes which may arise between person(s) submitting a proposal response hereto and the City of Naples by and through its officers, employees and authorized representatives, or any other person, natural or otherwise; and lack of knowledge by any proposer shall not constitute a cognizable defense against the legal effect thereof.

20. PATENTS AND ROYALTIES: The proposer, without exception, shall indemnify and save harmless the City of Naples and its employees from liability of any nature or kind, including cost and expenses for or on account of any copyrighted, patented, or unpatented invention, process, or article manufactured or used in the performance of the contract, including its use by the City of Naples. If the proposer uses any design, device, or materials covered by letters, patent or copyright, it is mutually agreed and understood without exception that the proposal prices shall include all royalties or cost arising from the use of such design, device, or materials in any way involved in the work.

21. ADVERTISING: In submitting a proposal, proposer agrees not to use the results there from as a part of any commercial advertising.

22. ASSIGNMENT: Any Purchase Order issued pursuant to this proposal invitation and the monies which may become due hereunder are not assignable except with the prior written approval of the buyer.

23. LIABILITY: The supplier shall hold and save the City of Naples, its officers, agents, and employees harmless from liability of any kind in the performance of this contract.

24. PUBLIC ENTITY CRIMES: A person or affiliate who has been placed on the convicted vendor list following a conviction for a public entity crime may not submit a proposal on a contract to provide any goods or services to a public entity, may not submit a proposal on a contract with a public entity for the construction or repair of a public building or public work, may not submit proposals on leases of real property to a public entity, may not be awarded or perform work as a contractor, supplier, subcontractor, or 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.

25. DISCRIMINATION: An entity or affiliate who has been placed on the discriminatory vendor list may not submit a proposal on a contract to provide goods or services to a public entity, may not submit a

proposal on a contract with a public entity for the construction or repair of a public building or public work, may not submit proposals on leases of real property to a public entity, may not award or perform work as a contractor, supplier, subcontractor, or consultant under contract with any public entity, and may not transact business with any public entity.

26. COUNTY TAXES: No proposal shall be accepted from and no contract will be awarded to any person, firm or corporation that is in arrears to the government of Collier County, Florida.

27. OFFER EXTENDED TO OTHER GOVERNMENTAL ENTITIES: The City of Naples encourages and agrees to the successful proposer extending the pricing, terms and conditions of this solicitation or resultant contract to other governmental entities at the discretion of the successful proposer.

IF THIS PROPOSAL IS FOR A TERM CONTRACT, THE FOLLOWING CONDITIONS SHALL ALSO APPLY

28. ELIGIBLE USERS: All departments of the City of Naples are eligible to use this term contract. Such purchases shall be exempt from the competitive proposal requirements otherwise applying to their purchases.

29. PRICE ADJUSTMENTS: Any price decrease effectuated during the contract period by reason of market change shall be passed on to City of Naples. Price increases are not acceptable.

30. CANCELLATION: All contract obligations shall prevail for at least one hundred eighty (180) days after effective date of contract. After that period, for the protection of both parties, this contract may be cancelled in whole or in part by either party by giving thirty (30) days prior written notice to the other party.

31. RENEWAL: The City of Naples reserves the option to renew the period of this contract, or any portion thereof for up to two (2) additional periods. Renewal of the contract period shall be by mutual agreement in writing.

32. ABNORMAL QUANTITIES: While it is not anticipated, should any unusual or abnormal requirements arise, the City reserves the right to solicit separate proposals thereon.

33. FISCAL NON-FUNDING CLAUSE: In the event sufficient funds are not budgeted for a new fiscal period, the City shall notify the contractor of such occurrence and the contract shall terminate on the last day of the current fiscal year without penalty or expense to the City.

IF THIS PROPOSAL IS FOR PERFORMING A SERVICE, THE FOLLOWING CONDITIONS SHALL ALSO APPLY

34. ALTERNATIVE PROPOSALS: Proposers offering service delivery methods other than those permitted by the scope of work may submit a separate envelope clearly marked "ALTERNATIVE PROPOSAL". Alternative proposals will be deemed non-responsive and will not be considered for award. All such responses will, however, be examined prior to award. Such examination may result in cancellation of all proposals received to permit rewriting the scope of work to include the alternative method, or the alternative method may be considered for future requirements of the City of Naples.

35. ANTITRUST: By entering into a contract, the contractor conveys, sells, assigns and transfers to the City of Naples all rights, titles and interest it may now have or hereafter acquire under the antitrust laws of the United States and the State of Florida that relate to the particular goods or services purchased or acquired by the City of Naples under said contract.

36. PROPOSER INVESTIGATIONS: Before submitting a proposal, each proposer shall make all investigations and examinations necessary to ascertain all site conditions and requirements affecting the full performance of the contract and to verify any representations made by the City of Naples upon which the proposer will rely. If the proposer receives an award as a result of its proposal submission, failure to have made such investigations and examinations will in no way relieve the proposer from its obligation to comply in every detail with all provisions and requirements of the contract documents, nor will a plea of ignorance of such conditions and requirements be accepted as a basis for any claim whatsoever by the contractor for additional compensation.

37. CERTIFICATES AND LICENSES: The Contractor, at time of proposal, shall possess the correct occupational licenses, all professional licenses or other authorizations necessary to carry out and perform the work required by the City of Naples and Collier County for this project pursuant to all applicable Federal, State and Local Laws, Statues, Ordinances, and rules and regulations of any kind.

38. CHANGE IN SCOPE OF WORK: The City of Naples may order changes in the work consisting of additions, deletions or other revisions within the general scope of the contract. No claims may be made by the contractor that the scope of the project or of the contractor's services has been changed, requiring changes to the amount of compensation to the contractor or other adjustments to the contract unless such changes or adjustments have been made by written amendment to the contract signed by the City of Naples and the contractor. If the contractor believes that any particular work is not within the scope of the project, is a material change, or will otherwise require more compensation to the contractor, the contractor must immediately notify the City in writing of this belief. If the City believes that the particular work is within the scope of the contract as written, the contractor will be ordered to and shall continue with the work as changed and at the cost stated for the work within the scope.

39. CONTRACTOR PERSONNEL: The City of Naples shall, throughout the life of the contract, have the right of reasonable rejection and approval of staff or subcontractors assigned to the work by the contractor. If the City reasonably rejects staff or subcontractors, the contractor must provide replacement staff or subcontractors satisfactory to the City in a timely manner and at no additional cost to the City. The day-to-day supervision and control of the contractor’s employees and sub-contractors is the responsibility solely of the contractor.

40. COST REIMBURSEMENT: The contractor agrees that all incidental costs, including allowances for profit and tools of the trade, must be included in the proposal proposal rates. If an arrangement is made between the contractor and the City to reimburse the contractor for the cost of materials provided in the performance of the work, the contractor shall be reimbursed in the following manner: The City shall reimburse the contractor on completion and acceptance of each assigned job, only for those materials actually used in the performance of the work that is supported by invoices issued by the suppliers of the contractor describing the quantity and cost of the materials purchased. No surcharge shall be added to the supplier's invoices or included in the contractor's invoice submitted to the City that would increase the dollar amount indicated on the supplier's invoice for the materials purchased for the assigned job.

41. EXCEPTIONS: Proposers taking exception to any part or section of the solicitation shall indicate such exceptions on the proposal form. Failure to indicate any exception will be interpreted as the proposer's intent to comply fully with the requirements as written. Conditional or qualified proposals, unless specifically allowed, shall be subject to rejection in whole or in part.

42. FAILURE TO DELIVER: In the event of the contractor to fail to deliver services in accordance with the contract terms and conditions, the City, after due oral or written notice, may procure the services from other sources and hold the contractor responsible for any resulting purchase and administrative costs. This remedy shall be in addition to any other remedies that the City may have.

43. FAILURE TO ENFORCE: Failure by the City at any time to enforce the provisions of the contract shall not be construed as a waiver of any such provisions. Such failure to enforce shall not affect the validity of the contract or any part thereof or the right of the City to enforce any provision at any time in accordance with its terms.

44. FORCE MAJEURE: The contractor shall not be held responsible for failure to perform the duties and responsibilities imposed by the contract due to legal strikes, fires, riots, rebellions and acts of God beyond the control of the contractor, unless otherwise specified in the contract.

45. INDEPENDENT CONTRACTOR: The contractor shall be legally considered an independent contractor and neither the contractor nor its employees shall, under any circumstances, be considered servants or agents of the City of Naples and the City of Naples shall be at no time legally responsible for any negligence or any wrongdoing by the contractor, its servants or agents. The City of Naples shall not withhold from the contract payments to the contractor any federal income taxes, Social Security tax, or any other amounts for benefits to the contractor. Further, the City shall not provide to the contractor any insurance coverage or other benefits, including Workers' Compensation normally provided by the City for its employees.

46. ORAL STATEMENTS: No oral statement of any person shall modify or otherwise affect the terms, conditions or specifications stated in this contract. All modifications to the contract must be made in writing by the City of Naples.

47. QUALIFICATIONS OF PROPOSERS: The proposer may be required, before the award of any contract, to show to the complete satisfaction of the City of Naples that it has the necessary facilities, ability, and financial resources to provide the service specified therein in a satisfactory manner. The proposer may also be required to give a past history and references in order to satisfy the City in regard to the proposer's qualifications. The City may make reasonable investigations deemed necessary and proper to determine the ability of the proposer to perform the work, and the proposer shall furnish to the City all information for this purpose that may be requested. The City reserves the right to reject any proposal if the evidence submitted by, or investigation of, the proposer fails to satisfy the City that the proposer is properly qualified to carry out the obligations of the contract and to complete the work described therein. Evaluation of the proposer's qualifications shall include:

> The ability, capacity, skill and financial resources to perform the work or service.
> The ability to perform the work service promptly or within the time specified, without delay.
> The character, integrity, reputation, judgment, experience, and efficiency of the proposer.
> The quality of performance of previous contracts or services.

48. QUALITY CONTROL: The contractor shall institute and maintain throughout the contract period a properly documented quality control program designed to ensure that the services are provided at all times and in all respects in accordance with the contract. The program shall include providing daily supervision and conducting frequent inspections of the contractor's staff and ensuring that accurate records are maintained describing the disposition of all complaints. The records so created shall be open to inspection by the City.

49. RECOVERY OF MONEY: Whenever, under the contract, any sum of money shall be recoverable from or payable by the contractor to the City, the same amount may be deducted from any sum due to the contractor under the contract or under any other contract between the contractor and the City. The rights of the City are in addition and without prejudice to any other right the City may have to claim the amount of any loss or damage suffered by the City on account of the acts or omissions of the contractor.

50. REQUIREMENTS CONTRACT: During the period of the contract, the contractor shall provide all the services described in the contract. The contractor understands and agrees that this is a requirements contract and that the City shall have no obligation to the contractor if no services are required. Any quantities that are included in the scope of work reflect the current expectations of the City for the period of the contract. The amount is only an estimate and the contractor understands and agrees that the City is under no obligation to the contractor to buy any amount of services as a result of having provided this estimate or of having any typical or measurable requirement in the past. The contractor further understands and agrees that the City may require services in excess of the estimated annual contract amount and that the quantity actually used whether in excess of, or less than, the estimated annual contract amount and that the quantity actually used

shall not give rise to any claim for compensation other than the total of the unit prices in the contract for the quantity actually used.

51. TERMINATION FOR CONVENIENCE: The performance of work under the contract may be terminated by the City in whole or in part whenever the City determines that termination is in the City's best interest. Any such termination shall be effected by the delivery to the contractor of a written notice of termination of at least seven (7) days before the date of termination, specifying the extent to which performance of the work under the contract is terminated and the date upon which such termination becomes effective. After receipt of a notice of termination, except as otherwise directed, the contractor shall stop work on the date of the receipt of the notice or other date specified in the notice; place no further orders or subcontracts for materials, services or facilities except as necessary for completion of such portion of the work not terminated; terminate all vendors and subcontracts; and settle all outstanding liabilities and claims.

52. TERMINATION FOR DEFAULT: The City of Naples reserves the right to terminate the contract if the City determines that the contractor has failed to perform satisfactorily the work required, as determined by the City. In the event the City decides to terminate the contract for failure to perform satisfactorily, the City shall give to the contractor at least seven (7) days written notice before the termination takes effect. The seven-day period will begin upon the mailing of notice by the City. If the contractor fails to cure the default within the seven (7) days specified in the notice and the contract is terminated for failure to perform satisfactorily, the contractor shall be entitled to receive compensation for all reasonable, allocable and allowable contract services satisfactorily performed by the contractor up to the date of termination that were accepted by the City prior to the termination. In the event the City terminates the contract because of the default of the contractor, the contractor shall be liable for all excess costs that the City is required to expend to complete the work under contract.

53. STATE AND FEDERAL EMPLOYMENT LAWS: Contractors providing service to the City are required to comply with all state and federal employment laws. This includes, but is not limited to, laws resulting from the Immigration and Reform and Control Act of 1986, wherein all employers are required to verify the identity and employment eligibility of all employees. The Department of Homeland Security, U.S. Citizenship and Immigration Services require employees and employers to complete Form I-9 and the employer must examine evidence of identity and employment eligibility within three business days of the date employment begins. Non compliant contractors will be subject to contract sanctions, up to and including contract termination.

54. CERTIFICATION REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY, AND VOLUNTARY EXCLUSION: The contractor agrees to comply with Executive Order 12549 “Debarment and Suspension” and 2 CFR 180 “OMB Guidelines to Agencies on Government wide Debarment and Suspension.” These rules require all contractors using federal funds not be debarred or suspended from doing business with the Federal Government. This includes sub-recipients and lower tier participant for covered transactions. Signing and submitting this document certified the organization and its principals are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any federal department or agency, and further have not within the preceding three-year period been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction.

GENERAL INSURANCE REQUIREMENTS

The Contractor shall not commence work until he has obtained all the insurance required under this heading, and until such insurance has been approved by the Owner, nor shall the Contractor allow any subcontractor to commence work until all similar insurance required of the subcontractor has also been obtained and approved by the Owner.

Certificates of insurance must be issued by an authorized representative of the insurance company at the request and direction of the policyholder and must include sufficient information so as to identify the coverage and the contract for Owner's improvements for which they are issued. Certificates of insurance must be issued by a nationally recognized insurance company with a Best's Rating of no less than B+VII, satisfactory to the Owner, and duly licensed to do business in the state of said Contract.

The Contractor shall procure and maintain, during the life of this Contract, Workmen's Compensation Insurance for all of his employees to be engaged in work under this Contract, and he shall require any subcontractor similarly to provide Workmen's Compensation Insurance for all of the latter's employees to be engaged in such work, unless such employees are covered by the protection afforded by the Contractor's insurance. In case any employees are to be engaged in hazardous work under this Contract, and are not protected under this Workmen's Compensation statute, the Contractor shall provide, and shall cause each subcontractor to provide, adequate coverage for the protection of such employees. It is acceptable to use a State-approved Workmen's Compensation Self-Insurance fund.

The Contractor shall take out and maintain during the life of this Contract, Public Liability and Property Damage and shall include Contractual Liability, Personal Injury, Libel, Slander, False Arrest, Malicious Prosecution, Wrongful Entry or Eviction, Broad Form Property Damage, Products, Completed Operations and XCU Coverage to be included on an occurrence basis, and to the full extent of the Contract to protect him, the Owner, and any subcontractor performing work covered by this Contract from damages for personal injury, including accidental death, as well as from claims for property damage, which may arise from operations under this contract, whether such operations be by himself or by a subcontractor, or by anyone directly or indirectly employed by either of them. The Contractor shall also maintain automobile liability insurance including "non-owned and hired" coverage. The entire cost of this insurance shall be borne by the Contractor.

The amount of such insurance shall be no less than $1,000,000 annual aggregate for bodily injury and property damage combined per occurrence.

The City of Naples must be named as Additional Insured on the insurance certificate and the following must also be stated on the certificate. "These coverage's are primary to all other coverage's the City possesses for this contract only." The City of Naples shall be named as the Certificate Holder. The Certificate Holder shall read as follows:

The City of Naples
735 Eighth Street South
Naples, Florida 34102

No City Division, Department, or individual name should appear on the Certificate.
No other format will be acceptable.

The Certificate must state the bid number and title.

When using the ACORD 25 – Certificate of Insurance only the most current version will be accepted.

The City of Naples requires a copy of a cancellation notice in the event the policy is cancelled. The City of Naples shall be expressly endorsed onto the policy as a cancellation notice recipient.

STATEMENT OF NO PROPOSAL

If you will not be bidding on this product/service, please help us by completing and returning only this page to:

City of Naples, Purchasing Division
City Hall, 735 8th Street South
Naples, FL 34102
Fax 239-213-7105

Proposal #_____ and Description: _____

We, the undersigned, decline to proposal on the above project for the following reason(s):

___ **We are not able to respond to the Invitation to Proposal or Request for Proposals by the specified deadline.**
___ **Our Company does not offer this product or service.**
___ **Our current work schedule will not permit us to perform the required services.**
___ **Specifications are incomplete or information is unclear (Please explain below).**

_____

_____

___ **Other (Please specify below)**

_____

_____

Company Name_____ PH _____
Name and Title of individual completing this form:

_____
(Printed Name) (Title)

_____
(Signature) (Date)

REFERENCES

THIS SHEET MUST BE COMPLETED AND RETURNED WITH PROPOSAL

PROVIDE AT LEAST THREE REFERENCES FOR WHOM YOUR COMPANY HAS PROVIDED SAME OR SIMILAR SERVICES WITHIN THE LAST 2 YEARS.

COMPANY NAME: _____

ADDRESS: _____

TELEPHONE: _____

CONTACT PERSON: _____

CONTACT E-MAIL ADDRESS: _____

COMPANY NAME: _____

ADDRESS: _____

TELEPHONE: _____

CONTACT PERSON: _____

CONTACT E-MAIL ADDRESS: _____

COMPANY NAME: _____

ADDRESS: _____

TELEPHONE: _____

CONTACT PERSON: _____

CONTACT E-MAIL ADDRESS: _____

SPECIAL CONDITIONS

A. TERMS OF CONTRACT

The resulting contract will commence on award and be in effect until completion of the project.

B. PROHIBITION OF CONTACT

Under no circumstances should any prospective organization or individual, or anyone acting for or on behalf of a prospective organization or individual, seek to influence or gain the support of any member of the City Council, public official or City staff favorable to the interest of any prospective organization or individual. Likewise, contact with City Council, any public official or city staff against the interests of other prospective organization (s) and or individual(s) is prohibited. Any such activities will result in the exclusion of the prospective organization or individual from consideration by the City**.**

C. PROPOSAL PERFORMANCE & PAYMENT BONDS

A Proposal Security Bond shall be submitted with the final proposal, if the total proposal is greater than $125,000.00, in an amount equal to at least five percent (5%) of the total amount of the final proposal, or the equivalent in the form of a certified check or money order made payable to the City of Naples, Florida**.** Upon the award of the proposal to the successful proposer, both proposal performance bond and the payment bond will be required in the amount of one hundred percent (100%) of the price specified in the contract.

D. QUESTIONS

Questions regarding this proposer packet must be received in writing in the Purchasing Division**, NO LATER THAN TEN CALENDAR DAYS PRIOR TO THE PROPOSAL CLOSING DATE TO ENSURE AN ANSWER IS PROVIDED PRIOR TO CLOSING**.

Direct all questions to:

John Dunnuck, Purchasing Manager
City of Naples, Purchasing Division
735 8th Street South
Naples, Florida 34102
PH: (239) 213-7100 FX: (239) 213-7105
jdunnuck@naplesgov.net

PORT ROYAL AND PUBLIC WORKS PUMP STATION IMPROVEMENTS
PROFESSIONAL ENGINEERING SERVICES

1. SCOPE OF SERVICES

Port Royal Stormwater Pump Station Improvements

Motor & Pump Equipment
The existing motors and pumps have reportedly exceeded their useful lives, and should be replaced. The existing pumps have individual capacities of 2,500 gpm, and each engine is rated at 15 hp. Pump and motor sizes will be evaluated to best serve this high volume, low head application. The pumps are submersibles but have no rails making maintenance dangerous. A pump railing system should be incorporated. Attached for review under EXHIBIT A are existing design documents and Impeller performance curves relating to the pumps.

Wet Well
The existing wet well should be evaluated for structural integrity and any holes or leaks causing groundwater infiltration. Lining of the wet well may be necessary.

Debris Removal
There is currently no debris removal system in place. Debris removal options should be considered. Given the lack of space on the Port Royal Stormwater Pump Station site, a mechanical bar screen is not feasible. Inlet protection at the roadside catch basins and debris containment at the lake discharges are to be considered.

Automation Systems (Floats)
The pumps are actuated (on/off) by individual float systems. The type of control system will be evaluated and upgraded and/or replaced to provide the most efficient type of service.

SCADA/Telemetry Issues
The existing telemetry system is a Data Flow (TAC II). Upgrades should be compatible with the Data Flow product, which is used throughout the City. A new control panel with remote control should be installed.

Pump Capacity (actual vs. permitted)
The pump capacities will be evaluated to determine the most efficient mode of operation. The use of variable frequency drives and/or different pump capacities will also be evaluated.

Outfall Conditions
The integrity of the outfall pipes and flap gate to the east side of Treasure Lane will be evaluated.

Other Considerations
The Port Royal Stormwater Pump Station must remain in service. Continued operation of the Pump Station is required during construction of the recommended improvements. The recommended improvements must also consider blending the facilities into the surrounding environment.

Public Works Stormwater Pump Station Improvements

Background

The Public Works Stormwater Pump Station was retrofitted in 2001 and includes two (2) electric driven pumps. Each pump has a rated capacity of 21,000 gallons per minute (gpm). Additionally there is an electric jockey pump with a rated capacity of 5,000 gallons per minute (gpm). The pump station serves a drainage area with over 200 acres of residential and commercial use and is identified as Basin VI and Basin VII by the City of Naples (City). Attached for review under EXHIBIT B are the As-Builts and Operators Manual relating to this pump station.

The City is concerned about sediment build-up at the outfall of the pump station into the Gordon River as well as contaminant levels in the downstream water body of Naples Bay. Naples Bay is on the US EPA's list of impaired waters due to low dissolved oxygen and the presence of nutrients and coliform bacteria above regulated levels. Stormwater discharges are the typical sources of such contaminants. Naples Bay is also the subject of a Surface Water Improvement and Management Plan prepared by the South Florida Water Management District, which was completed in January 2007.

The objective of this project is to evaluate existing conditions of the pump station, bar screen, grit removal system, control paneling, and make recommendations for improvements. The improvements may be phased, depending on financial and permitting requirements. Specifically, the City has identified the following areas of concern to be evaluated and addressed:

Motor & Pump Equipment

The existing motors and pumps have reportedly exceeded their useful lives, and should be replaced. The existing pumps have individual capacities of 21,000 gpm, and each engine is rated at 125 hp. Pump and motor sizes will be evaluated to best serve this high volume, low head application. Currently, the motor shafts are cooled/lubricated with reclaimed water which has accelerated the corrosion. Alternative cooling/lubricating sources should be evaluated and recommended.

Debris Removal

Debris is currently removed mechanically from wetwell via the catenary bar screen system at influent structure. This system is outdated and service costs are increasingly high. Evaluate construction of a new automatic screening/grit removal structure on the pump station site. The configuration could be similar to the structure at the Cove stormwater pump station on Broad Avenue.

Automation Systems (Floats)

The pumps are actuated (on/off) by individual float systems. The type of control system will be evaluated and upgraded and/or replaced to provide the most efficient type of service.

SCADA/Telemetry Issues

The existing telemetry system is a Data Flow (TAC II). Upgrades should be compatible with the Data Flow product, which is used throughout the City.

Pump Capacity (actual vs. permitted)

The pump capacities will be evaluated to determine the most efficient mode of operation. The use of variable frequency drives and/or different pump capacities will also be evaluated.

Outfall Conditions
The integrity of the outfall pipes, box culvert, header wall and sedimentation basin on the east side of Riverside Circle will be evaluated.

Transmission Main
A transmission main and additional pump from the pump station site to The City of Naples Wastewater Treatment Plant ASR facility will also be evaluated.

Other Considerations
The Public Works Stormwater Pump Station must remain in service. Continued operation of the Pump Station is required during construction of the recommended improvements. The recommended improvements must also consider blending the facilities into the surrounding environment.

2. TECHNICAL APPROACH AND PHASING

The scope of services for the planning, design and construction of the Stormwater Pump Station Improvements will be completed under the following phases: Phase 1 - Preliminary Design; Phase 2 - Detailed Design; and Phase 3 - Construction.

PHASE 1 - PRELIMINARY DESIGN

The main objective of the Preliminary Design Phase is to establish the basis of design for the Stormwater Pump Station. The Preliminary Design Phase will include a topographic survey of the existing Pump Station site, an evaluation on the areas of concern identified above, and preparation of a Basis of Design Report.

Topographic Survey of Existing Pump Station Site
The topographic survey of the existing Pump Station site will consist of the following:

- Incorporate available information of existing property lines, public right-of-ways & easement information from the City's Engineering Department.
- Coordinate with the City's Streets & Stormwater Department and Utilities Department to locate possible conflicts with the existing water distribution and wastewater collection piping systems and alternative water sources to reclaimed water.
- Perform topographic and existing condition survey within the anticipated project site boundary.
- Prepare a CAD file of the topographic and existing condition survey to be utilized for the existing and proposed site plan.

Basis of Design Report
A Basis of Design Report will be prepared to document the recommended design for the Stormwater Pump Stations. This Report will address requirements in the Florida Administrative Code (FAC) 62-25, Regulation of Stormwater Discharge and include sufficient detail such that the Report can be submitted with an Application for a Stormwater General Permit to the FDEP. The Report will include:

- Project Description
- Existing and proposed Site Plans of the Stormwater Pump Station Improvements.
- Evaluation of pump controls and SCADA and telemetry system
- Evaluation of existing pump replacement. Consider the use of different pump capacities.

- Evaluation of current pump station operating schedule. Modifications to the schedule will be included in the new permit application for the pump station improvements.
- Evaluation of the pump station outfall pipes, box culvert, header wall, and sedimentation basin.
- Evaluation of automatically cleaned bar screens for stormwater debris removal
- Written description of the recommended improvements and ancillary facilities with supporting literature and manufacturer's product information
- Description of additional investigations for final design, if needed
- Estimate of Probable Construction Cost (EPCC)
- Description of construction matters and project schedule
- Required Permits/Approvals

A draft Basis of Design Report will be prepared and submitted to the City for review and comment. After meeting with the City staff and addressing the City's comments, a final Basis of Design Report will be submitted to the City and the FDEP.

PHASE 2 - DETAILED DESIGN

The detailed design will be initiated after approval of the Basis of Design Report. The construction plans will be prepared in electronic format on 24-inch by 36-inch drawings using AutoCadd. The technical specifications will be prepared in Construction Specifications Institute (CSI) format using MSWord. The Information for Bidders, Form of Contract, and General and Supplementary Conditions will be in accordance with the City's standard construction bid documents. The design will consist of 60-, 90-, and 100-Percent Complete Submittals, or at other intervals specified by the City.

60-Percent Design

The selected firm will complete the following activities resulting in the submission and review of a 60-percent design submittal:

- Prepare five copies of 60-percent design drawings and specifications: Based upon the concepts presented in the Basis of Design Report (30-percent) submittal, comments received from the City, and the completion of the 30-percent design review meeting, the firm will prepare the 60-percent design submittal.
- The contract drawings will include site plans and outside piping layout, mechanical plans and sections, operational and control descriptions of major equipment and Process and instrumentation diagrams (P&ID). The Specifications will include front end and Division 1 and all major equipment specifications
- The firm will contact Sunshine State One Call of Florida (SSOCF) to identify utility companies who operate inside the project area and request markup of their existing underground utilities.
- Attend a 60-percent design review meeting to discuss the contents and concepts of the submittal and receive the City's comments. Prepare meeting minutes for distribution to all meeting attendees.

90-Percent Design

The firm will complete the following activities resulting in the submission and review of a 90-percent design submittal:

- Prepare five copies of the 90-percent design drawings and specifications: Based upon comments received from the City staff on the 60-percent design review, the firm will prepare the 90-percent design submittal.

- Prepare an updated EPCC to be submitted with the 90-percent design submittal.
- Prepare an updated project schedule for inclusion with the 90-percent design submittal.
- Attend a 90-percent design review meeting to discuss the contents and concepts of the submittal and to receive the City comments. Prepare meeting minutes for distribution to all meeting attendees.

100-Percent Design

The firm will complete the following activities resulting in the submission and review of a 100-percent design submittal:

- Prepare five copies of the 100-percent design drawings and specifications: Based upon comments received from the City staff on the 90-percent design review, the firm will prepare the 100-percent design submittal.
- Prepare updated (Final) EPCC to be submitted with the 100-percent design submittal.
- Prepare an updated project schedule for inclusion with the 100-percent design submittal.
- Based upon the comments received from City staff on the 100% design submittal, The firm will finalize the contract documents and provide the bid documents for bidding the project. A CD with the AutoCadd drawing files and MS Word specification files will also be submitted to the City.

Permitting

This phase of work includes completing permit applications identified in the Basis of Design Report. The firm will prepare and submit permit applications and respond to Requests for Information. Anticipated permits include:

- FDEP Stormwater General Permit.
- Community Development and Environmental Services (CDES) Insubstantial Change and Building Permits.
- FDEP/SFWMD Constructed Wetlands Permit, if needed

PHASE 3 - CONSTRUCTION

The construction phase services provide a means of ensuring the proposed facilities are properly constructed in accordance with the contract requirements. The following services will be provided:

Bidding Assistance

The firm will coordinate with the City on advertising the request for bid, attending the pre-bid meeting and preparing meeting minutes, recording any inquiries from prospective bidders, issuing addenda to the contract documents, through the City Purchasing Manager preparing a summary of bids received, evaluating the bids, and preparing a letter of recommendation for award of the contract.

Construction Phase Basic Services

During construction of the project, the firm will provide construction phase basic services. The construction phase basic services will include the following:

- Attend pre-construction meeting and preparation of meeting minutes.
- Attend monthly construction progress meetings and prepare meeting minutes. The construction schedule will be reviewed during the progress meetings, and any recommendations required to maintain/ improve the schedule will be made to the Contractor.

- Visit the site of the proposed improvements and visually observe the construction areas designated on the construction plans in cooperation with the City's utility staff. Site visits will be conducted in conjunction with progress meetings.
- The firm will receive, review, and process submittals from Contractor specified for such review in the contract documents. We also will prepare and maintain a log of submittals to include submittal number, subject, and date received, reviewer, action taken and date returned. Review is to be limited to conformance with the design concept of the project and compliance with the information given in the contract documents. Such reviews or other action shall not extend to means, methods, techniques, sequences, or procedures of construction or safety program of the Contractor.
- Prepare responses to Contractor's Requests-for-Information. The firm will provide interpretations of the contract documents and will provide clarifications or explanations of the design intent and requirements. Prepare sketches as required to resolve differing conditions encountered. The firm will also prepare and maintain a log of all such received requests, noting the date received, subject, resolution and date response was returned to the Contractor. All such reviews and replies will be in writing.
- Assist City with management of proposed Changes to the Work by preparing Requests-for-Proposed-Changes, evaluating and responding to Contractor claims, preparing contract change orders.
- Provide consultation and advice to the City's Project Manager during construction.
- Assist the City with review of progress payments. After receipt and review of each application for payment from the Contractor, provide written notice to the City recommending payment to the Contractor, or return the request to the Contractor providing written notice of The firm's reason for disapproval.
- Assist City with the following services related to Contract Closeout:
  1) Perform Substantial Completion walk through and develop final punch list in conjunction with City staff.
  2) Prepare a "Certification of Construction Completion and request for a Letter of Clearance" for submittal to FDEP after the work has been completed per FDEP requirements.
  3) Subsequent to the completion of all punch list items, The firm will perform a Final Completion walk through in conjunction with City staff.
  4) Assist with review of final pay request. Upon receipt of the Contractor's request for final payment, the firm will inspect and, if acceptable, submit to the City its recommendation as to acceptance of the work and as to the final payment request of the Contractor.
  5) Prepare signed and sealed "As-Constructed" (record) drawings from information provided by the Contractor required for project certifications. The firm will submit record drawings to the appropriate regulatory agencies and provide the City with a copy of the record drawings on a CD.

CONSTRUCTION PHASE RESIDENT PROJECT REPRESENTATIVE SERVICES

If mutually agreed with the City, the firm will provide a Resident Project Representative (RPR) who will visit the project site daily and perform the following services:

- Review materials and workmanship of the Project and report to the City any deviations from the Contract Documents that may come to the RPR's attention; determine the acceptability of work and materials; and make recommendation to the City to reject items not meeting the requirements of the Contract Documents.

- Recommend to the City in writing that the work, or designated portions thereof, be stopped temporarily by City if, in the firm's judgment, such action is necessary to allow proper inspection, avoid irreparable damage to the work, or avoid subsequent rejection of work which could not be readily replaced or restored to an acceptable condition. If the City elects to stop the work, the firm will assist in determining whether or not the work is in general conformance with the requirements of the Contract Documents.
- Prepare daily, weekly, and monthly construction progress reports in a format acceptable to the City.
- Maintain field notes and field construction photographs.
- Maintain appropriate field records to document actual or potential disputes or claims, with respect to construction of the Project.
- Observe operations or performance testing and report findings to the City.

Start-up Services
The firm will provide startup assistance to coordinate with equipment manufacturers for training and startup services that will be provided to the City personnel.

- Start-up services at the Stormwater Pump Stations will be attended by members of the project team (Project Manager and the electrical/instrumentation engineer) to ensure that items of equipment operate in accordance with specified design parameters.
- The firm will prepare a start-up plan and will submit the information to the City for review and modification before actual startup.

OPERATION AND MAINTENANCE MANUALS

The firm will assemble O&M manuals from the contractor into one binder and submit to the City. The manual will be prepared in sufficient time to accommodate staff training to be done by equipment vendors prior to equipment startup. O&M Manual will include:

- Original manufacturer's literature and prints of shop drawings in each copy of the manual. Manufacturer's literature and shop drawings are to be organized and filed by equipment identification number. Each piece of equipment discussed in the manual will have a reference section that will include, at a minimum, reference to the project specifications by specification number and drawing by number. The O&M manual will also include preventative maintenance requirements, spare part lists, and startup/shut down requirements from the manufacturer.
- Five copies of the draft manual are to be furnished for City review. Comments will be received from the City, after which, five copies of the final manual and one electronic copy will be delivered to the City.

3. SELECTION CRITERIA

The evaluation of proposals will be made on a pre-determined basis as follows:

	Maximum Points
Qualifications and Experience of Firm	30
Qualifications of Staff to be Assigned	20

Demonstrated Record of Past Performance and References	25
Approach to this project.	20
Certified Minority Business Enterprise	5

The Selection Committee will be comprised of five (5) members. Interviews of the proposers may be required, either in person or by phone. The committee will submit a recommendation for selection to the City Council for final determination.

Selection Submittals

1. Qualified firms interested in providing the services described are invited to submit details regarding their firm's (or team's) qualifications as related to the projects outlined in this RFP. Submittals shall address the items listed within a maximum of 50 single-sided pages. Failure to provide all requested items may be sufficient cause for non-acceptance of the proposal.

2. The proposer may provide additional information; however it shall be placed at the end of the proposer's submittal in a section separated from the remainder of the proposal.

    a. Qualifications and Experience of the Firm: Provide information on the qualifications and experience of the firm and its team, including any subconsultants, in the area of the subject of this RFP.

    b. Qualifications of the Principal Staff to be Assigned to City Projects: Describe the qualifications and experience of the key staff to be assigned to the City projects including demonstrated knowledge and understanding of the types of services to be performed; previous experience in similar or related work. Should subconsultant(s) be listed as part of the project team, the proposer shall provide a letter from each subconsultant that indicates the subconsultant's intent to be part of the project team.

    c. Demonstrated Record of Past Performance With References:
    Provide examples of the firm's and consultant's current or past projects with detailed information on schedule adherence, quality of work and project cost control. Proposer shall include a list of a minimum of three (3) references, for similar projects only.

    d. Approach to the Project
    Provide a methodology and strategy of how the consultant will achieve the goals of the project.

    e. Certified Minority Business Entity:
    Provide certification that the firm is a Certified Minority Business Entity.

    e. Request for Qualifications Cover Sheet:
    Complete and include this form as the cover sheet to your proposal. Do not forget to have an authorized individual sign in the appropriate block.

4. REQUEST FOR PROPOSAL CHECKLIST

Bidder should check off each of the following items as the necessary action is completed:

1. The Proposal has been signed.

2. Any addendum must have been acknowledged on the cover sheet.

3. Information is submitted relating to the selection criteria (Section 4)

4. Original and **six** copies of Proposal have been submitted.

5. The mailing envelope has been addressed to:

   City of Naples
   Purchasing Division
   735 8th Street South
   Naples, Florida 34102

6. The mailing envelope should be sealed and marked with:

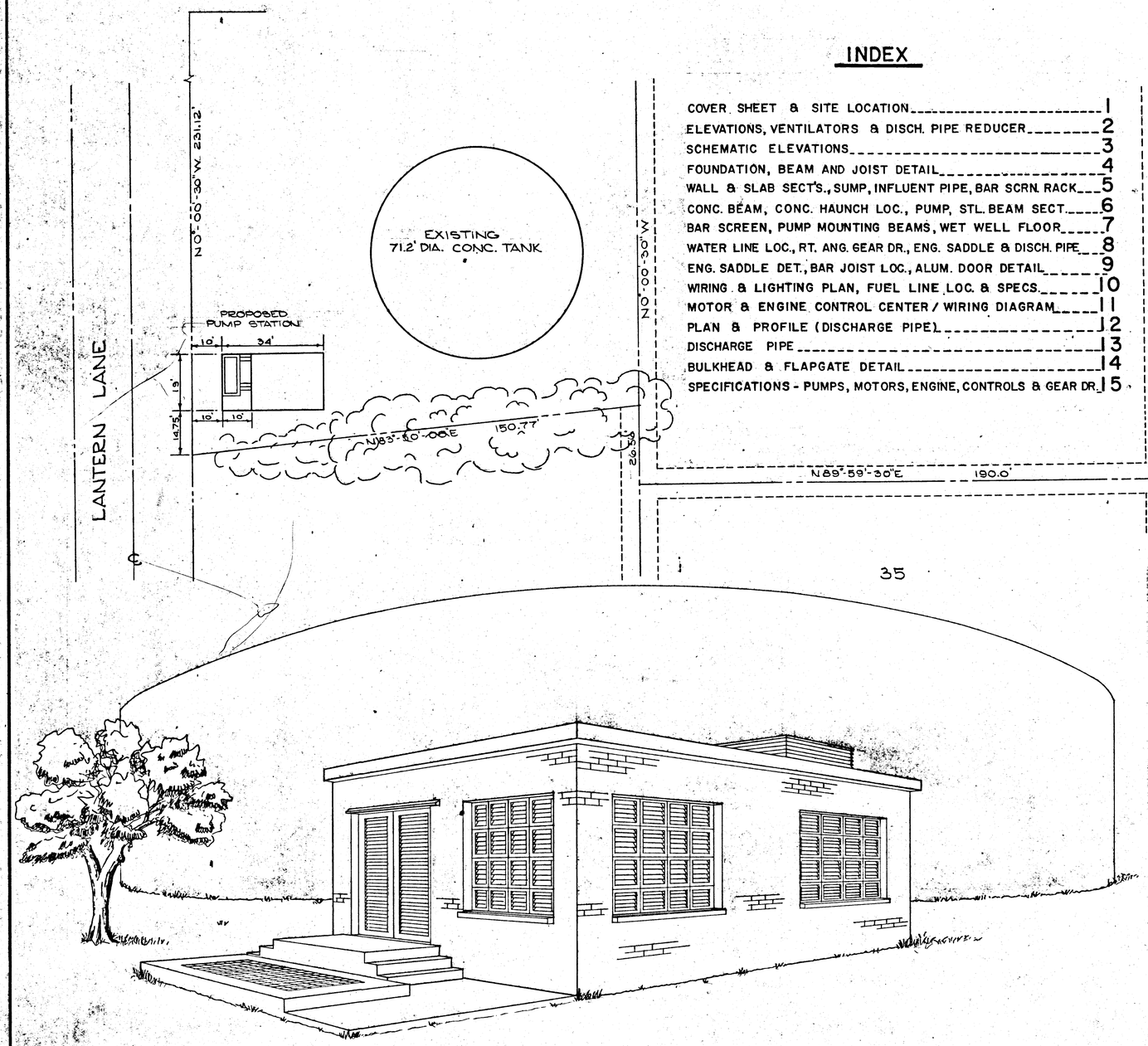
   RFP Number _____
   RFP Title _____
   Closing Date _____

The Proposal will be mailed or delivered in time to be received no later than the specified opening date and time. Any proposal received after this deadline will not be accepted.

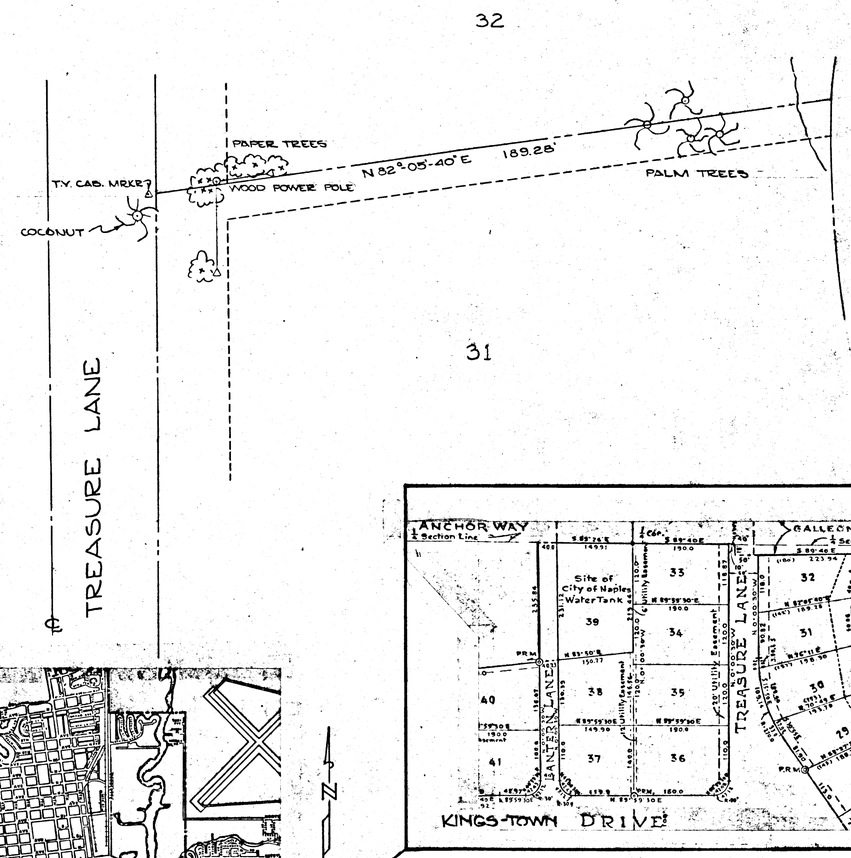
ALL COURIER DELIVERED PROPOSALS SHOULD HAVE THE RFP NUMBER AND TITLE ON THE OUTSIDE OF THE COURIER PACKET.

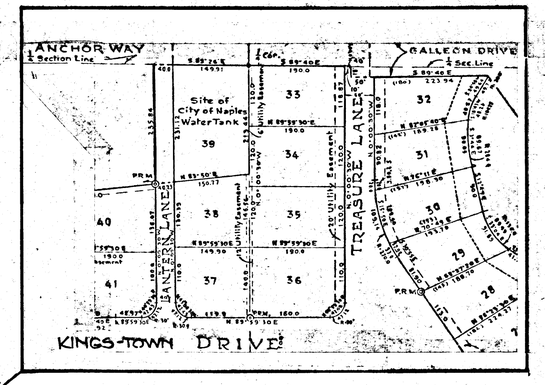
EXHIBIT A

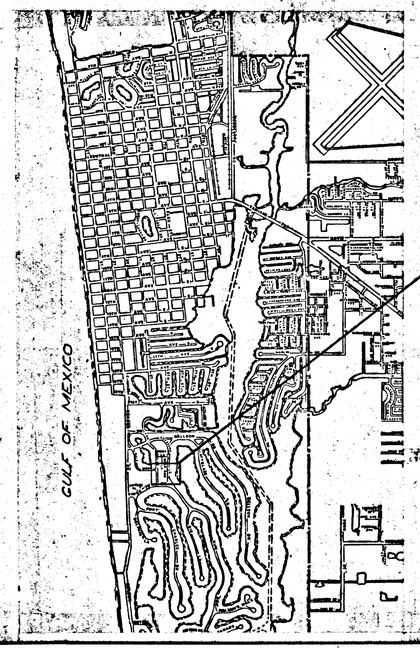
CITY OF NAPLES
STORM SEWER LIFT STATION
LANTERN LANE, PORT ROYAL



INDEX







FN 320 B
DRAWER 2

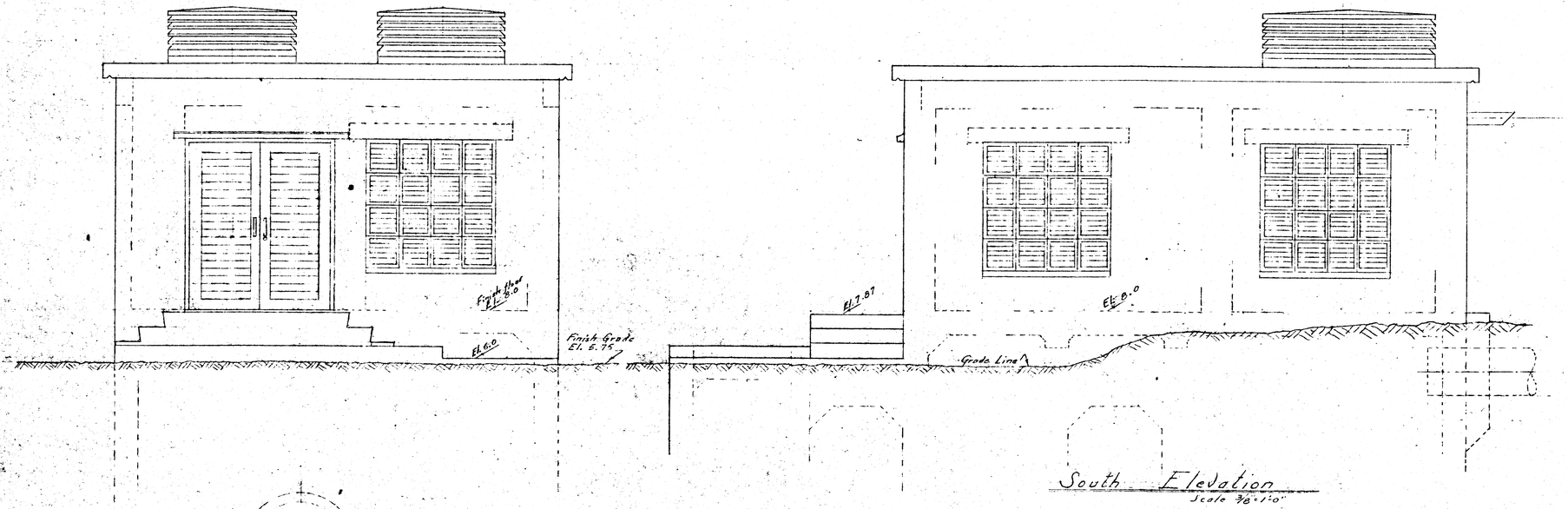
DATE: 1970	B. P.	DESIGNED: J.HENNING	FOR: CITY OF NAPLES
SCALE:		DRAWN: WMC	CONSTRUCTION SITE LOCATION
REVISIONS:		CHECKED:	

APPROVED:

WILSON•MILLER•BARTON & SOLL, INC.
ENGINEERS & SURVEYORS NAPLES, FLORIDA

FILE NO. SP-57

SWP-3 DR-25



West Elevation
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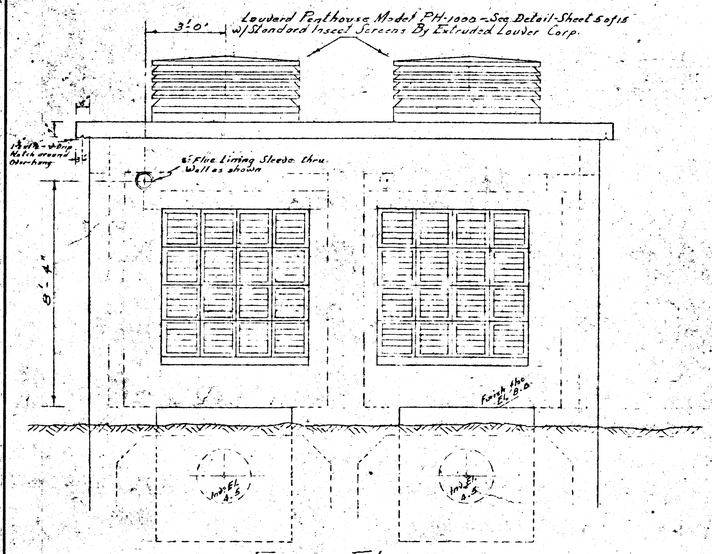
South Elevation
Scale 3/8"=1'-0"



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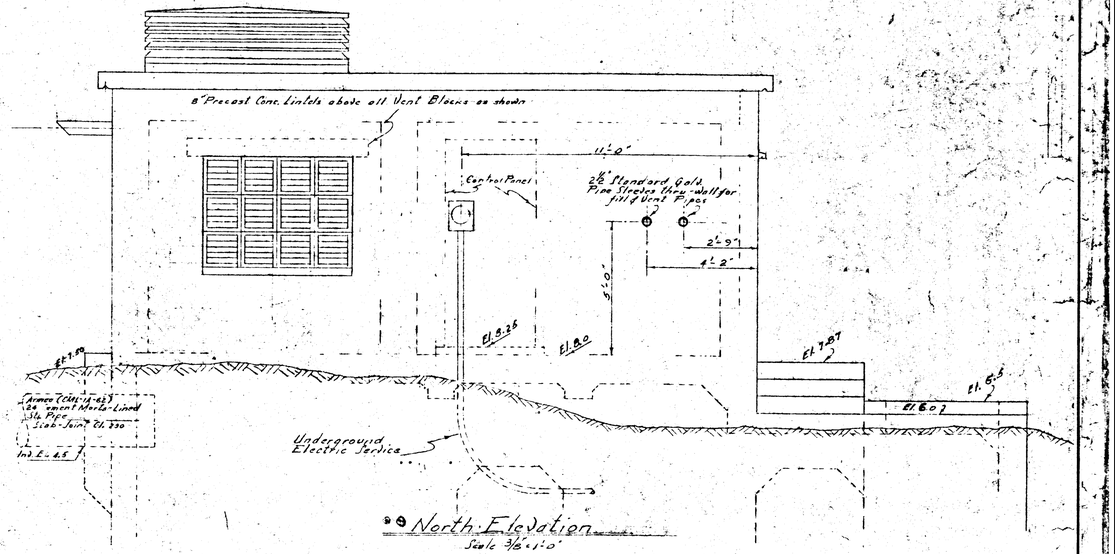

North Elevation
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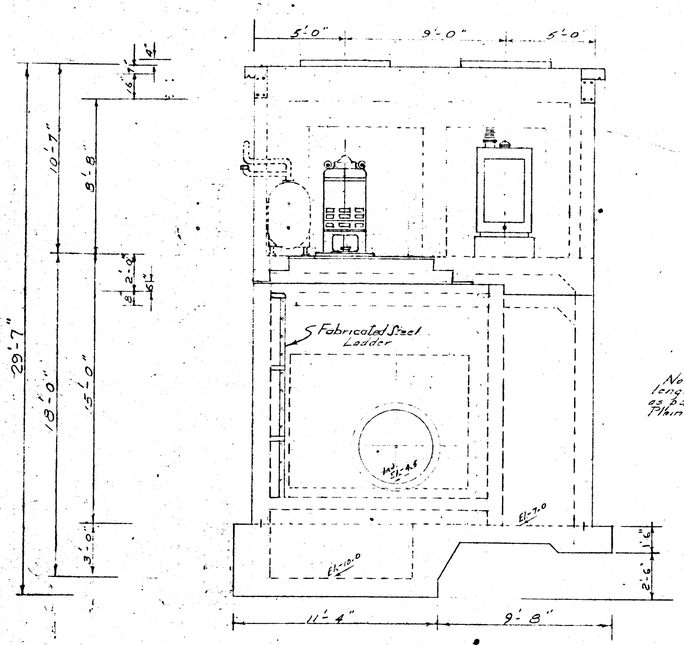
DATE: 1970 B. P.		DESIGNED: J. Henning	FOR: CITY OF NAPLES STORM SEWER LIFT STATION
SCALE: SHOWN		DRAWN: J. HENNING	CITY OF NAPLES, PORT ROYAL, STORM SEWER LIFT STA. LOCATED ON LOT 39, KINGSTOWN DRIVE TO ADMIRALTY PARADE SECTIONS, P.B.-3, PAGE 74, COLLIER COUNTY, FLA.
REVISIONS:		CHECKED:	Elevations, Aluminum Louvered Roof Ventilators Plan & Specifications, Discharge Pipe Reducing Lateral Plan & Specifications
APPROVED:			WILSON•MILLER•BARTON & SOLL, INC. ENGINEERS & SURVEYORS NAPLES, FLORIDA
PROJECT NO. 6838	SHEET: 15 OF	FILE NO. S.D.-57	



West Elevation Schematic

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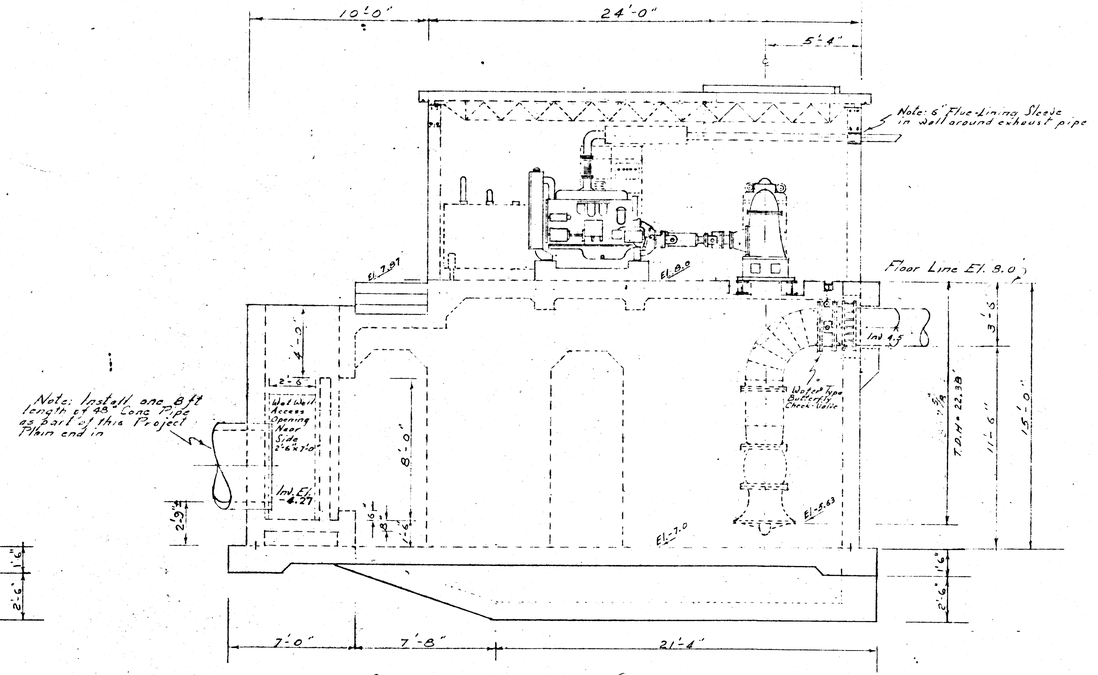

South Elevation Schematic

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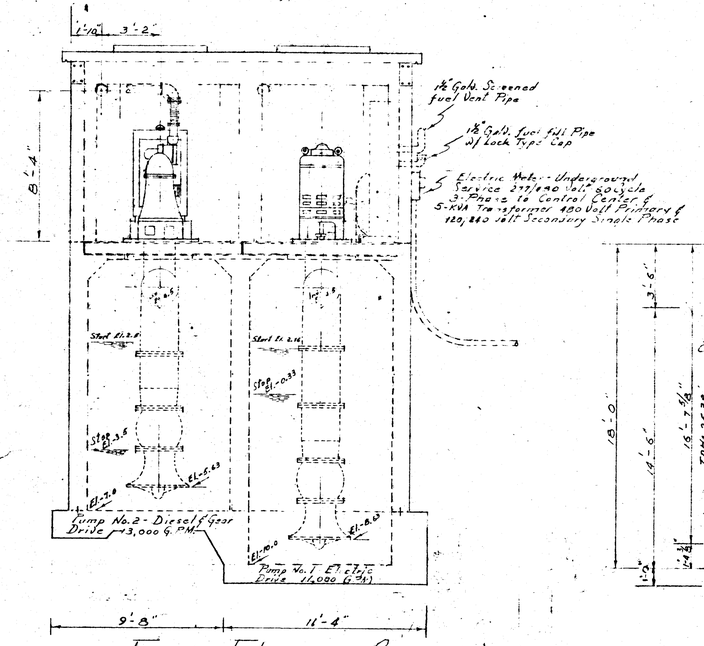
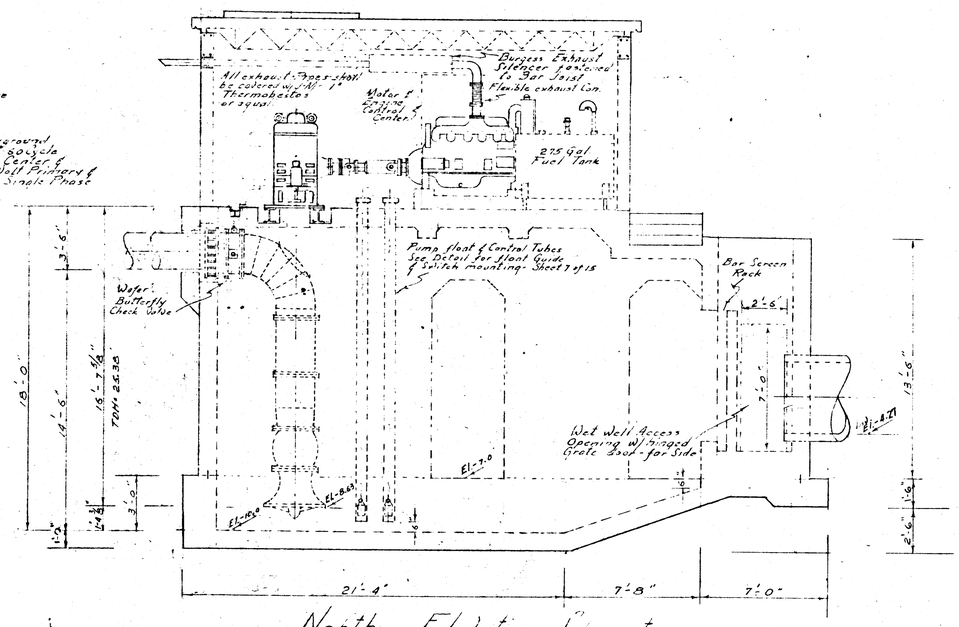


East Elevation Schematic

Scale 1/4"=1'-0"



North Elevation Schematic

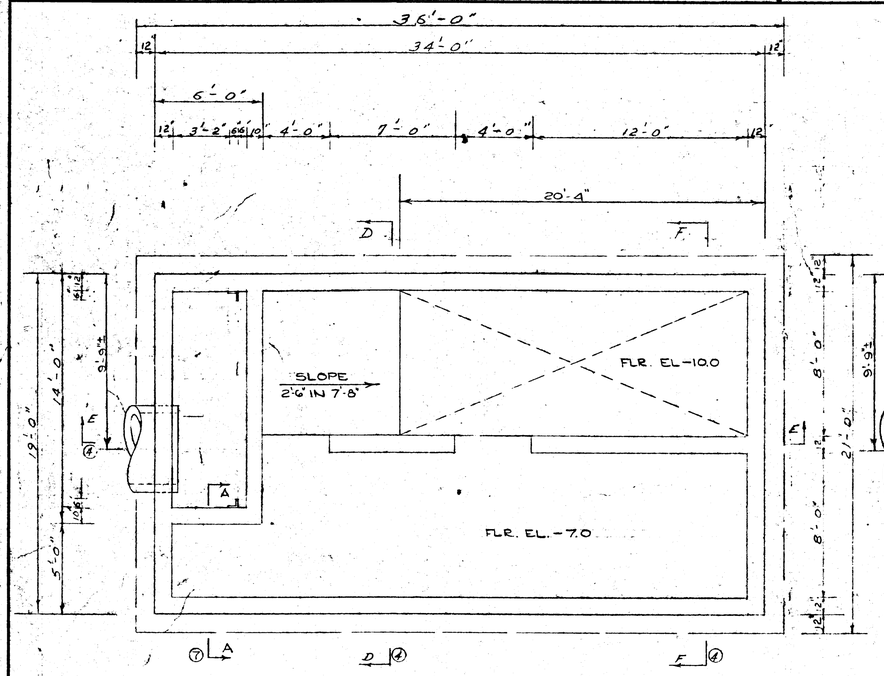
Scale 1/4"=1'-0"

DATE: 1970	B. P.	DESIGNED: J. Henning	FOR: CITY OF NAPLES STORM SEWER LIFT STATION
SCALE: SHOWN		DRAWN: J. HENNING	CITY OF NAPLES, PORT ROYAL, STORM SEWER LIFT STA. LOCATED ON LOT 39, KINGSTOWN DRIVE TO ADMIRALTY PARADE SECTIONS, P.B.-3, PAGE 74, COLLIER COUNTY, FLA.
REVISIONS:		CHECKED:	Schematic Elevations

APPROVED:

WILSON•MILLER•BARTON & SOLL, INC.
ENGINEERS & SURVEYORS NAPLES, FLORIDA

PROJECT NO. 6838 | SHEET: 3 OF 15 | FILE NO. S.D-57



Foundation Plan
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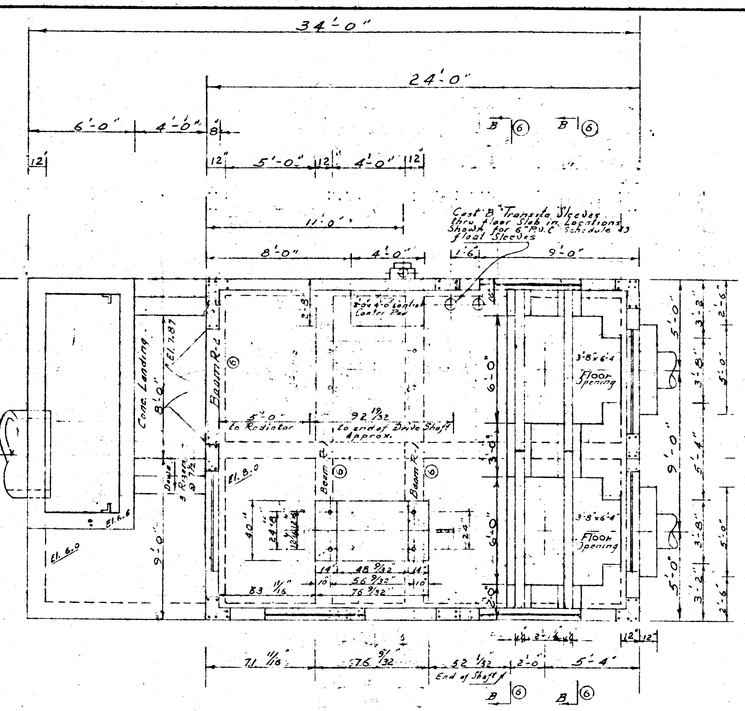

Plan Pump Drive Room w/ Beam Placement
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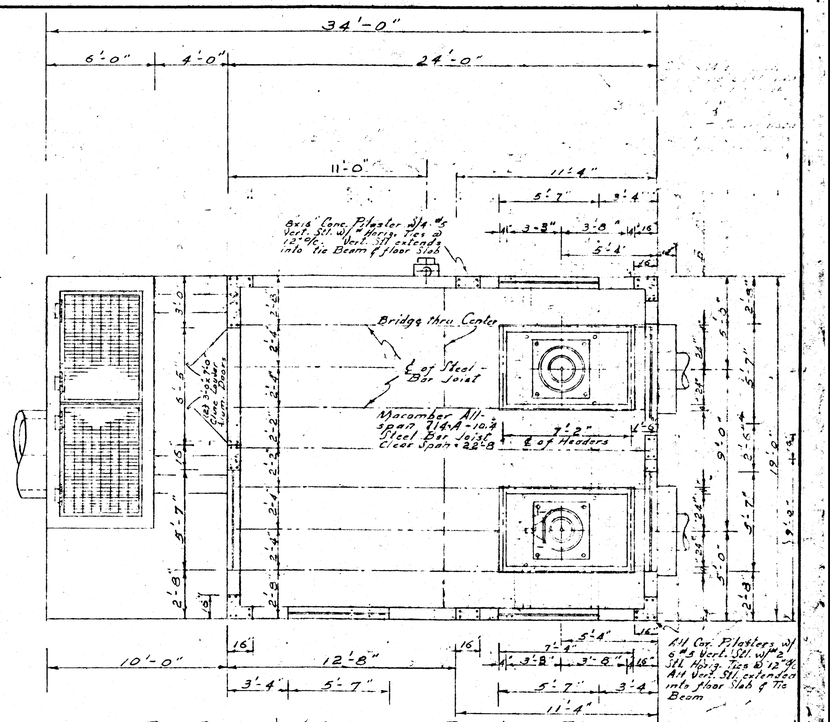

Roof Deck - Wall Openings & Bar Joist Placement
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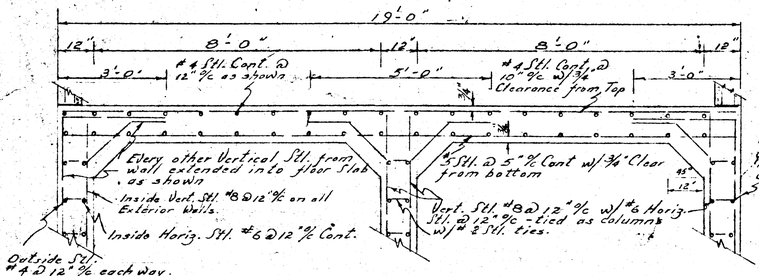
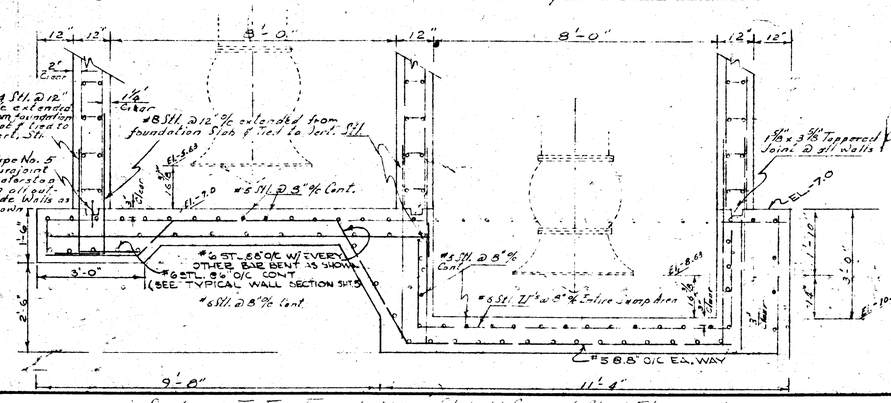


Typical Section D-D-Pump Drive Room Slab w/ Stl. Placement



Section F-F - Foundation Slab w/ Sump & Steel Placement
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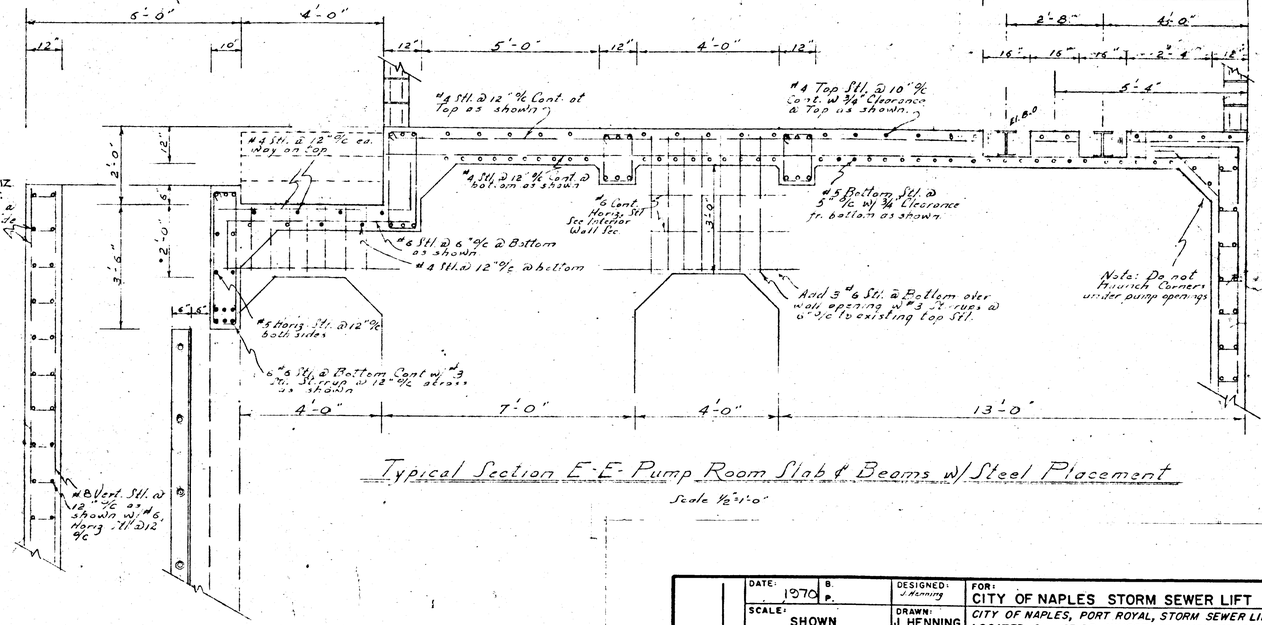
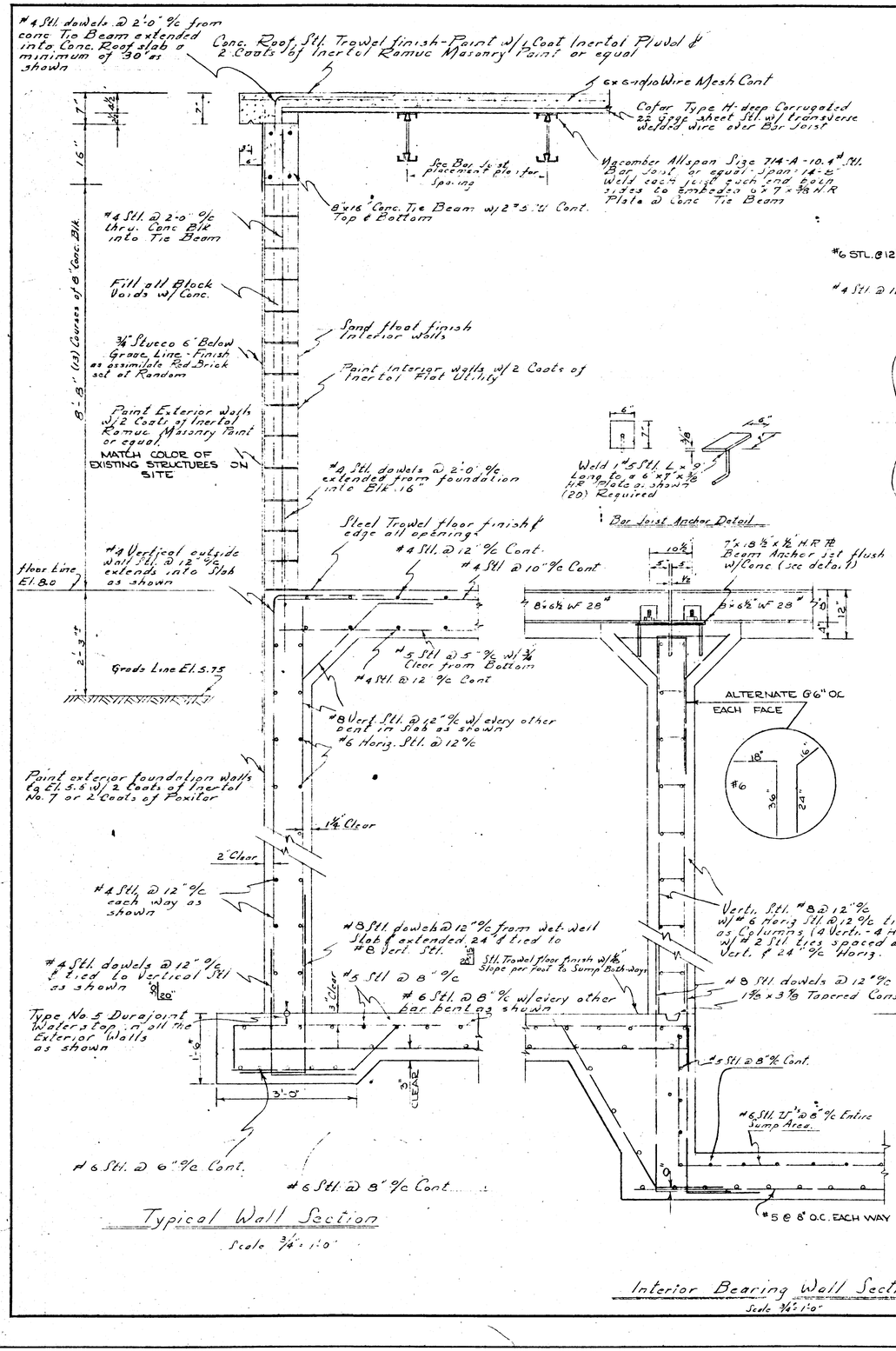


Typical Section E-E- Pump Room Slab & Beams w/ Steel Placement
Scale 1/2"=1'-0"

DATE: 1970	B. P.	DESIGNED: J. Henning	FOR: CITY OF NAPLES STORM SEWER LIFT STATION
SCALE: SHOWN		DRAWN: J. HENNING	CITY OF NAPLES, PORT ROYAL, STORM SEWER LIFT STA. LOCATED ON LOT 39, KINGSTOWN DRIVE TO ADMIRALTY PARADE SECTIONS, P.B.-3, PAGE 74, COLLIER COUNTY, FLA
REVISIONS:		CHECKED:	Foundation Plan & Slab Detail, Beam & Joist Location, Slab-Conc. floor & Conc. Beam Steel Placement
APPROVED:			WILSON•MILLER•BARTON & SOLL, INC. ENGINEERS & SURVEYORS NAPLES, FLORIDA
PROJECT NO. 6838	SHEET: 4	OF 13	FILE NO. S.D-57

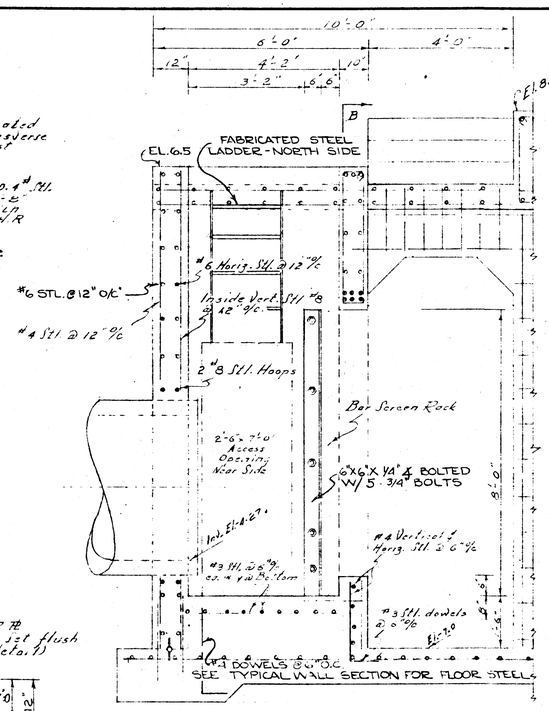


Typical Wall Section

Scale 3/4" = 1'-0"

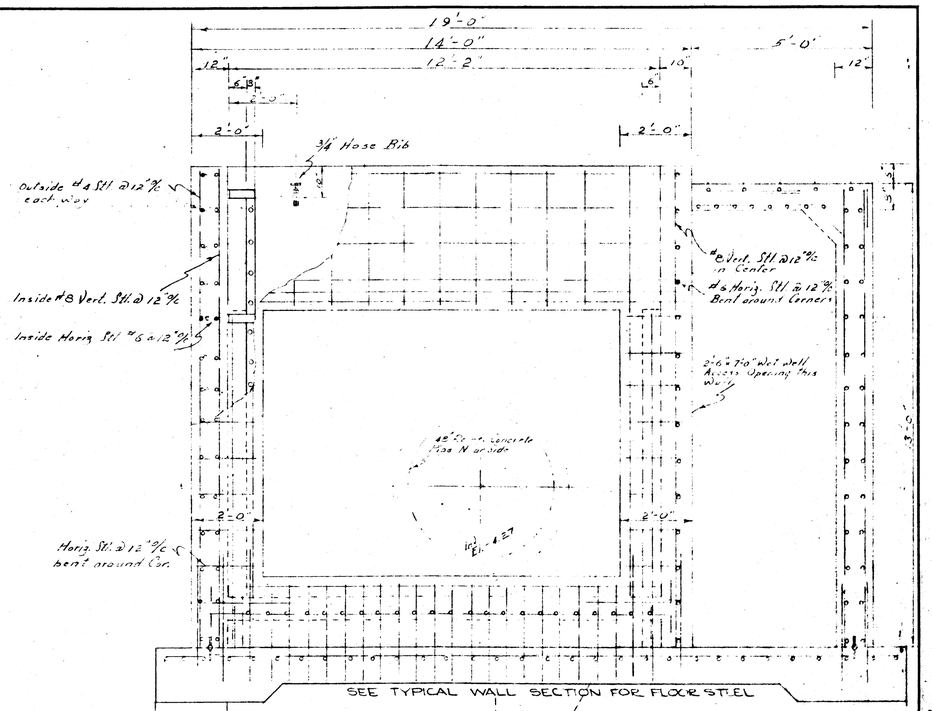
Interior Bearing Wall Section @ Sump

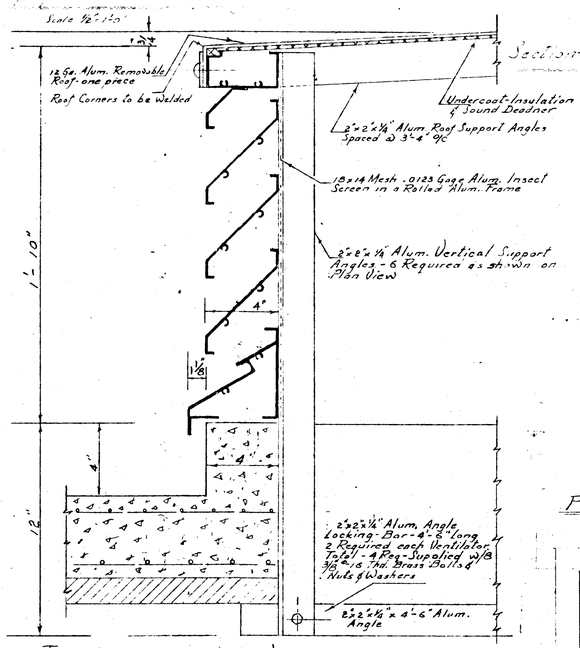
Scale 3/4" = 1'-0"



Detail-Influent Pipe & Bar Screen Rack

Scale 1/2" = 1'-0"



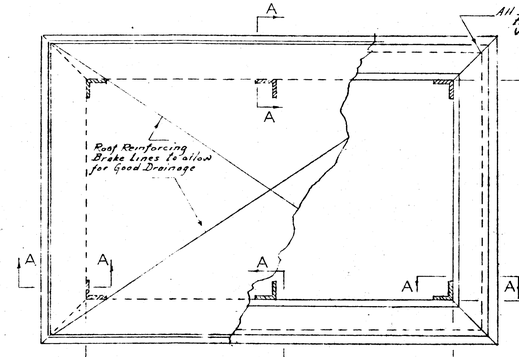


Typical Section A-A-Hatch Ventilator & Cover - See Sheet 2 of 15

Scale 3" = 1'-0"

Section B-B-W.W. Bar Screen Opening w/ Steel Placement

Scale 1/2" = 1'-0"



Plan View - Model PH-1000 - Extruded Aluminum Ventilating Penthouse

(2 Required) N.T.S.

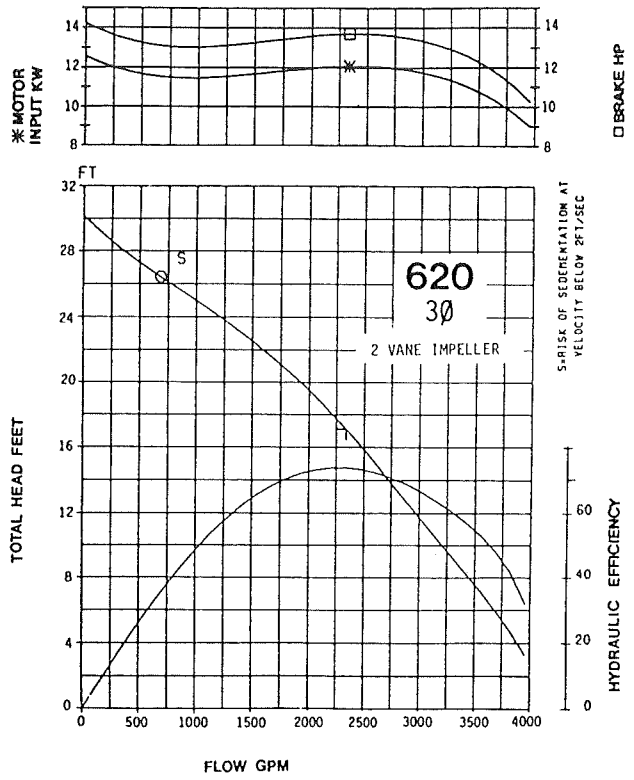
DATE: 1970	B. P.	DESIGNED: J. Henning	FOR: CITY OF NAPLES STORM SEWER LIFT STATION
SCALE: SHOWN		DRAWN: J. HENNING	CITY OF NAPLES, PORT ROYAL, STORM SEWER LIFT STA. LOCATED ON LOT 39, KINGSTOWN DRIVE TO ADMIRALTY PARADE SECTIONS, P.B.-3, PAGE 74, COLLIER COUNTY, FLA
REVISIONS:		CHECKED:	Wall, Slab, Sump, Influent Pipe, & Bar Screen Rack Detail w/ Steel Placement. Detail - Alum. Ventilating Hatch Cover

APPROVED:

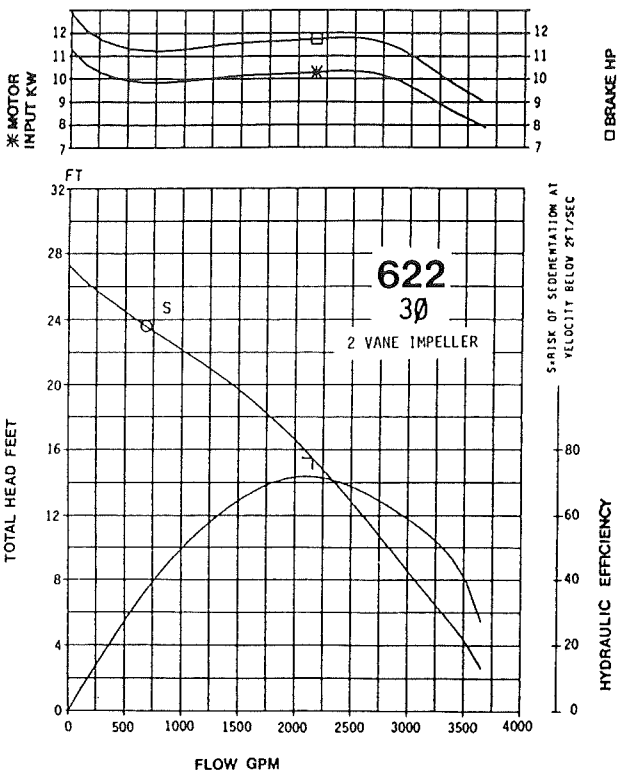
WILSON • MILLER • BARTON & SOLL, INC.
ENGINEERS & SURVEYORS NAPLES, FLORIDA

PROJECT NO. 6838 | SHEET: 5 OF 15 | FILE NO. SD.-57

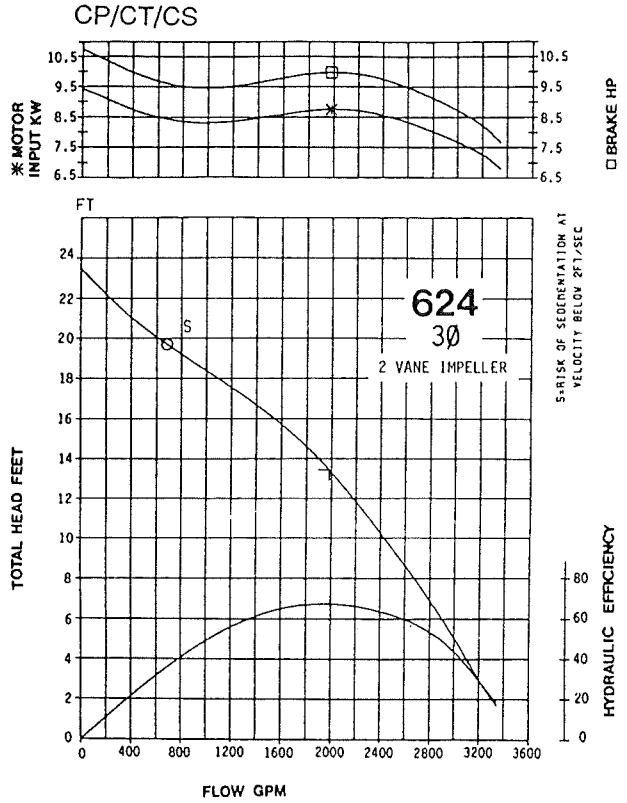
CP/CT/CS



CP/CT/CS



CP/CT/CS



PERFORMANCE CURVE

PRODUCT	TYPE
NP3153.185	LT

DATE	PROJECT	CURVE NO	ISSUE
2012-02-28		63-622-00-7520	2

	1/1-LOAD	3/4-LOAD	1/2-LOAD
POWER FACTOR	0.75	0.70	0.58
EFFICIENCY	87.0 %	88.0 %	88.0 %
MOTOR DATA	---	---	---

RATED POWER	15	hp
STARTING CURRENT ...	95	A
RATED CURRENT ...	21	A
RATED SPEED	1150	rpm
TOT.MOM.OF INERTIA ...	0.14	kgm2
NO. OF BLADES	2	

IMPELLER DIAMETER: 237 mm

MOTOR #	STATOR	REV
21-18-6AA	01D	11

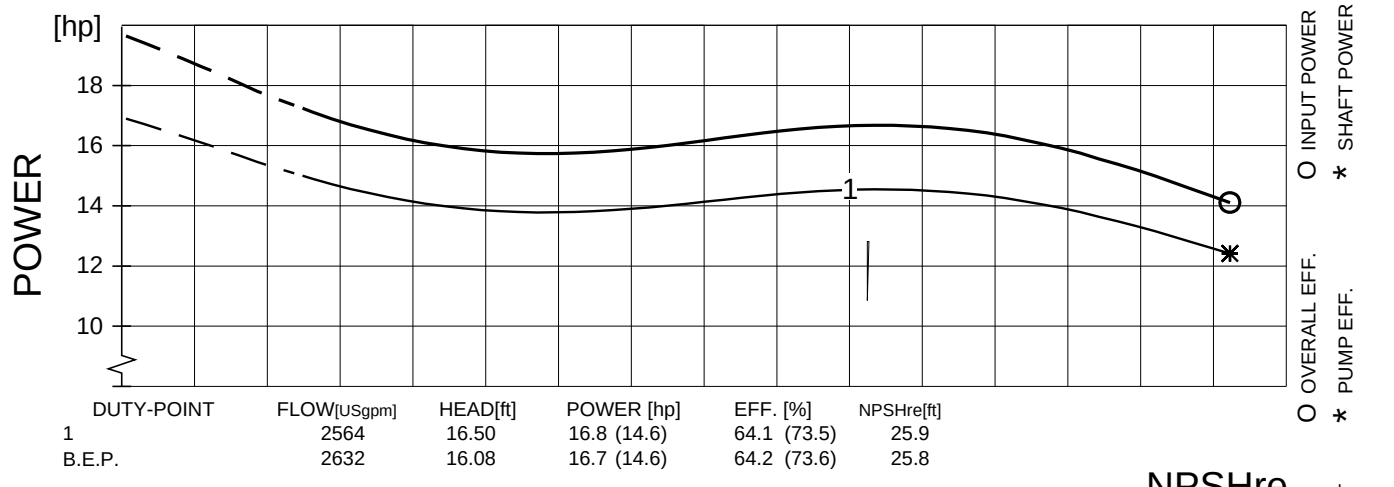
FREQ.	PHASES	VOLTAGE	POLES
60 Hz	3	460 V	6

GEARTYPE	RATIO
---	---

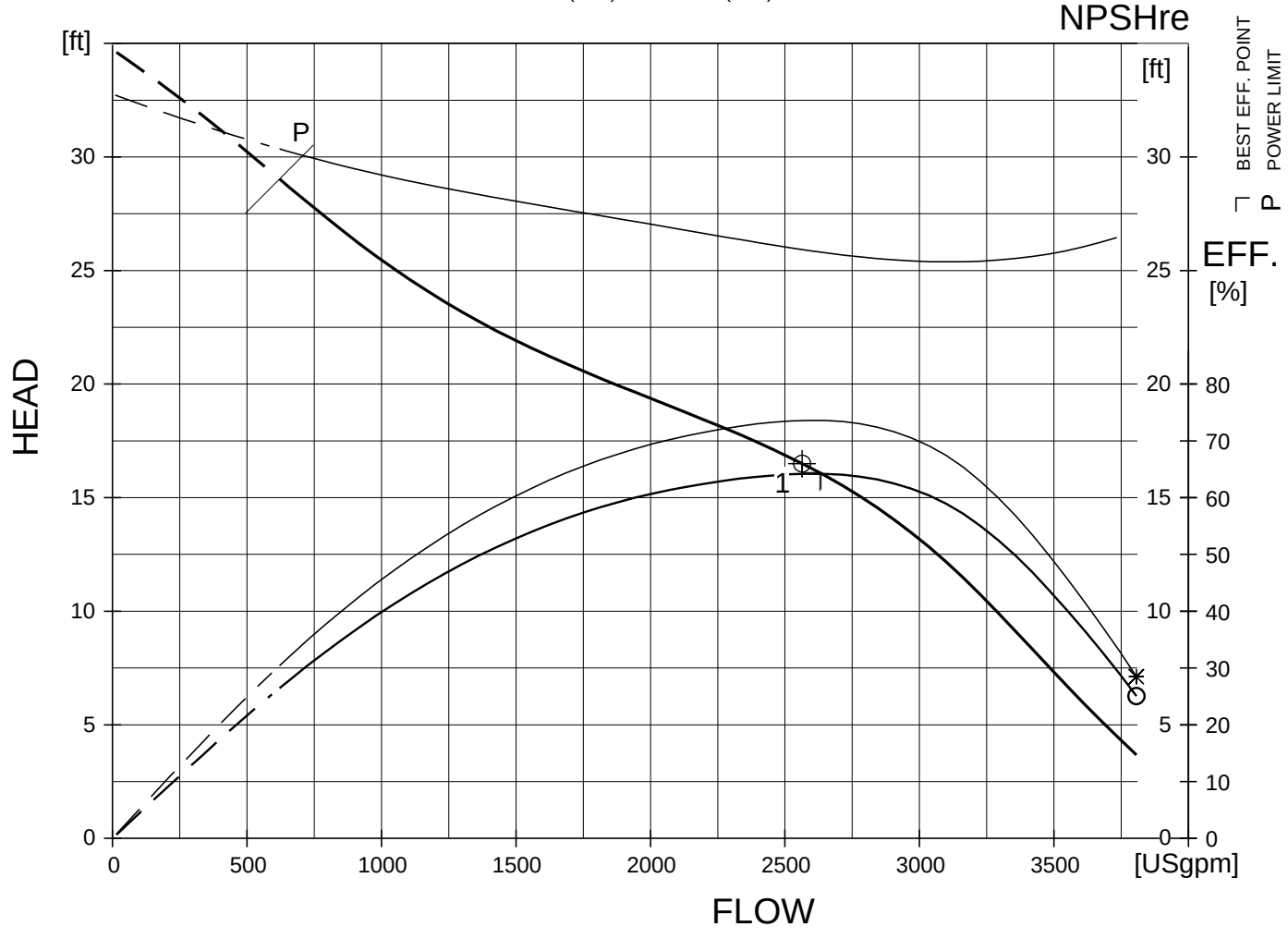
COMMENTS: HARD IRON™

INLET/OUTLET: -/ 10 inch

IMP. THROUGHLET: ---



DUTY-POINT	FLOW[USgpm]	HEAD[ft]	POWER [hp]	EFF. [%]	NPSHre[ft]
1	2564	16.50	16.8 (14.6)	64.1 (73.5)	25.9
B.E.P.	2632	16.08	16.7 (14.6)	64.2 (73.6)	25.8



NPSHre = NPSH3% + min. operational margin

Performance with clear water and ambient temp 40 °C

HI B Curve

FLYPS3.1.6.6 (20090313)

EXHIBIT B

STORMWATER SYSTEM

MAINTENANCE IMPROVEMENTS - PART I

DRAINAGE BASIN VI -
STORMWATER PUMP STATION CONSTRUCTION

FOR THE

CITY OF NAPLES

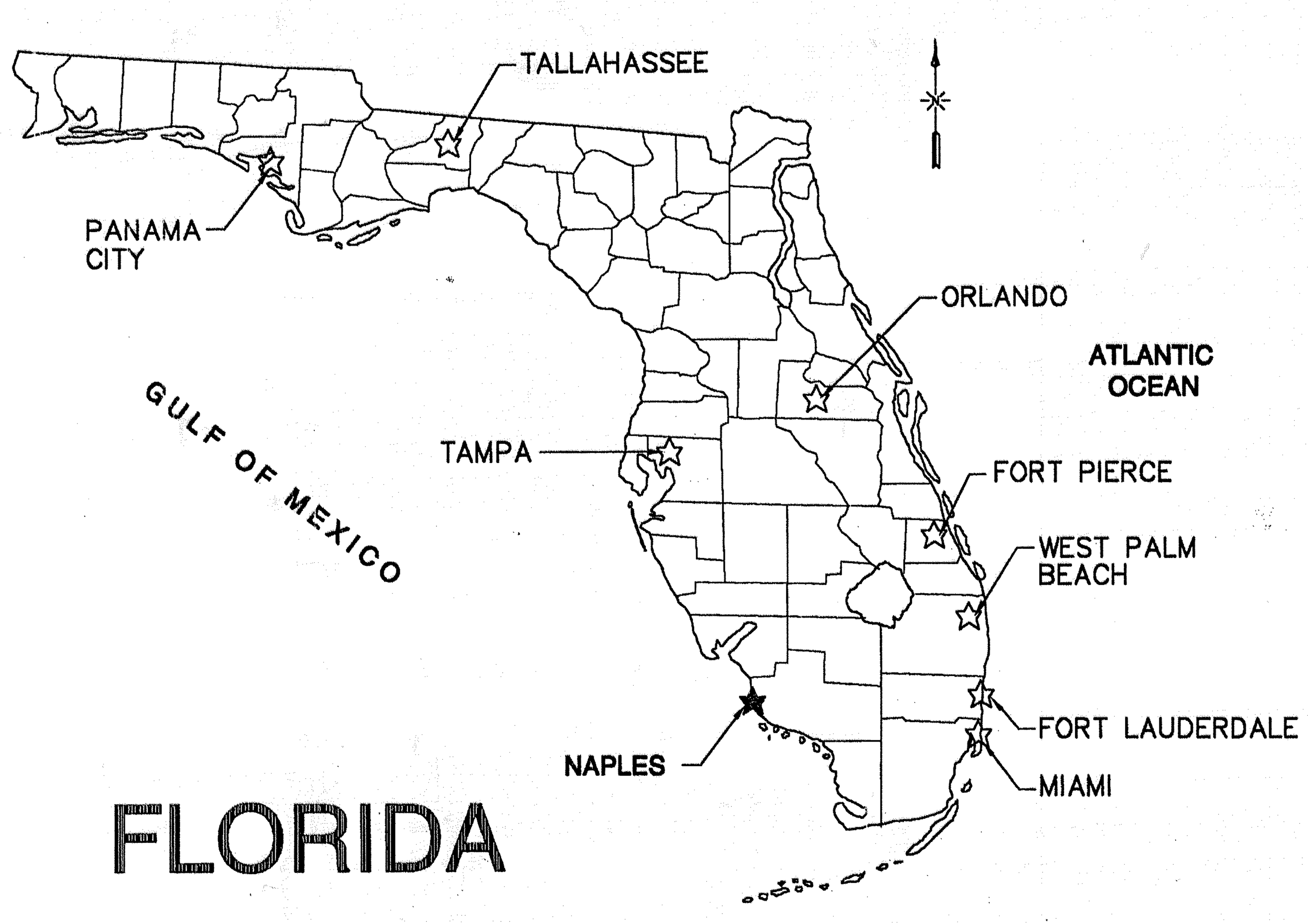
COLLIER COUNTY, FLORIDA

AS-BUILTS

OFFICE COPY

REGISTERED ENGINEERS/ARCHITECT
STATE OF FLORIDA

GENERAL CIVIL MECHANICAL	JAMES L. HAGERTY NO. 43969
ARCHITECTURAL	KEVIN M. HOSKINS NO. AR-0015835 FLORIDA CORPORATE ARCHITECTURE LICENSE NUMBER AA-0002781
STRUCTURAL	TIMOTHY A. VERWEY NO. 50947
VENTILATION PLUMBING	WILLIAM R. HAYGOOD NO. 39503
ELECTRICAL	PAUL A. LEFAVE NO. 48907
INSTRUMENTATION	WILLIAM C. NELSON NO. 42017



VICINITY PLAN
N.T.S.

CITY OF NAPLES, FLORIDA
ON THE GULF

AUGUST 1999

CAMP DRESSER & McKEE INC.
PROJECT NUMBER: 6680-24619

CONFORMED DRAWINGS
OCTOBER 1999

SNP-7

consulting engineering construction operations
CDM

P:\6680\24619\Conformed\GENERAL6cover 10/22/99 08:07:12 2:23:20 Williamsb

INDEX OF SHEETS - PART I

SHEET NO.	TITLE
GENERAL	
	COVER SHEET
G-1	INDEX, NOTES, LEGEND & ABBREVIATIONS
CIVIL	
C-1	EXISTING SITE PLAN
C-2	SITE PLAN AND HORIZONTAL CONTROL LOCATION PLAN
C-3	PLOT PLAN, SOIL BORINGS AND DEMOLITION PLAN
C-4	YARD PIPING PLAN
C-5	PAVING AND GRADING PLAN
C-6	RETENTION POND CROSS SECTIONS
CD-1	MISCELLANEOUS CIVIL DETAILS
ARCHITECTURAL	
A-1	ARCHITECTURAL SHEET INDEX, ABBREVIATIONS, SYMBOLS,
	FINISH SCHEDULE, DOOR SCHEDULE, DOOR TYPES, FRAME TYPES
	DOOR DETAILS AND HARDWARE SETS SCHEDULE
A-2	ELECTRICAL BUILDING FLOOR PLAN, ROOF PLAN, ELEVATIONS,
	TYPICAL WALL SECTION AND DETAILS
STRUCTURAL	
S-1	GENERAL NOTES, SITE PLAN AND STRUCTURAL DETAILS
S-2	PUMP STATION PLANS
S-3	PUMP STATION SECTIONS
S-4	ELECTRICAL BUILDING PLANS AND SECTIONS
S-5	ELECTRICAL BUILDING ELEVATIONS AND DETAILS
S-6	MISCELLANEOUS STRUCTURES PLAN AND SECTIONS
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S-8	PUSH WALLS PLAN AND SECTIONS
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E-1	ELECTRICAL SYMBOLS AND ABBREVIATIONS
E-2	ELECTRICAL SITE PLAN
E-3	MCC-1 SINGLE LINE DIAGRAM AND FRONT VIEW
E-4	ELECTRICAL BUILDING POWER, LIGHTING AND GENERATOR PLANS
E-5	PUMP STATION ELECTRICAL PLAN
E-6	LIGHTING FIXTURE SCHEDULES, PANEL SCHEDULE AND DETAILS
	AND ELEMENTARY DIAGRAMS
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I-1	INSTRUMENTATION LEGEND SHEET
I-2	P&ID AND INSTRUMENTATION LOOP DIAGRAMS
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4	PLAN & PROFILE (10TH & 3FD, 2ND)
5	PLAN & PROFILE (10TH & 1ST)
6	PLAN & PROFILE (10TH & CENTRAL)
7	PLAN & PROFILE (CENTRAL)
8	PLAN & PROFILE (3RD TO 11TH)
9	PLAN & PROFILE (3RD TO GOODLETTE)
10	STANDARD DETAILS

ABBREVIATIONS

GENERAL

ALUMINUM	AL, ALUM
ANGLE	∠
BENCH MARK	BM
BETWEEN	BTWN
BURIED FIBER OPTIC	BFO
CENTER LINE	℄
CENTER TO CENTER	CC
DIAGONAL	DIAG
DIAMETER	DIA, DIAM
DIMENSION	DIM
DRAWING	DWG
EACH	EA
EFFLUENT	EFF
ELEVATION	EL, ELEV
EXISTING	EXIST
FINISH	FIN
FLOOR	FL
HIGH	H
HIGH POINT	HP
INFLUENT	INFL
LONG	LG
LOW POINT	LP
MATERIAL	MTL
MANUFACTURE	MFG
MAXIMUM	MAX
MECHANICAL	MECH
METAL	MET
MINIMUM	MIN
MOUNTED	MTD
NOMINAL	NOM
NOT TO SCALE	NTS
NUMBER	NO.
ON CENTER	OC
OPTION	OPT
OPPOSITE	OPP
OPENING	OPNG
OR EQUAL	O/E
PIECE	PC
PLATE	PL
POINT	PT
POUND	LB
RADIUS	RAD, R
RECLAIMED WATER	RCW
REQUIRED	REQ'D
RIGHT OF WAY	R/W
ROOM	RM
SECTION	SEC
SHEET	SH, SHT
SIDEWALK	SDWK
SQUARE	SQ
STAINLESS STEEL	SS
STORM SEWER	STRM SWR, SS
STANDARD	ST'D
STEEL	STL
SYMMETRICAL	SYMM
TEMPORARY	TEMP
THICK	THK
THREADED	THD
TYPICAL	TYP
UTILITY EASEMENT	UE
VERTICAL	VERT
WATER	WTR
WATER LEVEL	WL
WEATHERPROOF	WPF
WEST	W
WITH	W/

VALVES, FITTINGS, ETC.

	SYMBOLS
AIR CUSHION CHECK VALVE	ACCV
AIR RELIEF VALVE	ARV
BALL CHECK VALVE	BCV
BALL VALVE	BAV
BLIND FLANGE	BF
BURIED GEAR OPERATOR	BO
BUTTERFLY VALVE	BV
CHECK VALVE	CV
ELECTRIC VALVE ACTUATOR	EVA
ELEVATED GEAR OPERATOR	EO
EXPANSION JOINT	EXJ
FIRE HYDRANT	FH
FITTINGS	FTG
FLANGED ADAPTOR	FA
FLEXIBLE COUPLING	FC
FLOOR BOX (BUSHING TYPE)	FB
FLOOR STAND	FS
GATE VALVE	GV
HOSE BIBB	HB
HYDRAULIC VALVE ACTUATOR	HVA
MECHANICAL JOINT PLUG	MJP
PLASTIC BALL VALVE	PBV
PLASTIC CHECK VALVE	PCV
PLUG VALVE	PV
SILENT CHECK VALVE	SCV
UNION	UN
VALVE BOX	VB
VICTAULIC COUPLING (GROOVED ENDS)	VC (G)
VICTAULIC COUPLING (SHOULDERED ENDS)	VC (S)
WALL SLEEVE	WS
WALL PIECE (WITH WATER STOP)	WP

PIPE

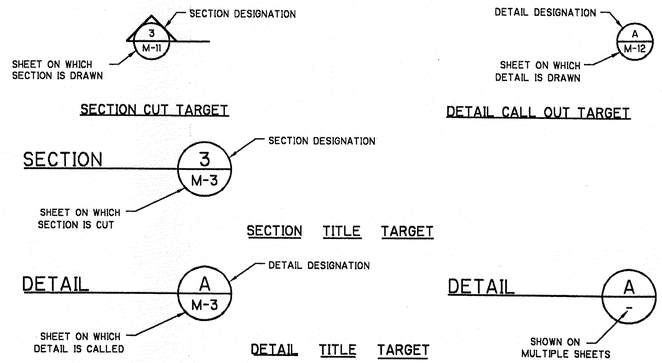
ASBESTOS CEMENT PIPE	ACP
BLACK STEEL PIPE	BSP
CAST IRON	CI
CAST IRON PIPE	CIP
CAST IRON SOIL PIPE	CISP
CONCRETE PRESSURE PIPE	CPP
COPPER PIPE	CU
DUCTILE IRON PIPE	DIP
DUCTILE IRON	DI
FIBERGLASS REINFORCED PIPE	FRP
FLANGE	FLG
GALVANIZED STEEL PIPE	GSP
MECHANICAL JOINT	MJ
METAL REINFORCED PLASTIC PIPE	MRPP
POLYETHYLENE PIPE	PP
POLYVINYLCHLORIDE	PVC
REINFORCED CONCRETE PIPE	RCP
RESTRAINED JOINT	RJ
SLIP-ON JOINT	SJ
STEEL PIPE	SP
TIED JOINT	TJ
VITRIFIED CLAY PIPE	VCP

LEGEND

- NEW MAIN THIS PROJECT
- 20" W.M. — EXISTING WATER MAIN
- 16" R.W. — EXISTING RAW WATER MAIN
- M.H. SAN. S. — EXISTING SANITARY SEWER W/ MANHOLE
- 10" F.M. — EXISTING FORCE MAIN
- T — EXISTING BURIED TELEPHONE
- P — EXISTING POWER DUCTS OR CABLES
- O.H.P. — OVERHEAD POWER
- CATV — EXISTING CABLE TELEVISION
- C.B. 15" S.S. — EXISTING STORM SEWER W/CATCH BASIN
- F.H. — FIRE HYDRANT
- R/W - RIGHT OF WAY
- ℄ - PROPERTY LINE
- NEW MAIN TO BE CONST. UNDER EXISTING UTILITY
- NEW MAIN TO BE CONST. OVER EXISTING UTILITY
- □ or ○ P.P. — EXISTING POWER POLE
- □ or ○ L.P. — EXISTING LIGHT POLE
- SB-1 — SOIL BORING
- BM-1 (1) — BENCH MARK
- EXISTING CHAIN LINK FENCE
- NEW CHAIN LINK FENCE
- NEW STRUCTURES
- EXISTING STRUCTURES (TO REMAIN)
- NEW CONCRETE SLAB OR SIDEWALKS
- FUTURE STRUCTURE

GENERAL NOTES

1. ALL WORK SHALL CONFORM TO APPLICABLE PORTIONS OF THE OWNERS PUBLIC UTILITIES STANDARDS AND SPECIFICATIONS.
2. EXISTING UTILITIES ARE SHOWN IN THEIR APPROXIMATE LOCATIONS. CONTRACTORS SHALL CONTACT THE RESPECTIVE UTILITY COMPANIES TO VERIFY THE EXACT LOCATION AND TYPE MATERIAL OF ALL EXISTING UTILITIES. EXISTING WATER AND SANITARY SEWER SERVICE LATERALS ARE NOT SHOWN. CONTRACTOR SHALL VERIFY THESE LOCATIONS PRIOR TO BEGINNING THE WORK. ALL COST FOR THIS WORK SHALL BE INCLUDED IN THE APPROPRIATE PRICE BID FOR INSTALLING THE PIPE. AFTER THIS DETERMINATIONS HAVE BEEN MADE, CONTRACTOR SHALL WORK, AS NEEDED TO AVOID CONFLICT WITH EXISTING UTILITIES. (NO ADDITIONAL COST WILL BE PAID FOR THIS WORK.) EXISTING UTILITIES SHALL BE MAINTAINED IN SERVICE UNLESS OTHERWHISE APPROVED BY THE UTILITY OWNER.
3. PIPE DEFLECTION SHALL NOT EXCEED 75% OF MANUFACTURER'S RECOMMENDED MAXIMUM DEFLECTION PER PIPE JOINT.
4. ALL ELEVATIONS REFER TO MEAN SEA LEVEL DATUM.



SECTION AND DETAIL NUMBERING SYSTEM

N.T.S.

CONFORMED DRAWINGS
OCTOBER 1999

REV. NO.	DATE	DRWN	CHKD	REMARKS
	10/99	BKW	JLH	CONFORMED DRAWING
⚠	08/99	BKW	JLH	REVISIONS PER ADDENDUM NO. 1

DESIGNED BY: M. NICHOLS
DRAWN BY: J. MEDLAR
SHEET CHK'D BY: M. NICHOLS
CROSS CHK'D BY: J. HAGERTY
APPROVED BY: J. HAGERTY
DATE: AUGUST 1999

CDM Camp Dresser & McKee Inc.
consulting engineering construction operations

STORMWATER SYSTEM MAINTENANCE IMPROVEMENTS - PART I
CITY OF NAPLES, FLORIDA
DRAINAGE BASIN VI - PUMP STATION CONSTRUCTION

INDEX, NOTES, LEGEND & ABBREVIATIONS

PROJECT NO. 6680-24619
FILE NAME: GNXTB001

SHEET NO.
G-1

P:\6680\24619\Conformed\GENERAL\Gnxtb001 10/22/99 08:14:47 Williams

NOTE:

1. NORTHING AND EASTING DESIGNATIONS DO NOT REFER TO STATE PLANE COORDINATES BUT TO A SITE COORDINATE SYSTEM BASED FROM THE SOUTHEAST AND SOUTHWEST CORNERS OF THE POLICE AND EMERGENCY SERVICES BUILDING. THESE POINTS ARE THE BASIS FOR ESTABLISHING THE EAST-WEST BASELINE.

CONFORMED DRAWINGS
OCTOBER 1999

REV. NO.	DATE	DRWN	CHKD	REMARKS
	10/99	BKW	JLH	CONFORMED DRAWING
△1	08/99	BKW	JLH	REVISIONS PER ADDENDUM NO. 1

DESIGNED BY: M. NICHOLS
DRAWN BY: B. WILLIAMS
SHEET CHK'D BY: M. NICHOLS
CROSS CHK'D BY: J. HAGERTY
APPROVED BY: J. HAGERTY
DATE: AUGUST 1999

CDM Camp Dresser & McKee Inc.
consulting engineering construction operations

STORMWATER SYSTEM MAINTENANCE IMPROVEMENTS - PART I
CITY OF NAPLES, FLORIDA

DRAINAGE BASIN VI - PUMP STATION CONSTRUCTION

EXISTING SITE PLAN

PROJECT NO. 6680-24619
FILE NAME: C801...

SHEET NO.
C-1

NOTE:

1. NORTHING AND EASTING DESIGNATIONS DO NOT REFER TO STATE PLANE COORDINATES BUT TO A SITE COORDINATE SYSTEM BASED FROM THE SOUTHEAST AND SOUTHWEST CORNERS OF THE POLICE AND EMERGENCY SERVICES BUILDING. THESE POINTS ARE THE BASIS FOR ESTABLISHING THE EAST-WEST BASELINE.

CONFORMED DRAWINGS
OCTOBER 1999

REV. NO.	DATE	DRWN	CHKD	REMARKS
	10/99	BKW	JLH	CONFORMED DRAWING
1	08/99	BKW	JLH	REVISIONS PER ADDENDUM NO. 1

DESIGNED BY: M. NICHOLS
DRAWN BY: M. BANDA
SHEET CHK'D BY: M. NICHOLS
CROSS CHK'D BY: J. HAGERTY
APPROVED BY: J. HAGERTY
DATE: AUGUST 1999

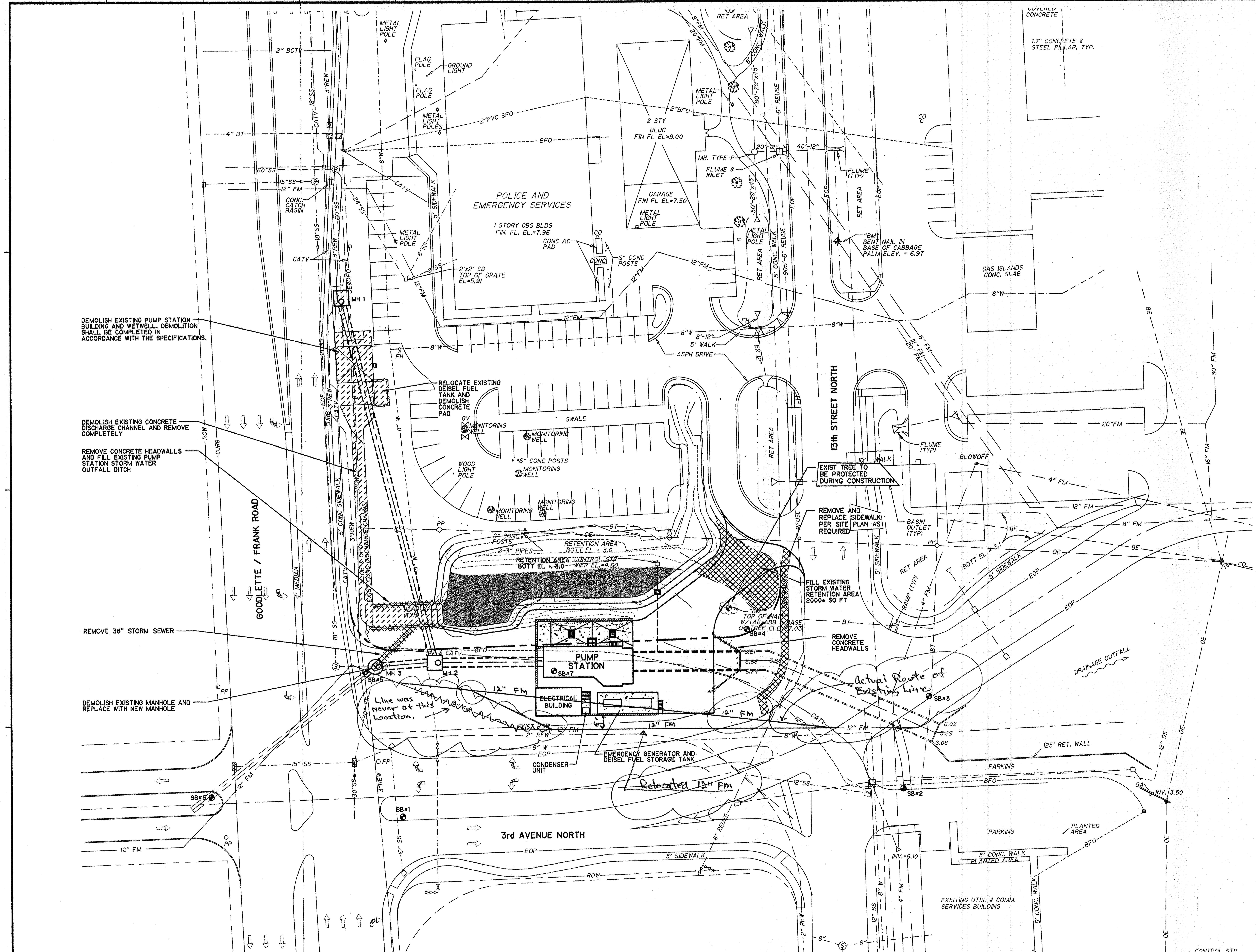
CDM Camp Dresser & McKee Inc.
consulting engineering construction operations

STORMWATER SYSTEM MAINTENANCE IMPROVEMENTS - PART I
CITY OF NAPLES, FLORIDA

DRAINAGE BASIN VI - PUMP STATION CONSTRUCTION

SITE PLAN AND HORIZONTAL CONTROL LOCATION PLAN

PROJECT NO. 6680-24619
FILE NAME: CSPHCLC2.DWG
SHEET NO.
C-2



NOTES:

1. AS-BUILT DRAWINGS ARE NOT AVIALABLE FOR ALL STRUCTURES TO BE DEMOLISHED. CONTRACTOR SHALL CONDUCT ALL NECESSARY FIELD INVESTIGATIONS TO DETERMINE DEMOLITION REQUIREMENTS.
2. CONTRACTOR SHALL MAINTAIN STORM WATER PUMPING CAPACITY AT ALL TIMES DURING CONSTRUCTION. CONTRACTOR SHALL PROVIDE A DETAILED SCHEDULE OF ACTIVITIES AND EQUIPMENT NECESSARY TO MAINTAIN STORM WATER SYSTEM PUMPING CAPACITY. PLEASE REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
3. LIMITS FOR DEMOLITION AND RESTORATION OF EXISTING PAVEMENT NOT SHOWN. CONTRACTOR SHALL MINIMIZE DEMOLITION OF EXISTING ASPHALT AND REPLACE TO PRE-CONSTRUCTION CONDITIONS PRIOR TO SUBSTANTIAL COMPLETION.
4. CONTRACTOR SHALL REPLACE ANY EXISTING ROADWAYS, SIDEWALKS, CURBS, GUTTERS, STORMWATER STRUCTURES AND LANDSCAPING DAMAGED DURING DEMOLITION WORK.

LEGEND

- DEMOLISH STRUCTURE AND DISPOSE OF DEBRIS
- TO BE REPLACE
- SB#1 SOIL BORING

Note: Changes in location of 12" Force Main.

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: M. NICHOLS
DRAWN BY: M. BANDA
SHEET CHK'D BY: M. NICHOLS
CROSS CHK'D BY: J. HAGERTY
APPROVED BY: J. HAGERTY
DATE: AUGUST 1999

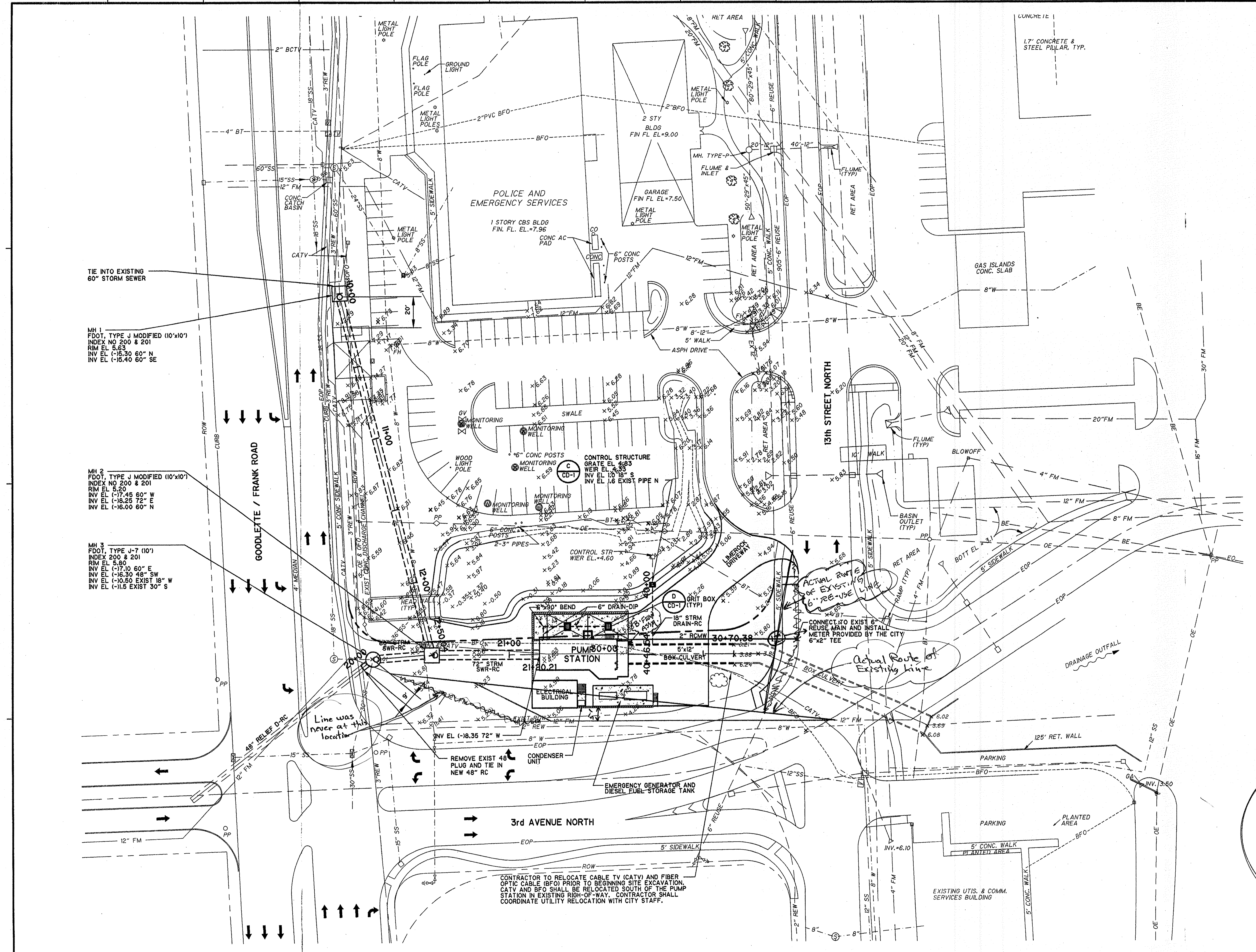
CDM Camp Dresser & McKee Inc.
consulting engineering construction operations

STORMWATER SYSTEM MAINTENANCE IMPROVEMENTS - PART I
CITY OF NAPLES, FLORIDA

DRAINAGE BASIN IV - PUMP STATION CONSTRUCTION

PLOT PLAN, SOIL BORINGS AND DEMOLITION PLAN

PROJECT NO. 6680-24619
FILE NAME: CSSBDC03.DWG
SHEET NO. **C-3**



NOTES:

1. CONTRACTOR TO VERIFY INVERT ELEVATIONS FOR ALL EXISTING MANHOLES, PIPES AND UTILITIES PRIOR TO SHOP DRAWING SUBMITTAL FOR MANHOLES.
2. CONTRACTOR SHALL MAINTAIN EXISTING PUMP STATION OR PROVIDE STANDBY PUMP CAPACITY THROUGH SUBSTANTIAL COMPLETION.
3. CONTRACTOR TO RELOCATE AND/OR PROVIDE TEMPORARY SERVICE FOR ALL UTILITIES DURING CONSTRUCTION.
4. CONTRACTOR SHALL COORDINATE RELOCATION OF POWER LINE WITH FP&L.
5. CONTRACTOR TO PROVIDE BLACK STEEL PIPE FOR FUEL OIL SYSTEM AS REQUIRED FOR THE EMERGENCY GENERATOR SYSTEM.
6. CONTRACTOR SHALL SUBMIT AND OBTAIN COUNTY DEPARTMENT OF TRANSPORTATION PERMITS FOR ANY CONSTRUCTION OR MAINTENANCE OF TRAFFIC PERMIT REQUIRED FOR CONSTRUCTION.
7. ALL EXISTING ROAD, SIDEWALKS, CURBS, GUTTERS OR STORMWATER STRUCTURES DAMAGED DURING CONSTRUCTION SHALL BE REPLACED PER FLORIDA DEPARTMENT OF TRANSPORTATION ROAD STANDARDS.

Note: * Changes of location of 12" Force Main.
* Changes of Re-Use location and connection

REV. NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: M. NICHOLS
DRAWN BY: B. WILLIAMS
SHEET CHK'D BY: M. NICHOLS
CROSS CHK'D BY: J. HAGERTY
APPROVED BY: J. HAGERTY
DATE: AUGUST 1999

CDM Camp Dresser & McKee Inc.
consulting engineering construction operations

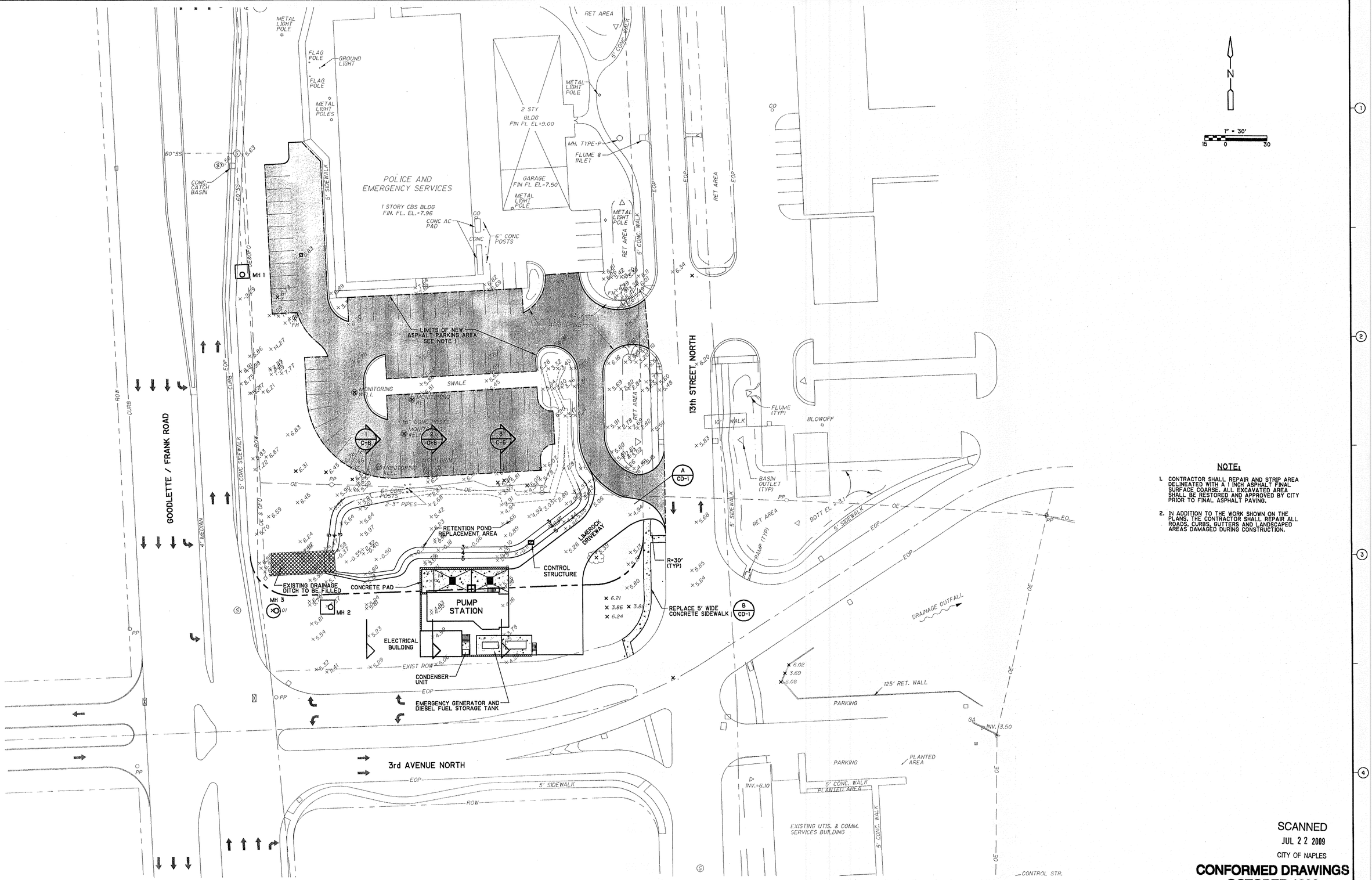
STORMWATER SYSTEM MAINTENANCE IMPROVEMENTS - PART I
CITY OF NAPLES, FLORIDA

DRAINAGE BASIN IV - PUMP STATION CONSTRUCTION

YARD PIPING PLAN

PROJECT NO. 6680-24619
FILE NAME: CYPPLC04.DWG

SHEET NO.
C-4



NOTE:

1. CONTRACTOR SHALL REPAIR AND STRIP AREA DELINEATED WITH A 1 INCH ASPHALT FINAL SURFACE COARSE. ALL EXCAVATED AREA SHALL BE RESTORED AND APPROVED BY CITY PRIOR TO FINAL ASPHALT PAVING.
2. IN ADDITION TO THE WORK SHOWN ON THE PLANS, THE CONTRACTOR SHALL REPAIR ALL ROADS, CURBS, GUTTERS AND LANDSCAPED AREAS DAMAGED DURING CONSTRUCTION.

SCANNED
JUL 22 2009
CITY OF NAPLES

CONFORMED DRAWINGS
OCTOBER 1999

REV. NO.	DATE	DRWN	CHKD	REMARKS
	10/99	BKW	JLH	CONFORMED DRAWING
⚠	08/99	BKW	JLH	REVISIONS PER ADDENDUM NO. 1

DESIGNED BY: M. NICHOLS
DRAWN BY: B. WILLIAMS
SHEET CHK'D BY: M. NICHOLS
CROSS CHK'D BY: J. HAGERTY
APPROVED BY: J. HAGERTY
DATE: AUGUST 1999

CDM Camp Dresser & McKee Inc.
consulting engineering construction operations

STORMWATER SYSTEM MAINTENANCE IMPROVEMENTS - PART I
CITY OF NAPLES, FLORIDA

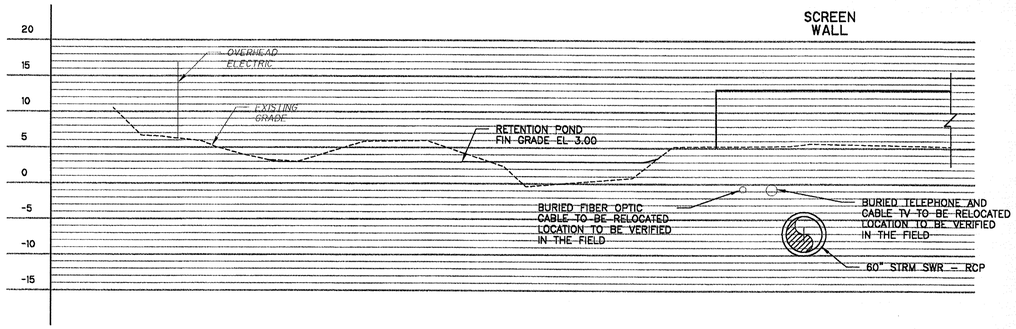
DRAINAGE BASIN VI - PUMP STATION CONSTRUCTION

PAVING AND GRADING PLAN

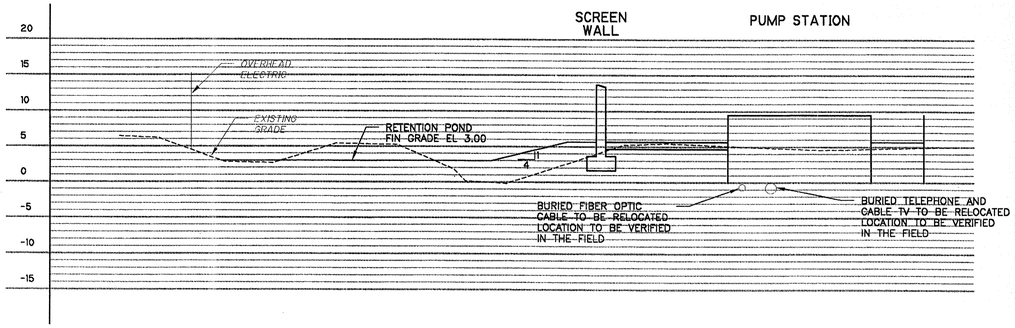
PROJECT NO. 6680-24619
FILE NAME: CPGSDC05.DWG

SHEET NO.
C-5

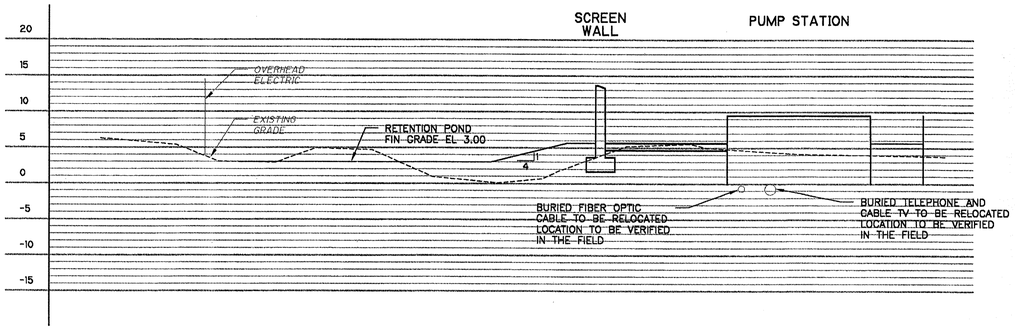
P:\6680\24619\Conformed\CIVIL\ Cpgsdc05 10/22/99 08:21:59 Williamsb 11:50:06



SECTION 1 / C-4
1" = 10'



SECTION 2 / C-4
1" = 10'



SECTION 3 / C-4
1" = 10'

SCANNED
JUL 22 2009
CITY OF NAPLES
CONFORMED DRAWINGS
OCTOBER 1999

REV. NO.	DATE	DRWN	CHKD	REMARKS
	10/99	BKW	JLH	CONFORMED DRAWING
1	08/99	BKW	JLH	REVISIONS PER ADDENDUM NO. 2

DESIGNED BY: M. NICHOLS
DRAWN BY: B. WILLIAMS
SHEET CHK'D BY: M. NICHOLS
CROSS CHK'D BY: J. HAGERTY
APPROVED BY: J. HAGERTY
DATE: AUGUST 1999

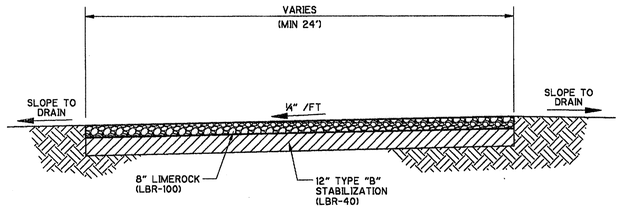
CDM Camp Dresser & McKee Inc.
consulting engineering construction operations

STORMWATER SYSTEM MAINTENANCE IMPROVEMENTS - PART I
CITY OF NAPLES, FLORIDA
DRAINAGE BASIN VI - PUMP STATION CONSTRUCTION

RETENTION POND CROSS SECTIONS

PROJECT NO. 6680-24619
FILE NAME: CSTCSC06.DWG
SHEET NO. **C-6**

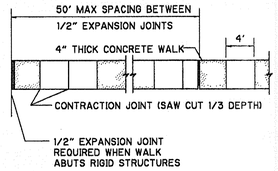
P:\6680\24619\GRAPHICS\CSTCSC06 7:48:17 Williamsb



LIMEROCK DRIVEWAY

DETAIL A

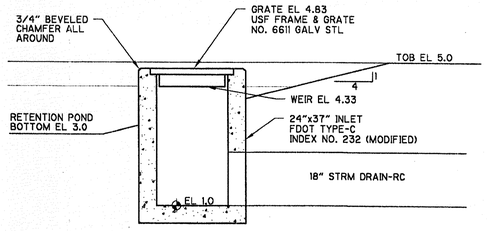
1/4" = 1'-0"



CONCRETE WALK

DETAIL B

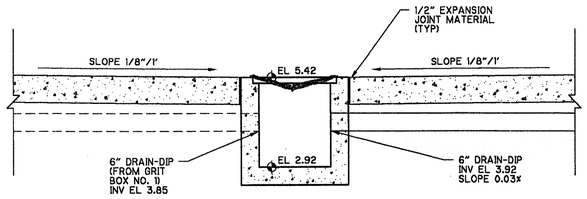
NTS



CONTROL STRUCTURE

DETAIL C

1/2" = 1'-0"



GRIT BOX
(FDOT INDEX 234 TYPE J MODIFIED)

DETAIL D

1/2" = 1'-0"

9.50
4.14
4.18

SCANNED
JUL 2 2 2009
CITY OF NAPLES

CONFORMED DRAWINGS
OCTOBER 1999

REV. NO.	DATE	DRWN	CHKD	REMARKS
	10/99	BKW	JLH	CONFORMED DRAWINGS
1	08/99	BKW	JLH	REVISIONS PER ADDENDUM NO. 1

DESIGNED BY: M. NICHOLS
DRAWN BY: M. BANDA
SHEET CHK'D BY: M. NICHOLS
CROSS CHK'D BY: J. HAGERTY
APPROVED BY: J. HAGERTY
DATE: AUGUST 1999

CDM Camp Dresser & McKee Inc.
consulting engineering construction operations

STORMWATER SYSTEM MAINTENANCE IMPROVEMENTS - PART I
CITY OF NAPLES, FLORIDA
DRAINAGE BASIN VI - PUMP STATION CONSTRUCTION

MISCELLANEOUS CIVIL DETAILS

PROJECT NO. 6680-24619
FILE NAME: CMCDLCD1.DWG

SHEET NO.
CD-1

P:\6680\24619\Conformed\CIVIL\MCDetails.dwl 10/22/99 08:25:11 Williamsb 9.58.19

ABBREVIATIONS

&	AND
∠	ANGLE
@	AT
AB	ANCHOR BOLT
ABV	ABOVE
ACMU	ACOUSTICAL CONCRETE MASONRY UNIT
ADH	ADHESIVE
AFF	ABOVE FINISHED FLOOR
AL	ALUMINUM
AMP	ACOUSTICAL METAL PANELS
ANOD	ANODIZE
ASSY	ASSEMBLY
BD	BOARD
BEV	BEVEL (ED)
BLDG	BUILDING
BLK	BLOCK
BLKG	BLOCKING
BRG	BEARING
BRK	BRICK
BRS	BRASS
BRZ	BRONZE
BS	BOTH SIDES
BTM	BOTTOM
C TO C	CENTER TO CENTER
CAB	CABINET
CARP	CARPET
CEM	CEMENT
CF	COMPRESSIBLE FILLER
CGFB	CEMENTITIOUS GLASS FIBER BOARD
CH	CONCRETE HARDENER
CHAM	CHAMFER
CHAN	CHANNEL
CIP	CAST IN PLACE
CJ	CONTROL JOINT
CL or ℄	CENTERLINE
CLG	CEILING
CLKG	CAULKING
CMU	CONCRETE MASONRY UNITS
COL	COLUMN
COMP	COMPRESSIBLE
CONC	CONCRETE
CONT	CONTINUOUS
CRS	COURSE (S)
CT	CERAMIC TILE
DET	DETAIL
DF	DRINKING FOUNTAIN
DIA	DIAMETER
DIAG	DIAGONAL
DIM	DIMENSION
DISP	DISPENSER
DN	DOWN
DP	DAMPROOFING
DR	DRAIN
DWG	DRAWING
EA	EACH
EL	ELEVATION
ELEC	ELECTRICAL
ELEV	ELEVATOR
EQ	EQUAL (LY)
EQPT	EQUIPMENT
EWC	ELECTRIC WATER COOLER
EXP	EXPANSION
EXP	EXPOSED
EJ	EXPANSION JOINT
EXIST	EXISTING
FD	FLOOR DRAIN
FE	FIRE EXTINGUISHER
FF	FACTORY FINISH
FGL	FIBERGLASS
FIN	FINISH(ED)
FLG	FLASHING
FL	FLOOR(ING)
FLR	FILLER
FR	FRAME
FO	FRAME OPENING
FV	FIELD VERIFY
FXD	FIXED
GA	GAGE, GAUGE
GALV	GALVANIZED
GL	GLASS
GB	GLASS BLOCK
GRTG	GRATING
GYP	GYPSUM
HARD	HARDENER
HD	HEAVY DUTY
HDWD	HARDWOOD
HDWR	HARDWARE
HGR	HANGER
HGT	HEIGHT
HM	HOLLOW METAL
HOR	HORIZONTAL
HP	HIGH POINT
HR	HANDRAIL
IN	INCH
INST	INSTRUMENTATION
INSUL	INSULATION
JC	JANITOR'S CLOSET
JT	JOINT
JT FLR	JOINT FILLER
L	LINE OR STRUCTURAL ANGLE DESIGNATION
LAB	LABORATORY
LAD	LADDER
LAM	LAMINATED
LAV	LAVATORY
LG	LAMINATED GLASS
LKR	LOCKER
LNTL	LINTEL
LP	LIGHT POLE
LP	LOW POINT
LT	LIGHT (S)
MAS	MASONRY
MATL	MATERIAL
MAX	MAXIMUM
MEMB	MEMBRANE
MFR	MANUFACTURER
MIN	MINIMUM
MISC	MISCELLANEOUS
MO	MASONRY OPENING
MR	MOISTURE RESISTANT
MRAT	MOISTURE RESISTANT ACOUSTICAL TILE
MTD	MOUNTED
MTG	MOUNTING
MTL	METAL
NIC	NOT IN CONTRACT
NOM	NOMINAL
NTS	NOT TO SCALE
OC	ON CENTER OR ODOR CONTROL
OFRD	OVER FLOW ROOF DRAIN
OPNG	OPENING
OPP HD	OPPOSITE HAND
ORD	OVERFLOW ROOF DRAIN
OSB	ORIENTED STRAND BOARD
OV	OVER
OVHD	OVERHEAD
PERIM	PERIMETER
PL	PLATE
PL	PROPERTY LINE
PLAS	PLASTER
PLK	PLANK
PLYWD	PLYWOOD
PM	PRESSED METAL
PR	PAIR
PR	PRETREATED WATER SYSTEM
PRD	PROMENADE ROOF DRAIN
PRCST	PRECAST
PREFAB	PRE-FABRICATED
PT	PRESSURE TREATED
PRMLD	PREMOLDED
PSF	POUNDS PER SQUARE FOOT
PTD	PAINTED
QT	QUARRY TILE
QTB	QUARRY TILE BASE
R	RISER(S)
R+S	BACKER ROD & SEALANT
RB	RUBBER BASE
RD	ROOF DRAIN
RECT	RECEPTACLE
REF	ROOF EXHAUST FAN
REINF	REINFORCE (D, ING)
REQD	REQUIRED
REV	REVISION
RF	ROOF FAN
RFG	ROOFING
RGH	ROUGH
RJ	REVEAL/RUSTICATION JOINT
RL	RAIN LEADER
RLG	RAILING
RM	ROOM
RO	ROUGH OPENING
RT	RUBBER TILE
RWL	RAIN WATER LEADER
S	STEEL S-SHAPE DESIGNATION
SAT	SUSPENDED ACOUSTICAL TILE
SB	SEAMLESS BASE
SCHED	SCHEDULE
SCRN	SCREEN(ED)
SECT	SECTION
SF	SEAMLESS FLOORING
SGFT	STRUCTURAL GLAZED FACING TILE
SHT	SHEET
SIM	SIMILAR
SK	SINK
SL	SLOPE
SLNT	SEALANT
SPEC	SPECIFICATION, SPECIFIED
SST	STAINLESS STEEL
STD	STANDARD
STL	STEEL
STOR	STORAGE
STRU	STRUCTURE (S, URAL)
STWY	STAIRWAY
SUPT	SUPERINTENDENT
SUSP	SUSPENDED
T	TREAD(S)
TBM	TRAFFIC BEARING MEMBRANE
T&G	TONGUE AND GROOVE
TEMP	TEMPERATURE
TEMP	TEMPERED
TEMP	TEMPORARY
TER	TERRAZZO
TERB	TERRAZZO BASE
THK	THICK(NESS)
THR	THRESHOLD
TKBD	TACKBOARD
TOIL	TOILET
TOPG	TOPPING
TOS	TOP OF STEEL
TS	STRUCTURAL TUBING (STEEL UNLESS NOTED)
TSL	TOP OF SLAB
TWF	THROUGH WALL FLASHING
TYP	TYPICAL
UC	UNDERCUT
UON	UNLESS OTHERWISE NOTED
UR	URINAL
VB	VAPOR BARRIER
VCT	VINYL COMPOSITION TILE
VERT	VERTICAL
VTR	VENT THRU ROOF
W	WIDE
W/	WITH
W/A	WHERE APPLICABLE
W/O	WITHOUT
WC	WATER CLOSET
WD	WIDTH
WD	WOOD
WDW	WINDOW
WF	WIDE FLANGE
WPG	WATERPROOFING
WT	STEEL TEE-SHAPE DESIGNATION
WWF	WELDED WIRE FABRIC

LINE TYPES (UNLESS OTHERWISE NOTED)

CONTINUOUS - NEW CONSTRUCTION

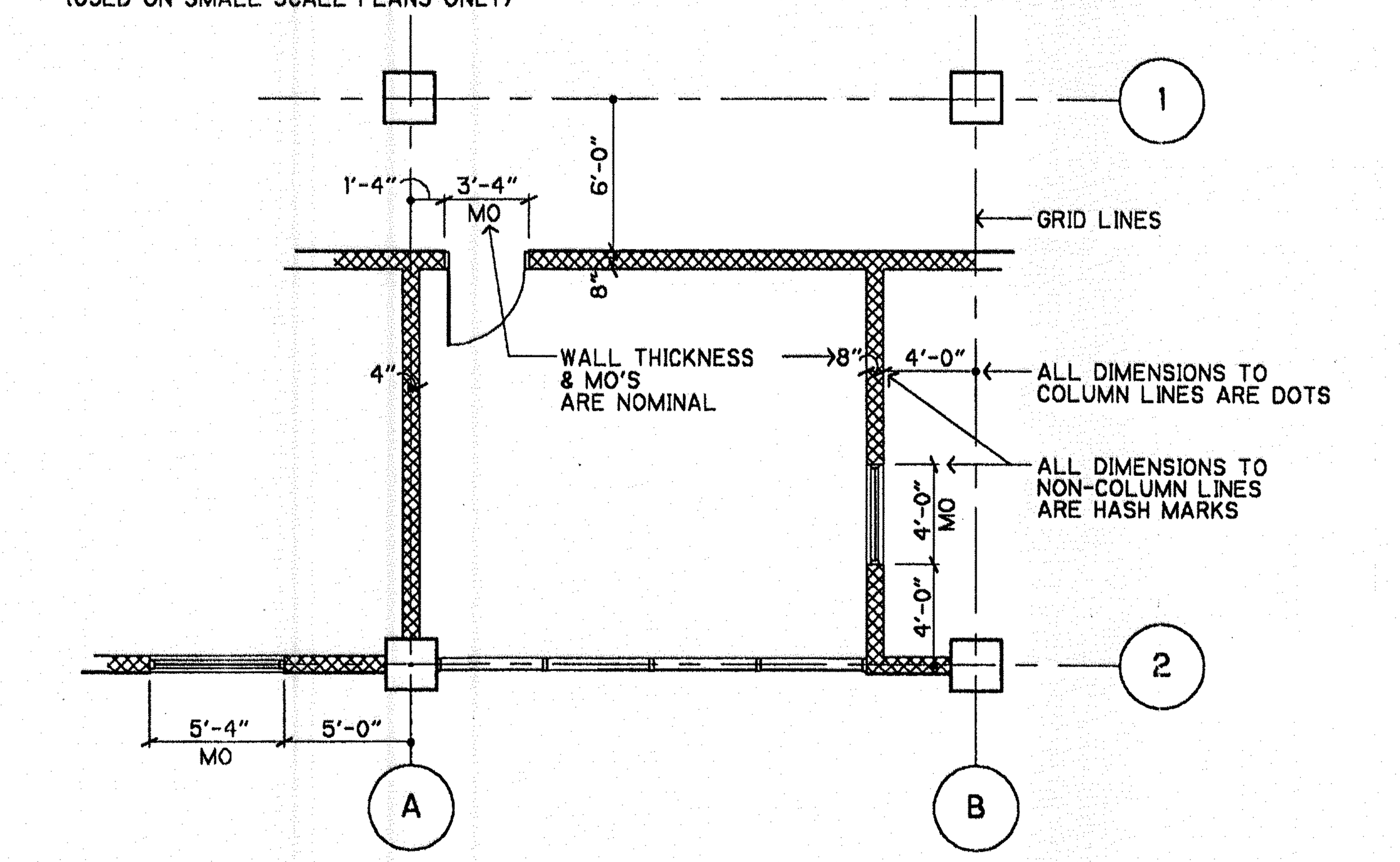
DASHED ON CONSTRUCTION PLANS/SHEETS - HIDDEN ELEMENTS ABOVE, BELOW, OR BEYOND

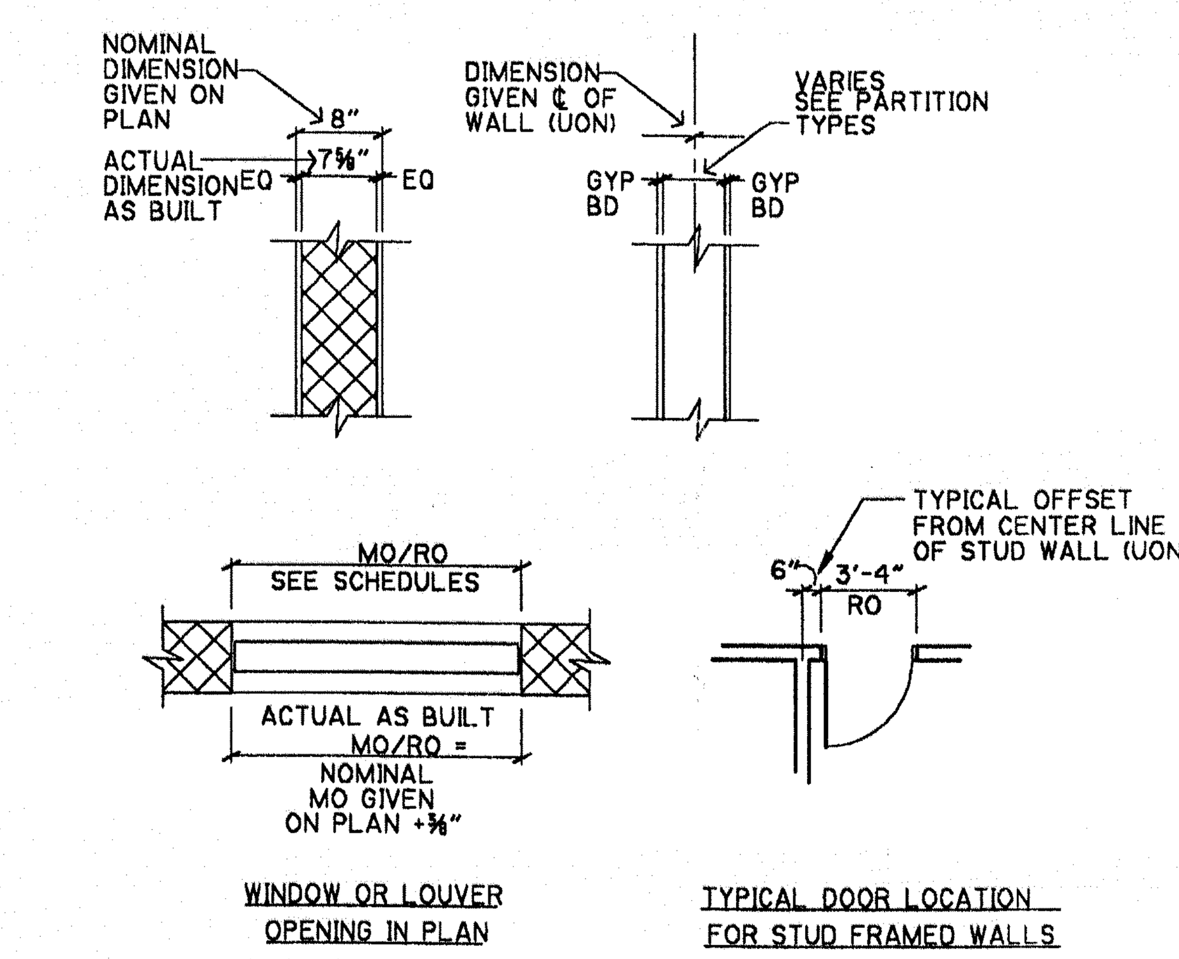
MATERIAL SYMBOLS

EARTH, SOIL
GRAVEL
BRICK
CONCRETE BLOCK
PRECAST CONCRETE
CONC CAST IN PLACE
WOOD-BLOCKING
WOOD-FINISH
PLYWOOD
RIGID INSULATION
BLANKET INSULATION
STEEL
ALUMINUM
GROUT
CAULK
GLASS
STRUCTURAL STEEL
SHEET METAL, STEEL, GLASS, WATERPROOFING

DIMENSIONING SYSTEM

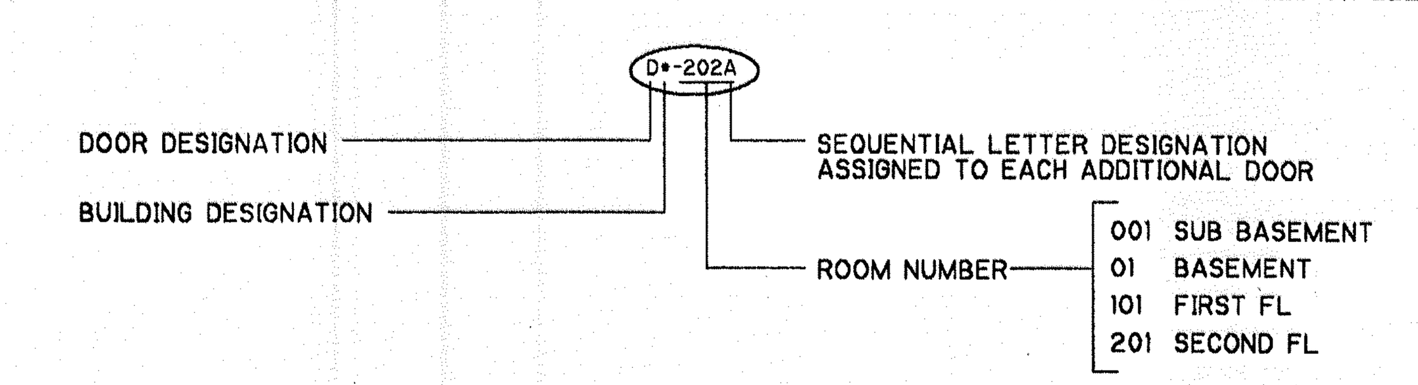
(USED ON SMALL SCALE PLANS ONLY)

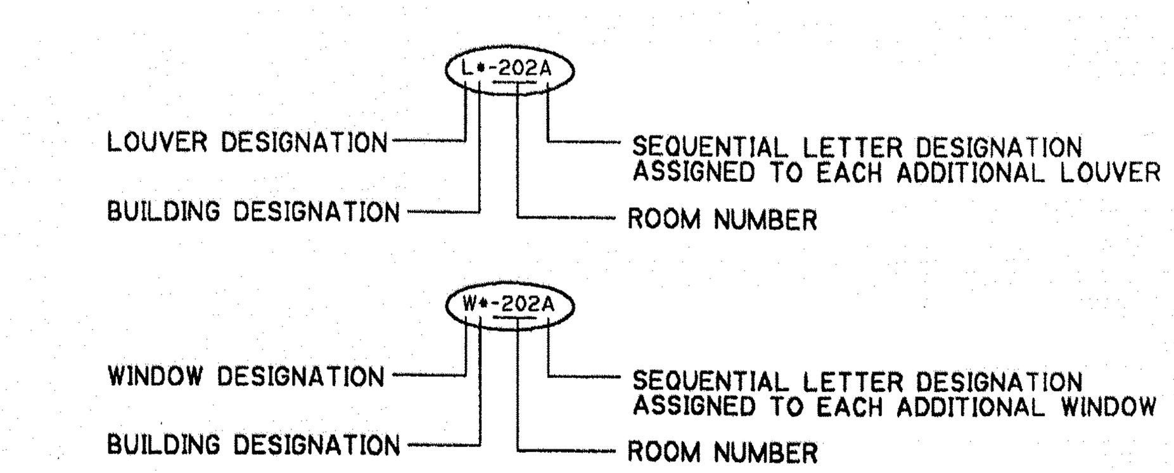




OPENINGS

USUALLY LABELLED IN PLAN VIEW; HOWEVER, OPENINGS NOT SHOWN IN PLAN ARE LABELLED ON ELEVATIONS

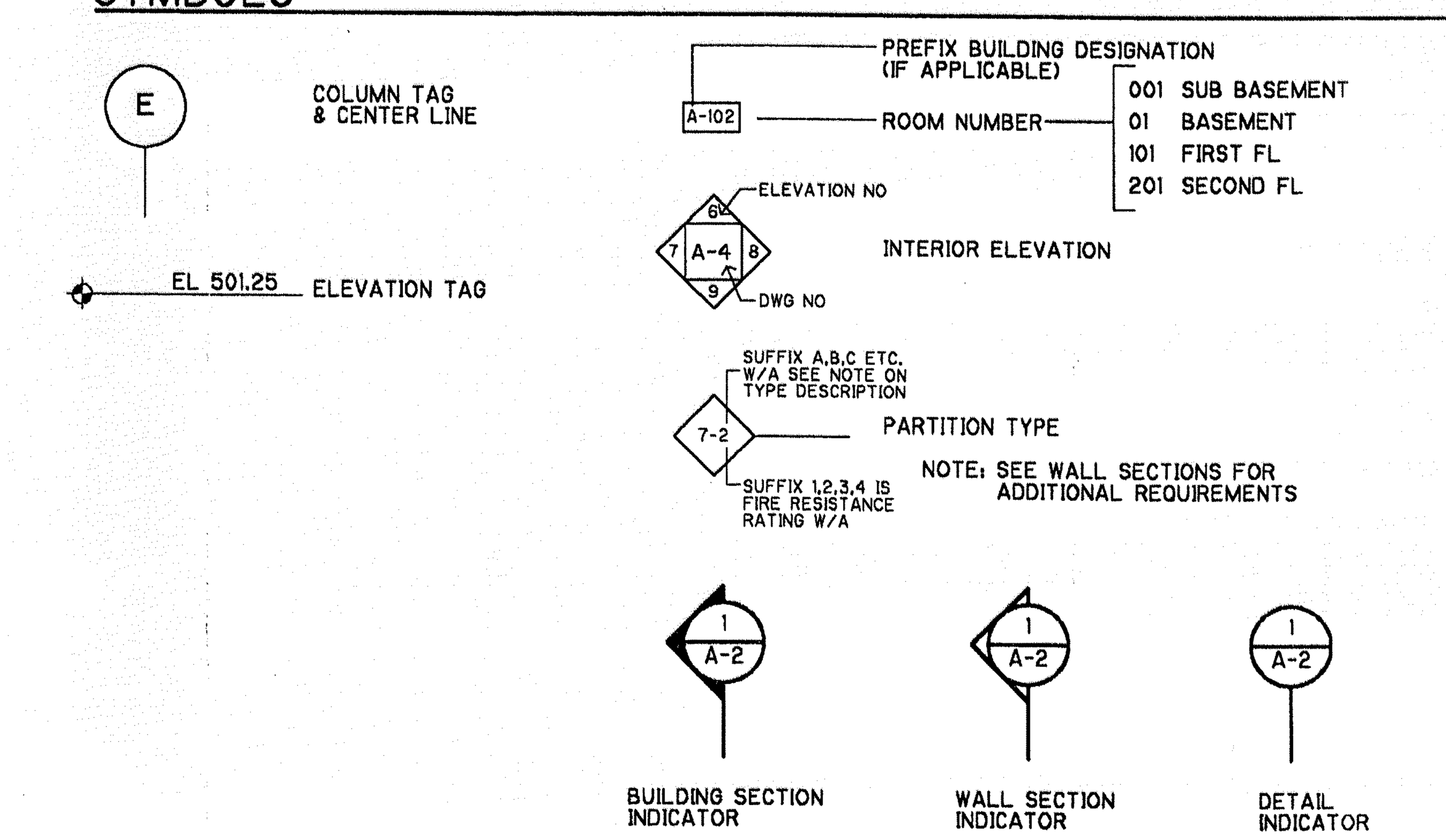




ACCESSORIES & EQUIPMENT

GB42 EQUIPMENT, LABORATORY CASEWORK, OR ACCESSORY SYMBOL AS NOTED

SYMBOLS



DOOR SCHEDULE

BUILDING DESIGNATION	ROOM NAME	DOOR NUMBER	DOOR SIZE		DOORS			FRAMES			DETAILS				FIRE RATING (MINUTES)	HARD-WARE SET	NOTE NO	NOTES
			WIDTH	HEIGHT	TYPE	MAT'L	FIN	TYPE	MAT'L	FIN	HEAD	JAMB	JAMB	THRES-HOLD				
ELECTRICAL BUILDING (DESIGNATION "A")	ELECTRICAL ROOM	DA-100	3'-0"	7'-10"	A	HM	PTD	A	PM	PTD	B/-	C/-	C/-	A/-	-	2	1,2	1. PAIR OF EQUAL DOORS
	ELECTRICAL ROOM	DA-100A	3'-0"	7'-10"	A	HM	PTD	A	PM	PTD	B/-	C/-	C/-	A/-	-	1	-	2. PROVIDE ASTRAGAL AT DBL EXT DOORS

HARDWARE SETS SCHEDULE

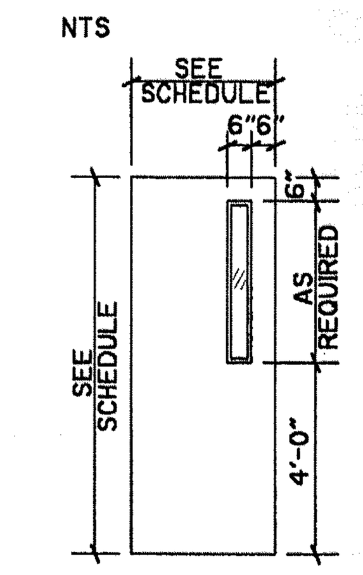
HARDWARE SET	HINGES	LOCKSET/ EXIT DEVICES	CLOSER	STOP	KICK-PLATE	NOTE NO	NOTES
HW-1	YES	(1) 8813 ETL OPERATION	YES-W/(1) HOLD OPEN ARM	NO	YES	-	1. AT DOUBLE DOORS, PROVIDE KICKPLATE AT EACH DOOR.
HW-2	YES	(1) 8813 ETL X FLUSHBOLTS	YES-W/(2) HOLD OPEN ARMS	NO	YES	1	GENERAL NOTES
							PROVIDE ALL DOUBLE DOORS WITH HARDWARE SET HW-2 UNLESS OTHERWISE NOTED
							PROVIDE ALL SINGLE DOORS WITH HARDWARE SET HW-1 UNLESS OTHERWISE NOTED SET HW-1 UNLESS OTHERWISE NOTED

FINISH SCHEDULE

BUILDING DESIGNATION	ROOM NUMBER	ROOM NAME	FLOORS	WALLS			CEILINGS		NOTE NO	NOTES
			FINISH	BASE	DETAIL	FINISH	FINISH	HEIGHT		
ELECTRICAL BUILDING (DESIGNATION "A")	A-100	ELECTRICAL ROOM	CONCRETE	-	-	PAINT	SAT	10'-0"	-	GENERAL NOTES PROVIDE CONCRETE HARDENER AND LIGHT BROOM FINISH AT ALL EXPOSED CONCRETE FLOORS (UNLESS OTHERWISE NOTED) EXPOSED INTERIOR CONCRETE, WALLS, BEAMS, AND PILASTERS SHALL HAVE SMOOTH FORM/RUBBED FINISH AND PAINTED (UNLESS OTHERWISE NOTED)

DOOR TYPES

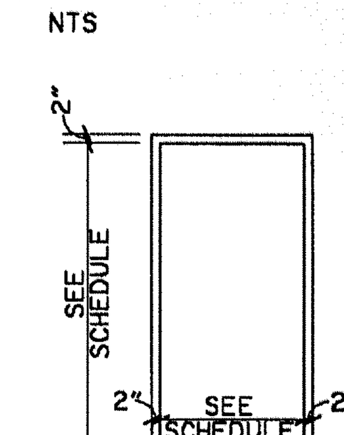
NTS



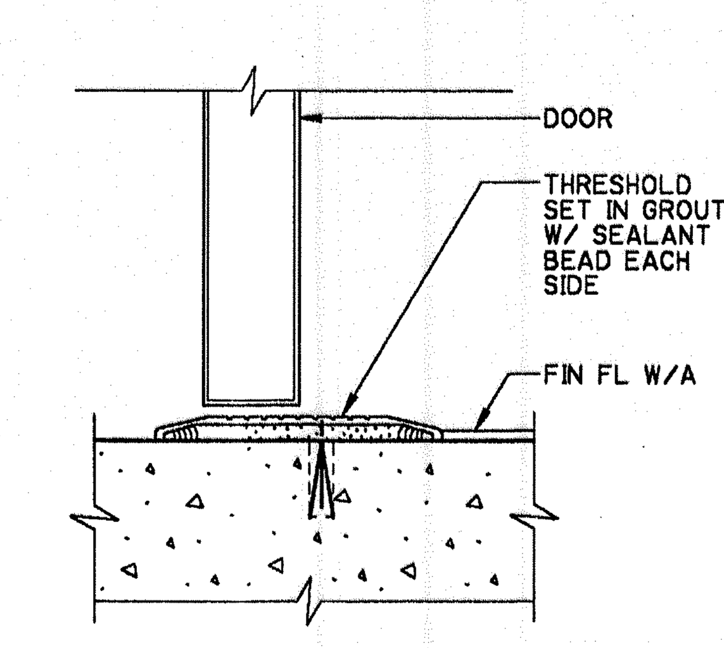
A SEE SPEC FOR GLAZING

FRAME TYPES

NTS

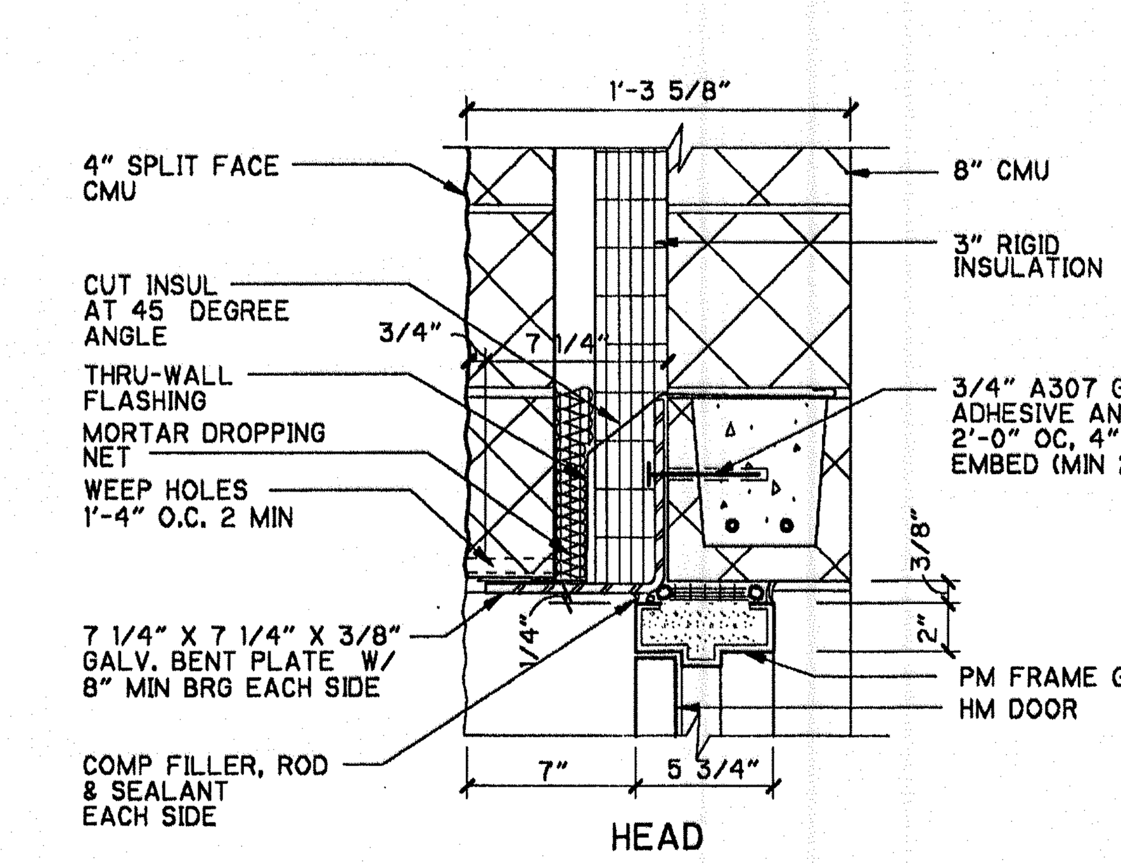


A



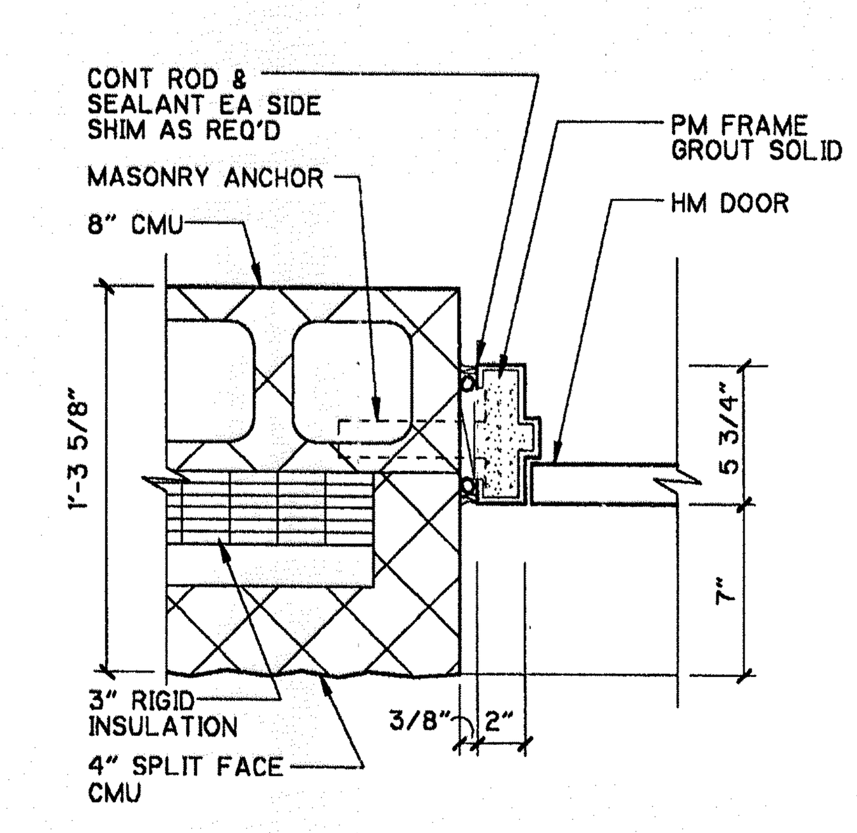
DOOR THRESHOLD

DETAIL A
3" = 1'-0"



HEAD

DETAIL B
1 1/2" = 1'-0"



DOOR JAMB

DETAIL C
1 1/2" = 1'-0"

GENERAL NOTES

HEIGHT OF INTERIOR PARTITIONS ARE FROM FLOOR TO UNDERSIDE OF STRUCTURE (UNLESS OTHERWISE NOTED)

NOT ALL EQUIPMENT IS SHOWN FOR CLARITY. REFER TO APPROPRIATE DISCIPLINE SHEETS FOR SPECIFIC EQUIPMENT LAYOUT AND OTHER REQ'MTS

SEE "C" SHEETS FOR SIDEWALK AND ROAD PAVING

SEE "S" SHEETS FOR SIZE AND LOCATION OF CONCRETE PADS, TRENCHES VAULTS, SUMPS AND ETC.

SEE "S" SHEETS FOR CONCRETE AND MASONRY REINFORCEMENT

DIMENSIONS DO NOT INCLUDE STUCCO (UNLESS OTHERWISE NOTED)

SCANNED
JUL 22 2009
CITY OF NAPLES

ARCHITECTURAL SHEET INDEX

CONFORMED DRAWINGS
OCTOBER 1999

REV. NO.	DATE	DRWN	CHKD	REMARKS
	10/99	BSY	KMH	CONFORMED DRAWINGS

DESIGNED BY: B. YOHE
DRAWN BY: B. YOHE
SHEET CHK'D BY: K. HOSKINS
CROSS CHK'D BY: J. HAGERTY
APPROVED BY: K. HOSKINS
DATE: AUGUST 1999

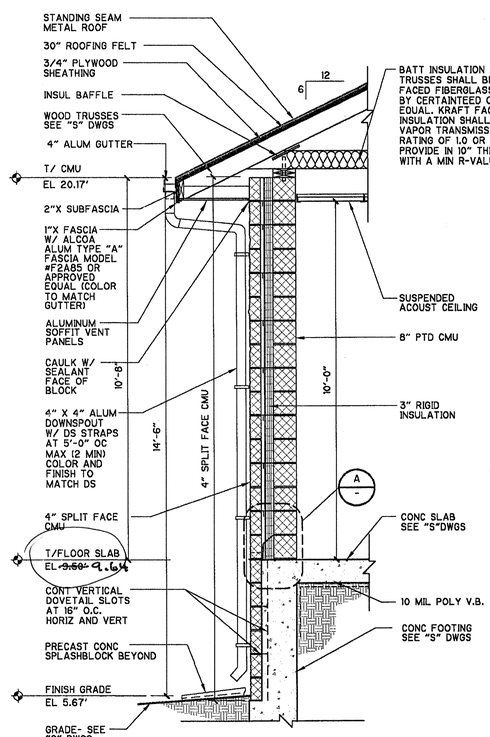
CDM Camp Dresser & McKee Inc.
consulting engineering construction operations
FLORIDA CORPORATE ARCHITECTURE LICENSE NUMBER AA-0002781

STORMWATER SYSTEM MAINTENANCE IMPROVEMENTS - PART I
CITY OF NAPLES, FLORIDA

DRAINAGE BASIN IV - PUMP STATION CONSTRUCTION

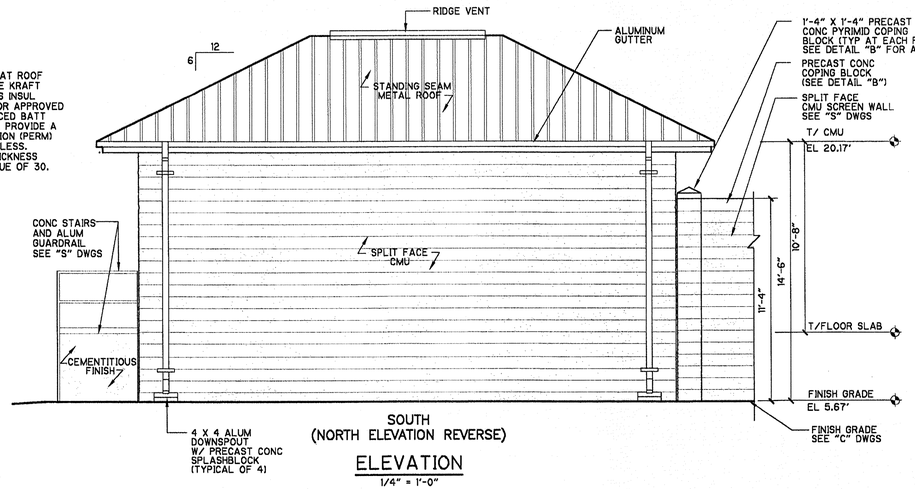
ARCHITECTURAL SHEET INDEX, ABBREVIATIONS, SYMBOLS, FINISH SCHEDULE, DOOR SCHEDULE, DOOR TYPES, FRAME TYPES, DOOR DETAILS AND HARDWARE SETS SCHEDULE

PROJECT NO. 6680-24619
FILE NAME: ACSNX001
SHEET NO. A-1



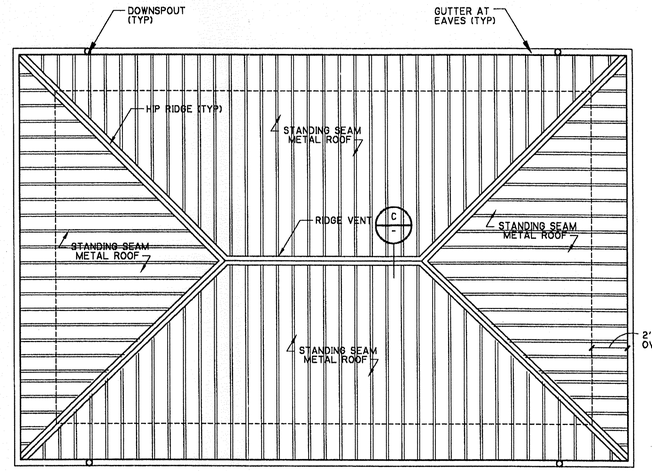
TYPICAL WALL

SECTION 1 / 1/2"=1'-0"



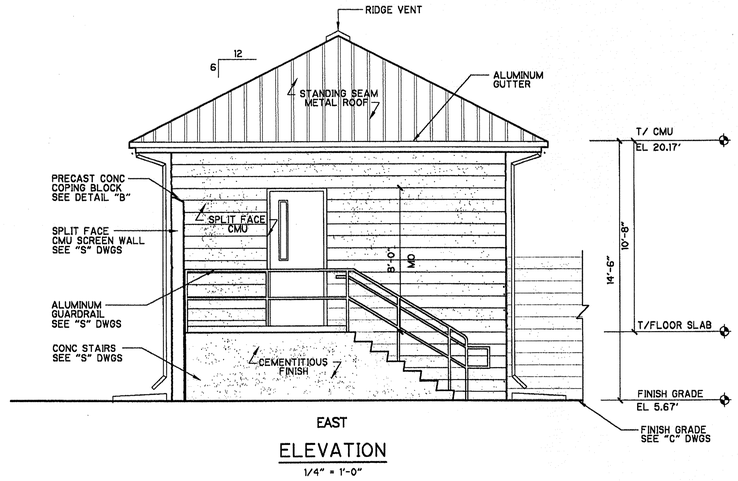
SOUTH (NORTH ELEVATION REVERSE)

ELEVATION 1/4" = 1'-0"



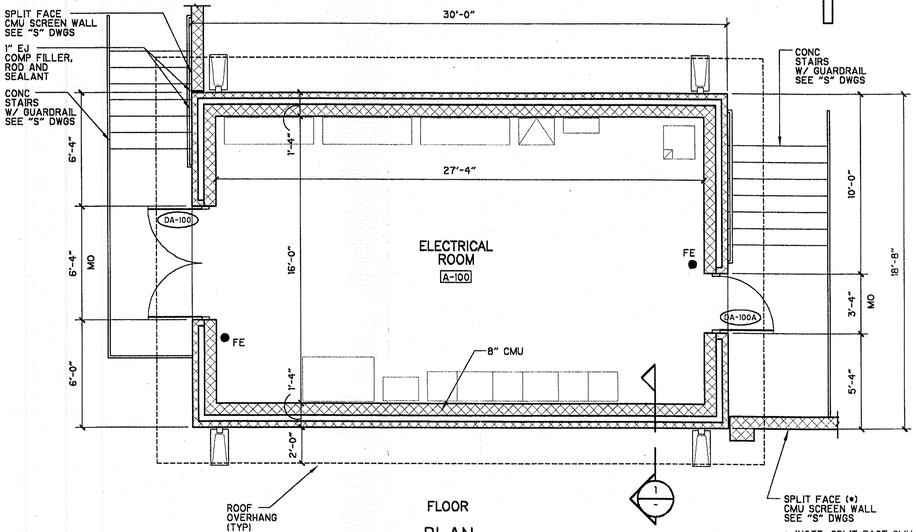
ROOF

PLAN 1/4" = 1'-0"



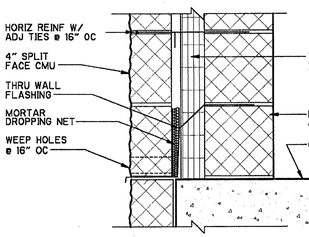
EAST

ELEVATION 1/4" = 1'-0"



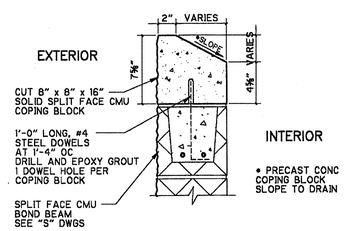
FLOOR

PLAN 1/4" = 1'-0"



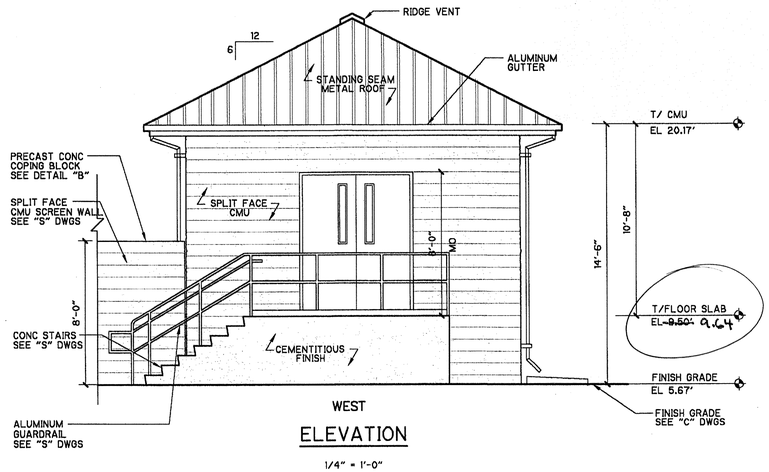
TYPICAL CAVITY WALL

DETAIL A / 1 1/2" = 1'-0"



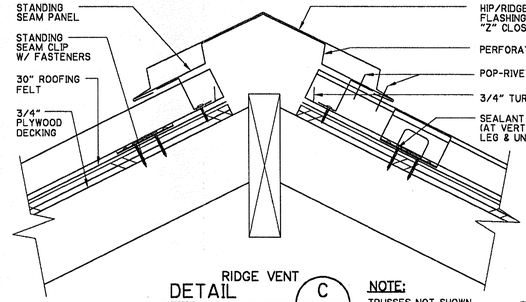
COPING BLOCK

DETAIL B / 1 1/2" = 1'-0"



WEST

ELEVATION 1/4" = 1'-0"



DETAIL C / 3" = 1'-0"

NOTE: TRUSSES NOT SHOWN SEE"S"DWGS

Adjusted Floor Slab Elevation

SCANNED JUL 22 2009 CITY OF NAPLES

CONFORMED DRAWINGS OCTOBER 1999

REV. NO.	DATE	DRWN	CHKD	REMARKS
	10/99	BSY	KMH	CONFORMED DRAWINGS

DESIGNED BY: B. YOHE
DRAWN BY: B. YOHE
SHEET CHK'D BY: K. HOSKINS
CROSS CHK'D BY: J. HAGERTY
APPROVED BY: K. HOSKINS
DATE: AUGUST 1999

CDM Camp Dresser & McKee Inc.
consulting engineering construction operations
FLORIDA CORPORATE ARCHITECTURE LICENSE NUMBER AA-0002781

STORMWATER SYSTEM MAINTENANCE IMPROVEMENTS - PART I
CITY OF NAPLES, FLORIDA
DRAINAGE BASIN IV - PUMP STATION CONSTRUCTION

ELECTRICAL BUILDING
FLOOR PLAN, ROOF PLAN, ELEVATIONS, TYPICAL WALL SECTION AND DETAILS

PROJECT NO. 6680-24619
FILE NAME: AELEPL001

SHEET NO. **A-2**

GENERAL NOTES

DESIGN CRITERIA
CODES:

- STANDARD BUILDING CODE (LATEST EDITION)
- ACI 318 "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE"
- ACI 530 "BUILDING CODE REQUIREMENTS FOR CONCRETE MASONRY STRUCTURES"
- AISC MANUAL OF STEEL CONSTRUCTION, NINTH EDITION
- ACI 350 "ENVIRONMENTAL ENGINEERING CONCRETE STRUCTURES

DESIGN LIVE LOADS:

- ROOFS	20 PSF
PROCESS SLABS	200 PSF
OTHER SLABS (AS NOTED)	100 PSF
WINDLOADS	
- BASIC WIND SPEED	120 MPH
- DESIGN PRESSURES: PER ASCE 7, FIGURE 1606 & TABLE 1606 OF THE STANDARD BUILIDING CODE	
EARTHQUAKE	NA
SNOW	NA
CONCRETE 28-DAY STRENGTH	
- PRECAST CONCRETE	5000 PSI
- COLUMNS, BEAMS, SLABS, WALLS, FOOTINGS	4000 PSI
- MASONRY FILLED CELL GROUT	2500 PSI
REINFORCING STEEL	
- ALL BARS ASTM A615, GRADE 60	60,000 PSI
- WELDED WIRE FABRIC ASTM A185	--

STRUCTURAL STEEL

- ALL STRUCTURAL AND MISC. STEEL UNLESS NOTED: A36
- SHOP AND FIELD WELD: E70XX ELECTRODES

FOUNDATIONS

- ALLOWABLE BEARING PRESSURE FOR SPREAD FOOTINGS OVER SUBSURFACE PREPARED AS PER SPECIFICATIONS: 2500 PSF

GENERAL CONDITIONS

ALL STRUCTURAL DRAWINGS SHALL BE USED IN CONJUNCTION WITH THE MECHANICAL, CIVIL, BUILDING DESIGN, ELECTRICAL, AND SHOP DRAWIINGS AND SPECIFICATIONS.

THE CONTRACTOR SHALL REVIEW AND VERIFY DIMENSIONS SHOWN IN ALL PLANS AND REVIEW ALL FIELD CONDITIONS THAT MAY AFFECT THE INSTALLATION OF THE FACILITY. SHOULD DISCREPANCIES APPEAR, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IN WRITING TO OBTAIN ENGINEER'S CLARIFICATION BEFORE COMMENCING WITH THE WORK.

FOR ALL ITEMS EMBEDDED IN OR PASSED THROUGH CONCRETE, THE CONTRACTOR SHALL INITIALLY REFER TO MECHANICAL, HEATING, AND VENTILATION DRAWINGS FOR TYPE, SIZE, LOCATION, AND SPECIAL INSTALLATION REQUIREMENTS FOR THESE ITEMS.

SIZE AND LOCATION OF EQUIPMENT PADS AND ANCHOR BOLTS SHALL BE PER EQUIPMENT MANUFACTURERS REQUIREMENTS.

ANY EQUIPMENT THAT MAY INDUCE VIBRATION TO THE STRUCTURE SHALL BE ADEQUATELY ISOLATED FROM THE STRUCTURES.

ALL DETAILS AND SECTIONS SHOWN ON THE DRAWINGS ARE INTENDED TO BE TYPICAL AND SHALL BE CONSTRUED TO APPLY TO ANY SIMILAR SITUATION ELSEWHERE ON THE PROJECT, EXCEPT WHERE A DIFFERENT DETAIL IS SHOWN.

STANDARD DETAILS (SHOWN ON SD1 AND SD2) APPLY TO ALL SIMILAR SITUATIONS ON THE PROJECT, EXCEPT WHERE A DIFFERENT DETAIL IS SHOWN.

CONCRETE

ALL MATERIALS AND METHODS OF CONSTRUCTION SHALL BE IN ACCORDANCE WITH ACI 318 REQUIREMENTS.

ALL CONCRETE SHALL BE AIR-ENTRAINED WITH 4000 PSI COMPRESSIVE STRENGTH AT 28 DAYS.

WATER REDUCING AGENT SHALL BE IN ACCORDANCE WITH ASTM C494.

ALL CONCRETE SURFACES EXPOSED TO AIR, UNLESS OTHERWISE NOTED IN SPECIFICATIONS, SHALL BE TREATED WITH AN APPROPRIATE CURING COMPOUND AS SOON AS CEMENT FINISHING IS COMPLETED OR FORMS ARE REMOVED.

ALL EXPOSED CORNERS OF CONCRETE SHALL HAVE A MINIMUM CHAMFER OF 3/4" UNLESS OTHERWISE NOTED.

THE CONTRACTOR SHALL OBTAIN ENGINEER'S APPROVAL FOR THE LOCATION OF CONSTRUCTION JOINTS THAT ARE NOT SHOWN ON THE DRAWINGS.

REINFORCING STEEL

REINFORCEMENT SHALL CONFORM TO ASTM A615, GRADE 60 REQUIREMENTS.

ALL ACCESSORIES SHALL BE IN CONFORMANCE WITH ACI 315 REQUIREMENTS. REINFORCING STEEL SHALL HAVE THE FOLLOWING CLEAR COVER UNLESS OTHERWISE NOTED:

- CONCRETE CAST AGAINST EARTH	3"
- FORMED SURFACES IN CONTACT WITH SOIL, SEWAGE, WATER OR EXPOSED TO WEATHER	2"
- FORMED SURFACES NOT EXPOSED TO WEATHER OR IN CONTACT WITH SOIL:	
- SLABS, WALLS, AND JOISTS	3/4"
- BEAMS AND COLUMNS	1 1/2"

LAP SPLICES SHALL BE AS SHOWN ON THE DRAWINGS. FOR LAP SPLICES NOT SHOWN ON THE DRAWINGS, THE CONTRACTOR SHALL OBTAIN ENGINEERS APPROVAL.

THE CONTRACTOR SHALL PREPARE PLACING DRAWINGS AND SCHEDULES IN CONFORMANCE WITH ACI 315 REQUIREMENTS.

DESIGN CRITERIA:

- DESIGN COMPRESSIVE STRENGTH OF MASONRY AT 28 DAYS f'm = 1500 PSI
- ALLOWABLE STEEL STRESS fs = 24,000 PSI

CONTINUOUS INSPECTION IS REQUIRED FOR ALL MASONRY WORK

ALL MATERIALS AND METHODS OF CONSTRUCTION SHALL BE IN ACCORDANCE WITH DRAWINGS AND SPECIFICATIONS AND:

- THE NATIONAL CONCRETE MASONRY ASSOCIATION "SPECIFICATIONS FOR DESIGN AND CONSTRUCTION OF LOAD BEARING STRUCTURES."
- ACI 530 "BUILDING CODE REQUIREMENTS FOR REINFORCED MASONRY STRUCTURES."

MATERIALS:

- BLOCK: CONFORM TO ASTM C90 - GRADE N, TYPE II TWO-CELL, 8"x8"x16" (COMPRESSIVE STRENGTH, GROSS AREA 1000 PSI)
- MORTAR: CONFORM TO ASTM C270, TYPE S . MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS - 1800 PSI UTILIZE TYPE II CEMENT AND TYPE S LIME. MASONRY CEMENT WILL NOT BE CONSIDERED.
- GROUT: CONFORM TO C476, COARSE GROUT. MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS - 2500 PSI
- STEEL: DUR-O-WAL OR EQUAL JOINT REINFORCEMENT AT EVERY THIRD COURSE (24" O.C.) BOND BEAM AND FILLED CELL REINFORCEMENT AS PER DRAWINGS (ASTM A615, GRADE 60).

CONSTRUCTION

- ALL FILLED CELLS AND COLUMNS SHALL BE POURED AT LEAST TWO (2) HOURS PRIOR TO POURING LINTEL BLOCK OR TIE BEAMS.
- MAX. CONSTRUCTION HEIGHT OF MASONRY WALLS WITHOUT FILLED CELL OR COLUMN POURS IS TO BE 8'-0". THE CONCRETE FOR FILLED CELLS SHALL BE RODDED OR PUDDLED DURING PLACEMENT TO INSURE COMPLETE FILLING TO THE BLOCK CORE.
- SEE STANDARD DETAILS AND ARCHITECTURAL DRAWINGS FOR LINTEL REQUIREMENTS OVER OPENINGS.
- PROVIDE CLEAN OUT AND INSPECTION BLOCK OUTS IN CELLS CONTAINING REINF.

FLOTATION CONSIDERATION

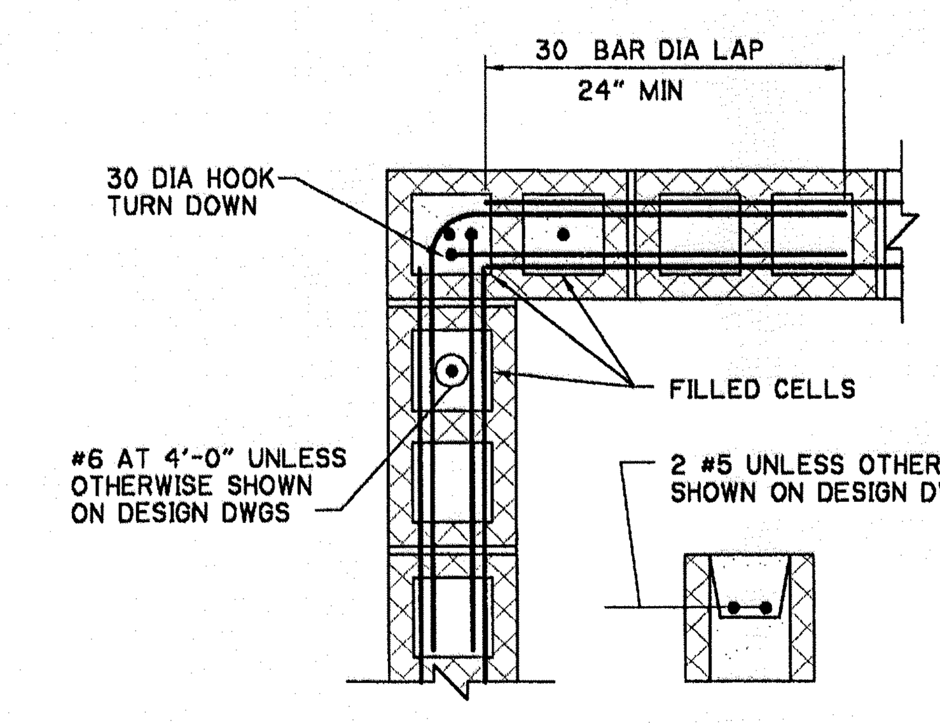
STRUCTURES WERE DESIGNED TO BE NON-BUOYANT AFTER THE STRUCTURE IS PLACED INTO SERVICE. THEREFORE, THE STRUCTURE MAY BE BUOYANT DURING CONSTRUCTION. GENERAL CONTRACTOR SHALL PROTECT ALL STRUCTURES (NEW AND EXISTING) FROM FLOATATION DURING CONSTRUCTION, REGARDLESS OF GROUND WATER LEVELS, UNTIL STRUCTURES ARE PLACED IN OPERATION.

GEOTECHNICAL REPORT

GEOTECHNICAL REPORT BY ASC GEOSCIENCES, INC. DATED MARCH 1999. INTERPRETATION OF THE CONTENTS OF THE REPORT IS THE CONTRACTOR'S RESPONSIBILITY.

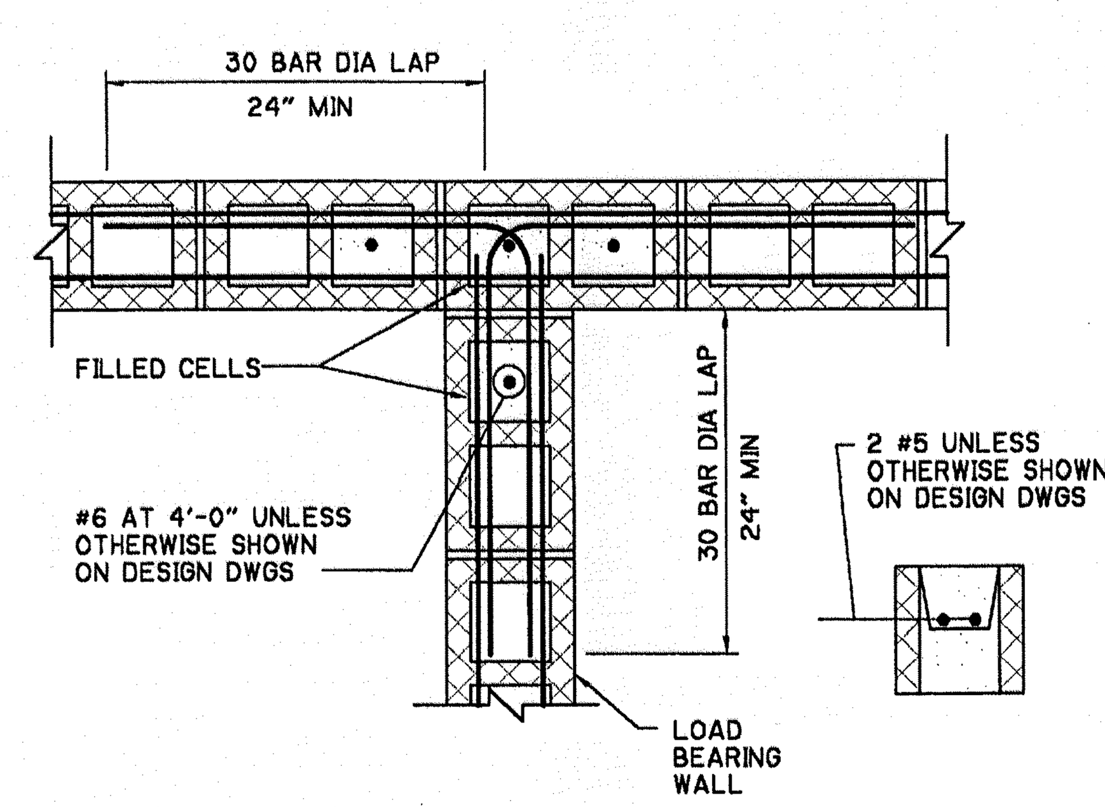
ABBREVIATIONS (FOR USE ON STRUCUTRAL DRAWINGS ONLY):

ALUM	ALUMINUM	MAT'L	MATERIAL
BLDG	BUILDING	MAX	MAXIMUM
BOT	BOTTOM	MIN	MINIMUM
CJ	CONTROL JOINT	MISC	MISCELLANEOUS
CONC	CONCRETE	NF	NEAR FACE
CONST JT	CONSTRUCTION JOINT	NTS	NOT TO SCALE
CONT	CONTINUOUS	OC	ON CENTER
DIA	DIAMETER	PROJ	PROJECTION
DWG	DRAWING	PSF	POUNDS PER SQUARE FOOT
EF	EACH FACE	PSI	POUNDS PER SQUARE INCH
EJ	EXPANSION JOINT	SPECS	SPECIFICATIONS
EL	ELEVATION	SS	STAINLESS STEEL
EW	EACH WAY	STD	STANDARD
FF	FAR FACE	REINF	REINFORCEMENT
FTG	FOOTING	T&B	TOP AND BOTTOM
HORIZ	HORIZONTAL	T/STRUCTURE	TOP OF STRUCTURE
HP	HIGH POINT	TYP	TYPICAL
ID	INSIDE DIAMETER	UN	UNLESS NOTED
LP	LOW POINT	VERT	VERTICAL



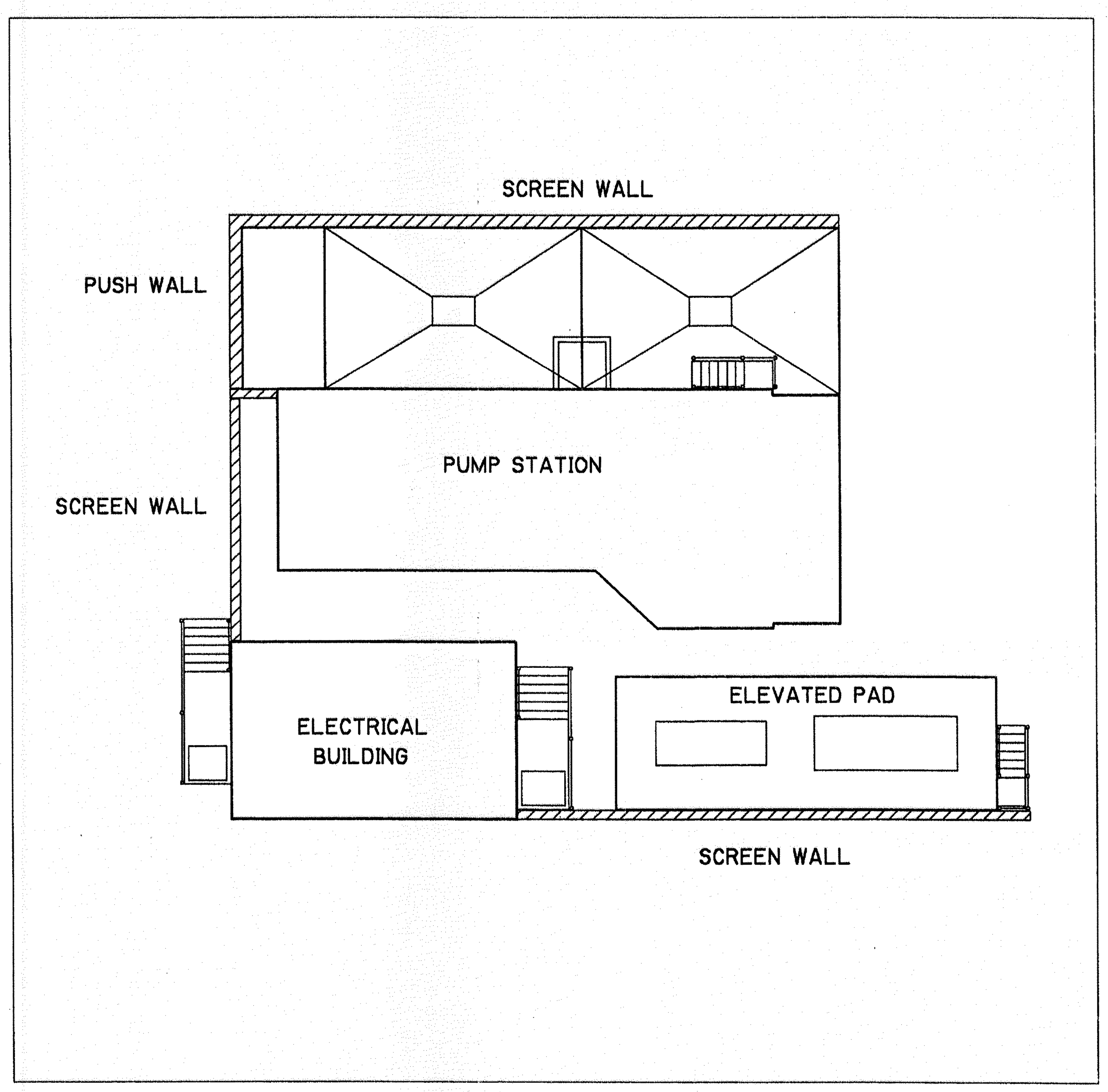
CORNER CMU/BOND BEAM/FILLED CELL

DETAIL (A / -)
NTS

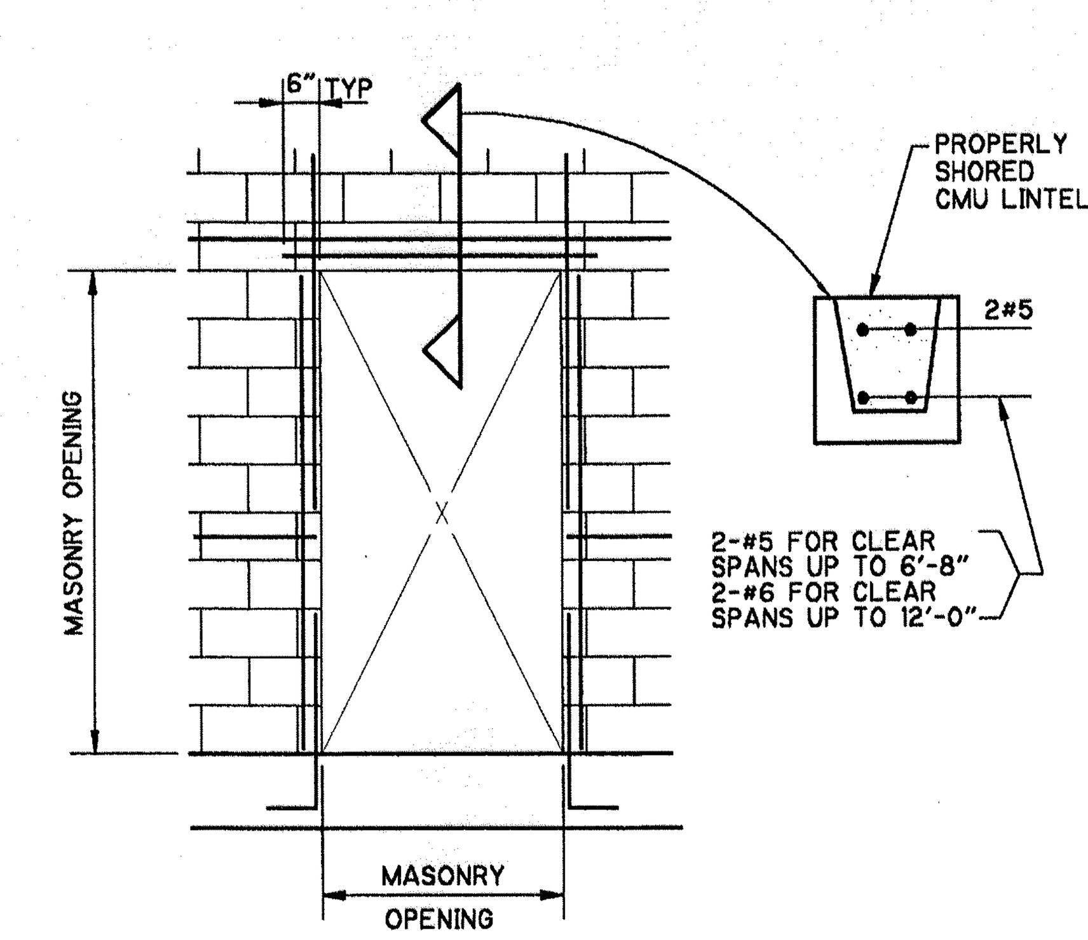


INTERSECTION CMU/BOND BEAM/FILLED CELL

DETAIL (B / -)

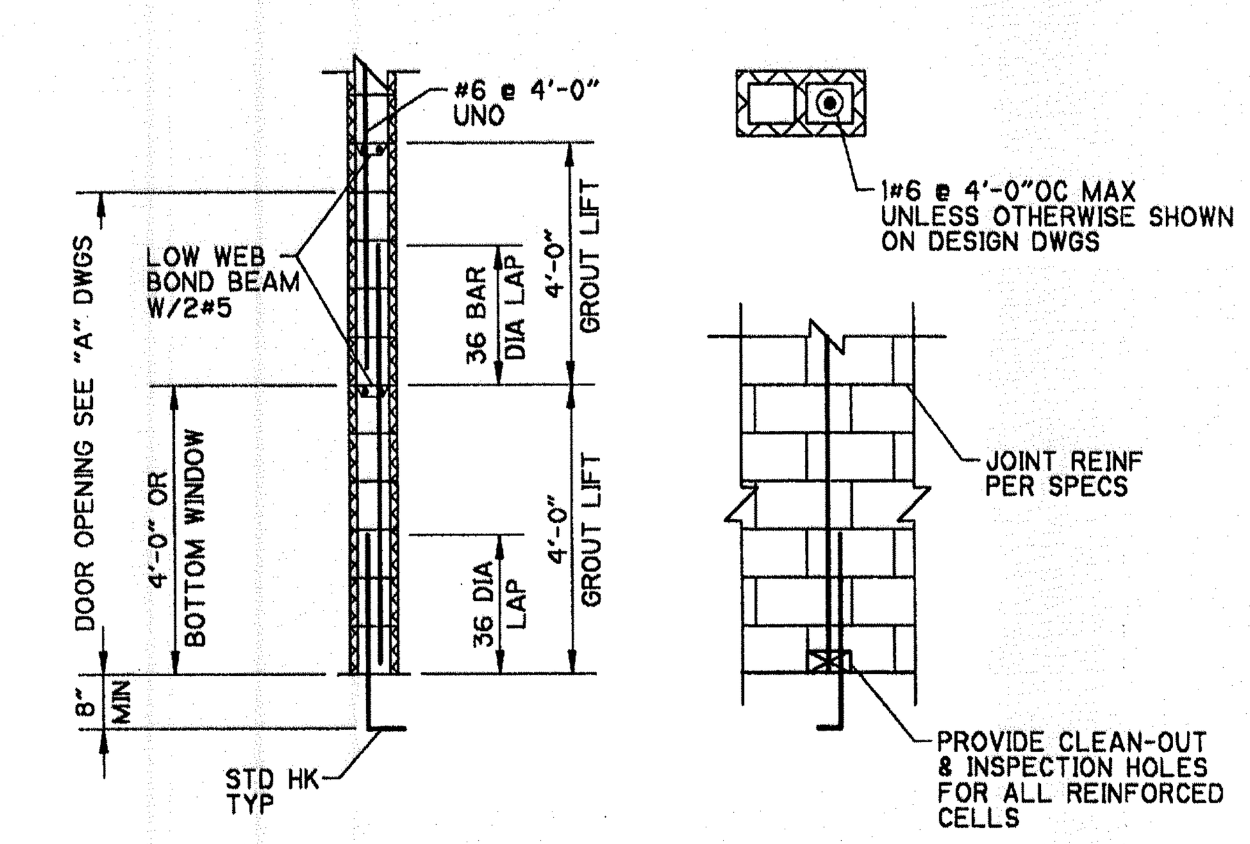


SITE PLAN
NTS



LINTEL WITHOUT STUCCO FINISH

DETAIL (C / -)
NTS



NOTE: FILLED CELL REINF: 1-#6 @ 4'-0" OC MAX UNLESS OTHERWISE SHOWN ON DESIGN DWGS.
BOND BEAM REINF: 2-#5 @ 4'-0" OC MAX UNLESS OTHERWISE SHOWN ON DESIGN DWGS.

FILLED CELL

DETAIL (D / -)
NTS

STRUCTURAL INDEX

CONFORMED DRAWINGS
OCTOBER 1999

REV. NO.	DATE	DRWN	CHKD	REMARKS
	10/99	BMC	DLF	CONFORMED DRAWING
1	10/99	BMC	DLF	REVISIONS PER ADDENDUM NO. 2

DESIGNED BY: T. VERWEY
DRAWN BY: R. PERMAN
SHEET CHK'D BY: D. FRIIS
CROSS CHK'D BY: J. HAGERTY
APPROVED BY: T. VERWEY
DATE: AUGUST 1999

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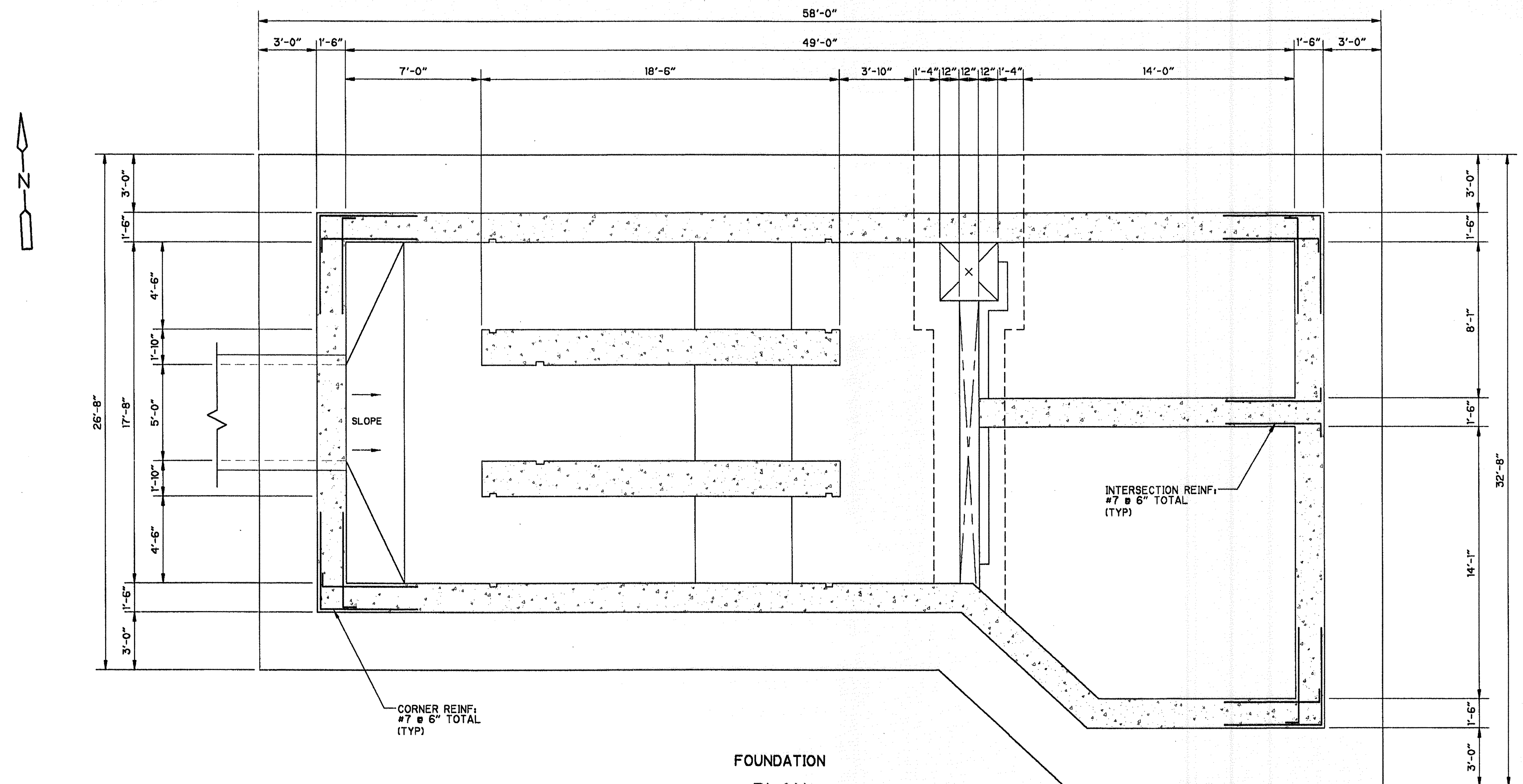
STORMWATER SYSTEM MAINTENANCE IMPROVEMENTS - PART I
CITY OF NAPLES, FLORIDA
DRAINAGE BASIN IV - PUMP STATION CONSTRUCTION

GENERAL NOTES, SITE PLAN AND STRUCTURAL DETAILS

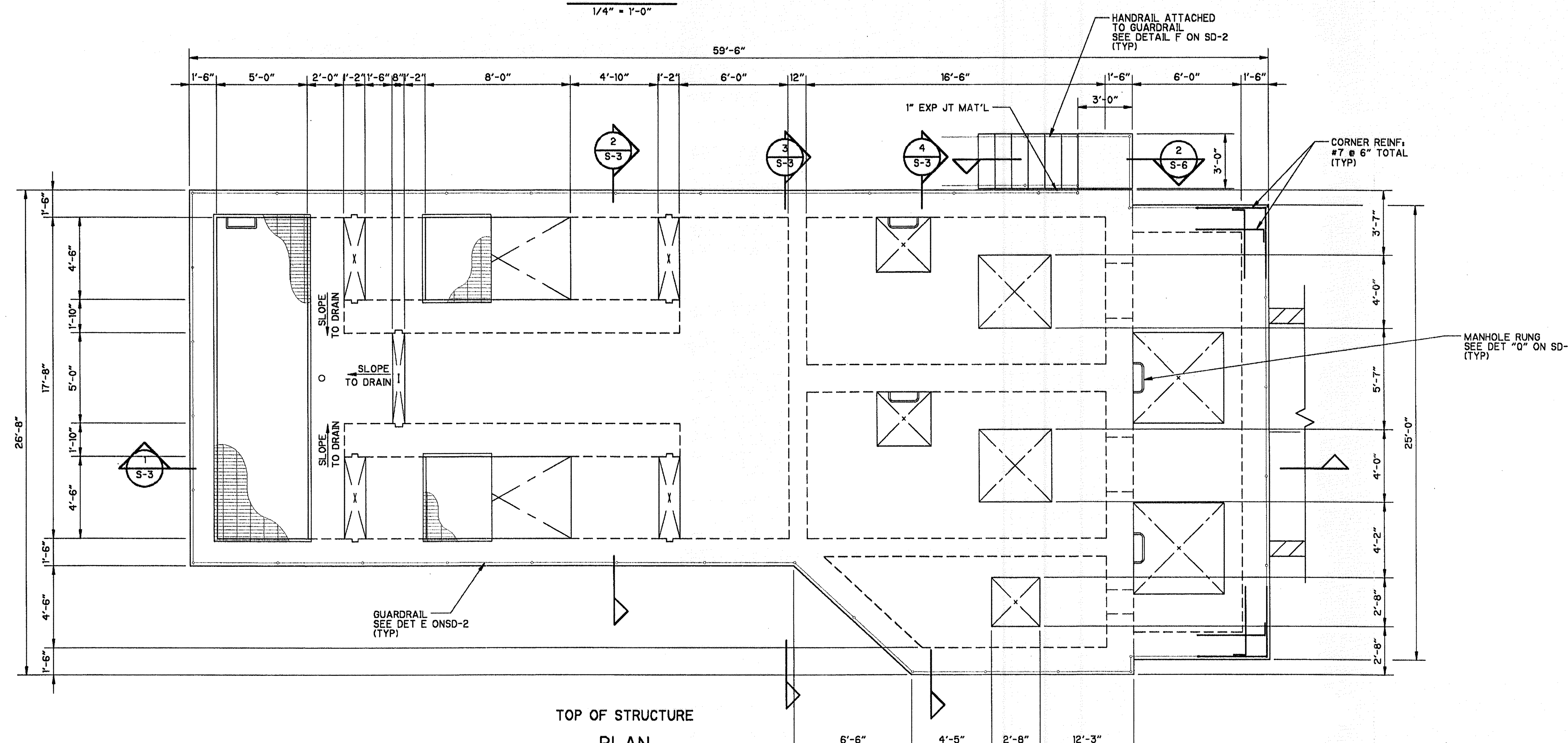
PROJECT NO. 6680-24619
FILE NAME: SSDSD101
SHEET NO. **S-1**



FOUNDATION

PLAN

1/4" = 1'-0"



TOP OF STRUCTURE

PLAN

1/4" = 1'-0"

NOTE:
SEE STANDARD DETAILS "A" & "B" ON SD-2 FOR ADD BARS REINF AROUND OPENINGS. (TYP)

SCANNED
JUL 22 2009
CITY OF NAPLES

CONFORMED DRAWINGS
OCTOBER 1999

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1	10/99	BMC	DLF	REVISIONS PER ADDENDUM NO. 2

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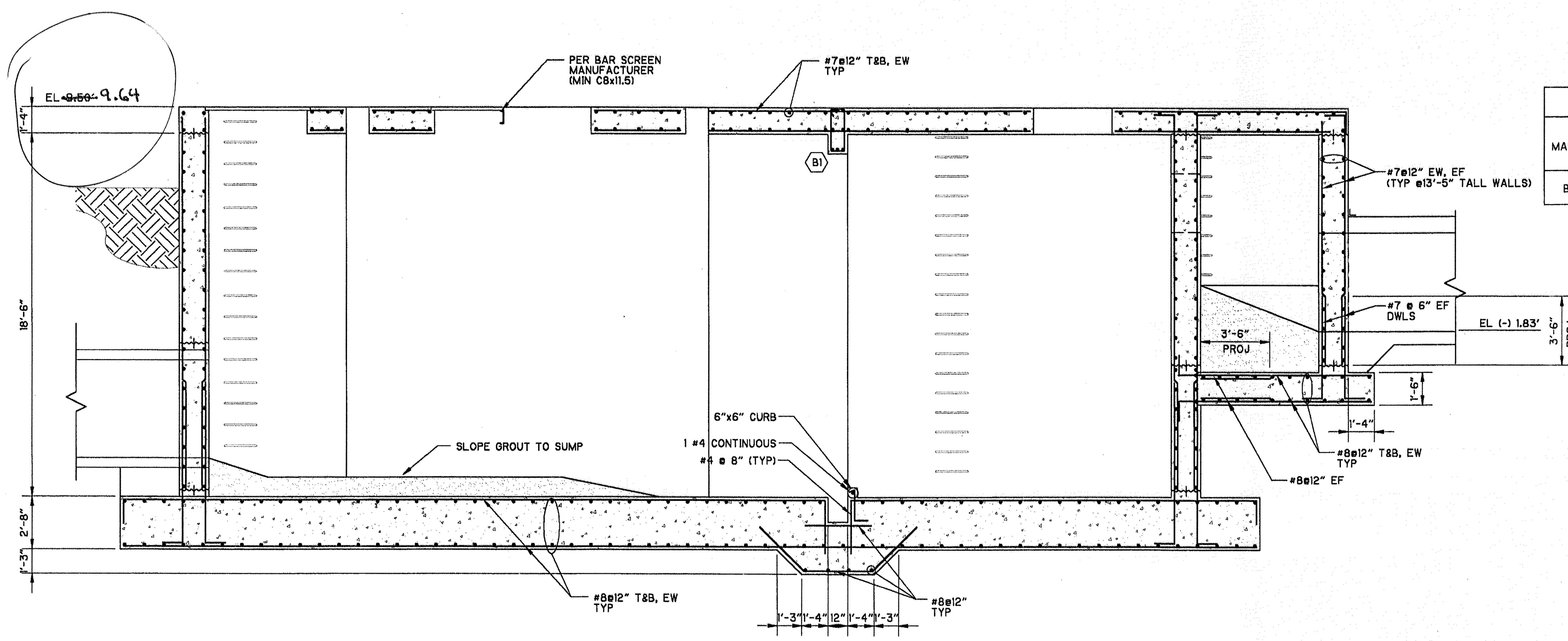
CITY OF NAPLES, FLORIDA

DRAINAGE BASIN IV - PUMP STATION CONSTRUCTION

PUMP STATION PLANS

PROJECT NO. 6680-24619
FILE NAME: SPSPL02.DWG

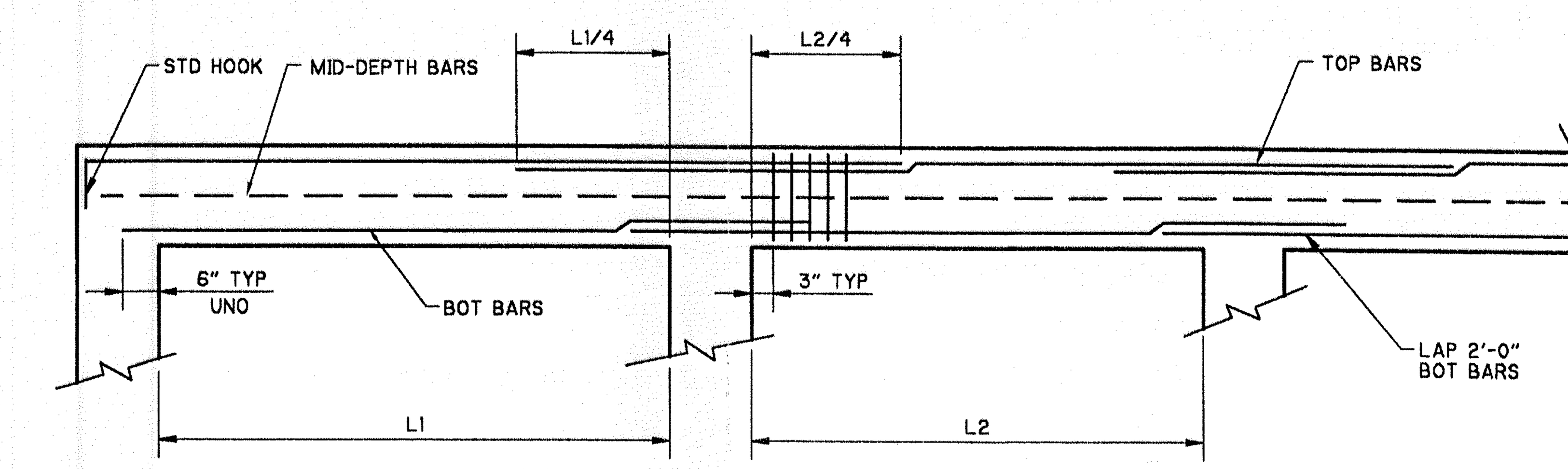
SHEET NO.
S-2



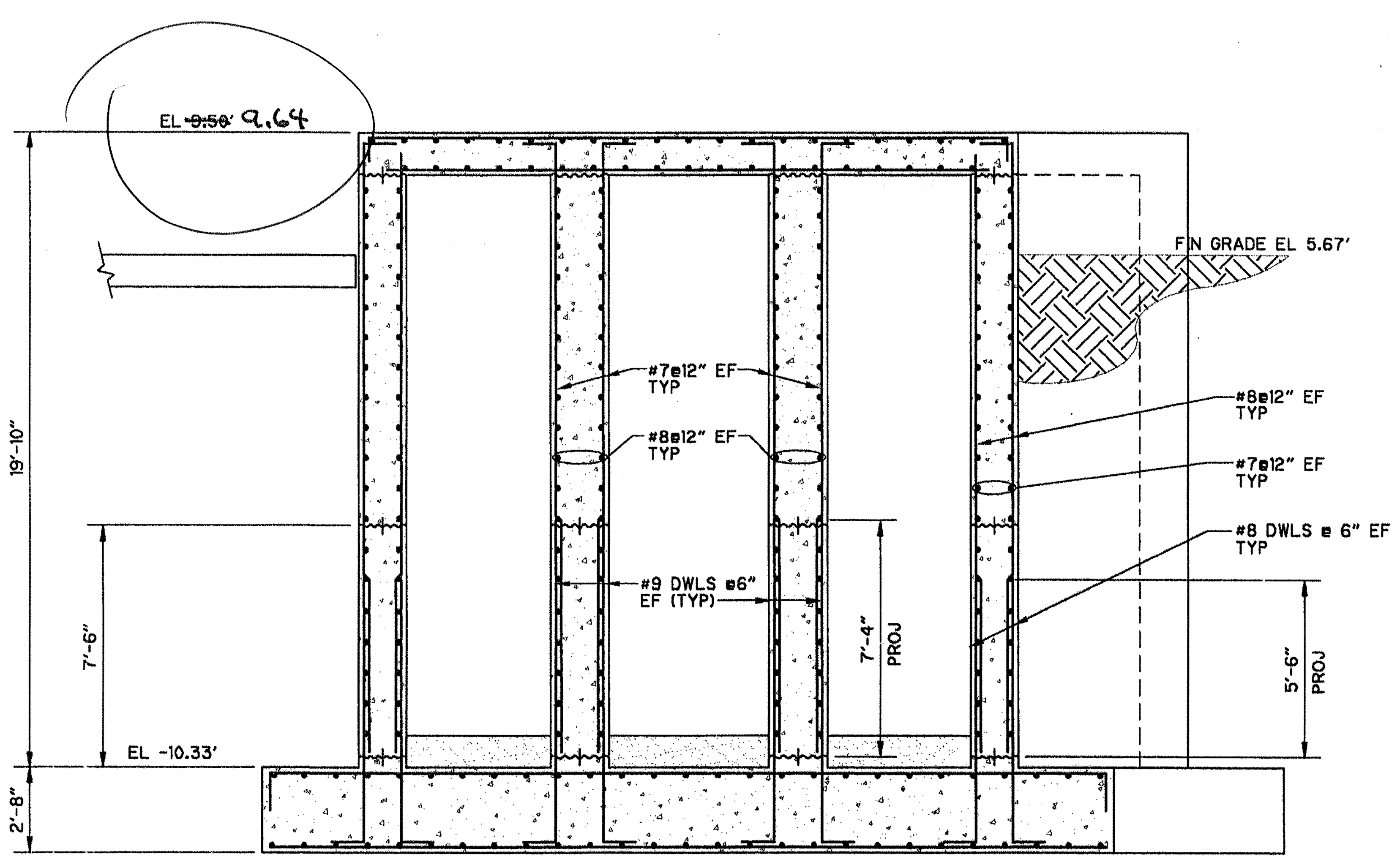
SECTION 1 / S-2
1/4" = 1'-0"

BEAM SCHEDULE

MARK	ELEV. T/BEAM	SIZE	BOT BARS	TOP BARS	MID-DEPTH BARS	STIRRUPS SIZE	STIRRUPS TYPE	STIRRUPS SPA EA. END	SKETCH (℄ SUPPORT – ℄ SUPPORT)	REMARKS
B1	9.50'	12" x 28"	3#7	3#7	2#7	#3		@ 8"		

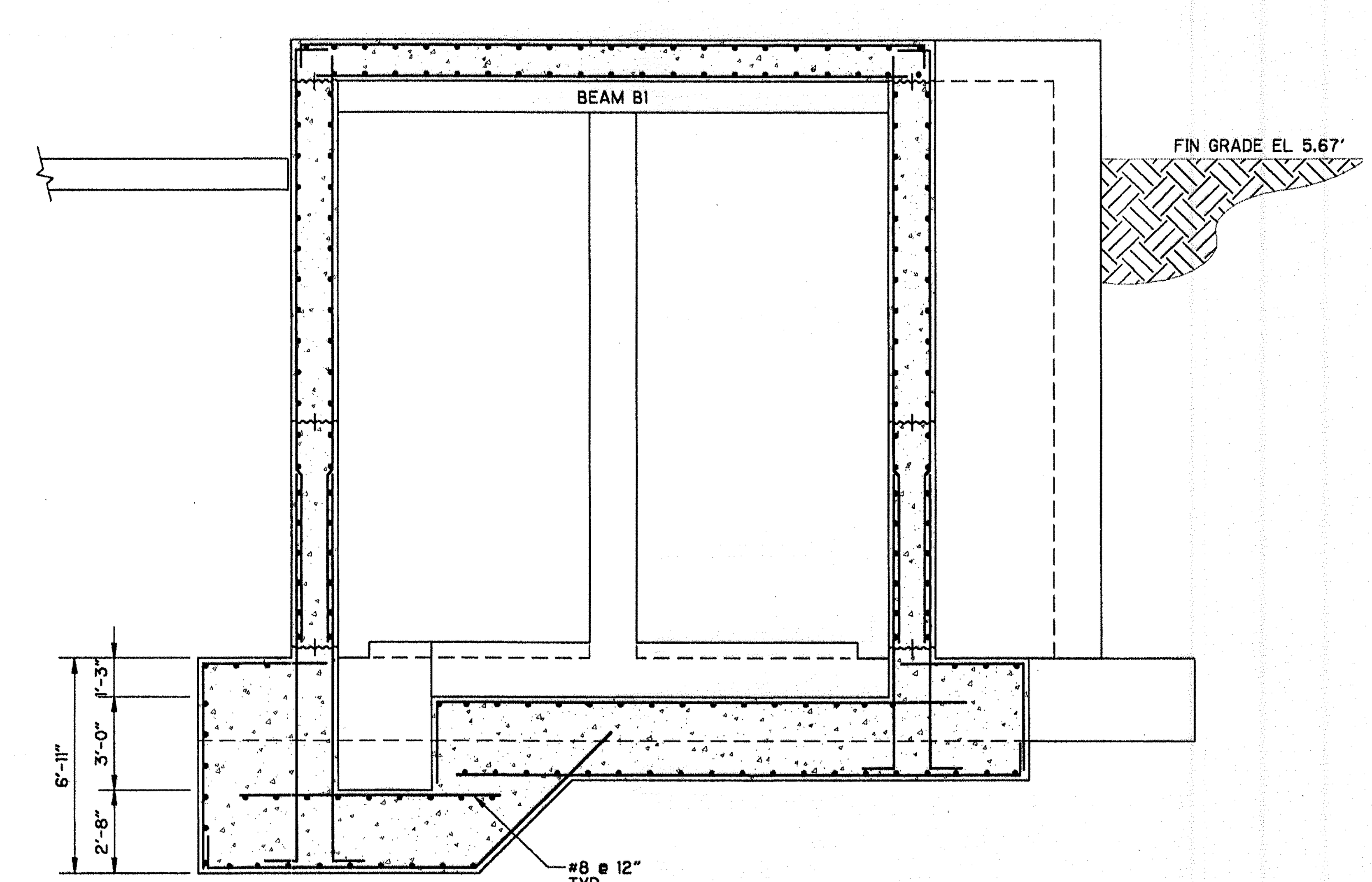


TYP BEAM REINFORCEMENT

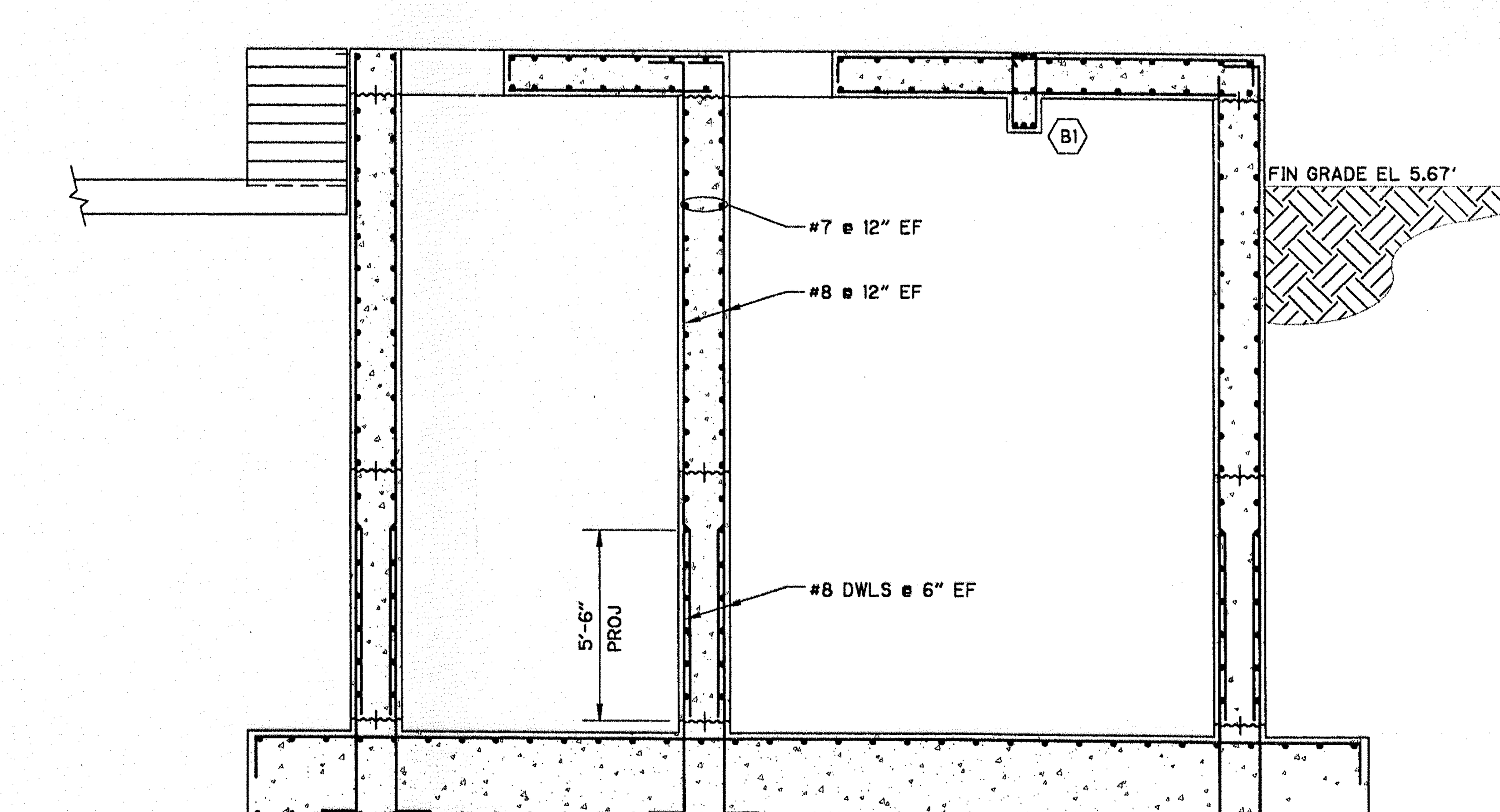


SECTION 2 / S-2
1/4" = 1'-0"

NOTE:
GUARDRAIL/HANDRAIL NOT SHOWN IN SECTION VIEWS FOR CLARITY.



SECTION 3 / S-2
1/4" = 1'-0"



SECTION 4 / S-2
1/4" = 1'-0"

Adjust Floor Slab Elevation.

SCANNED
JUL 22 2009
CITY OF NAPLES

CONFORMED DRAWINGS
OCTOBER 1999

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△	10/99	BMC	DLF	REVISIONS PER ADDENDUM NO. 2

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DATE: AUGUST 1999

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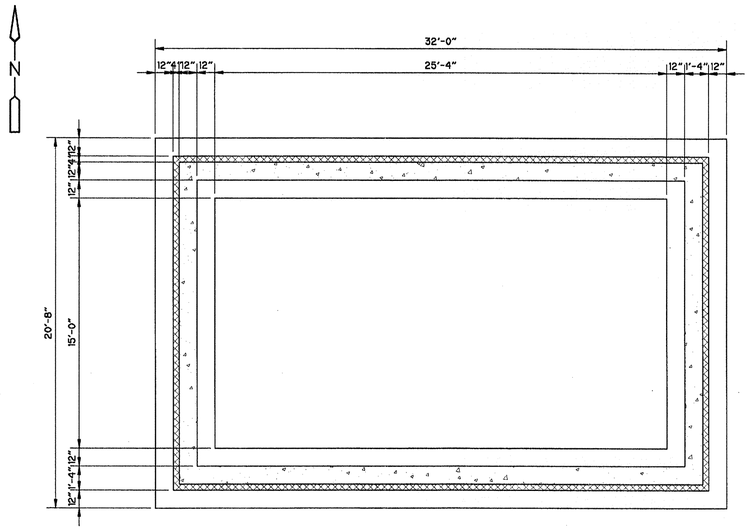
STORMWATER SYSTEM MAINTENANCE IMPROVEMENTS - PART I
CITY OF NAPLES, FLORIDA

DRAINAGE BASIN IV - PUMP STATION CONSTRUCTION

PUMP STATION SECTIONS

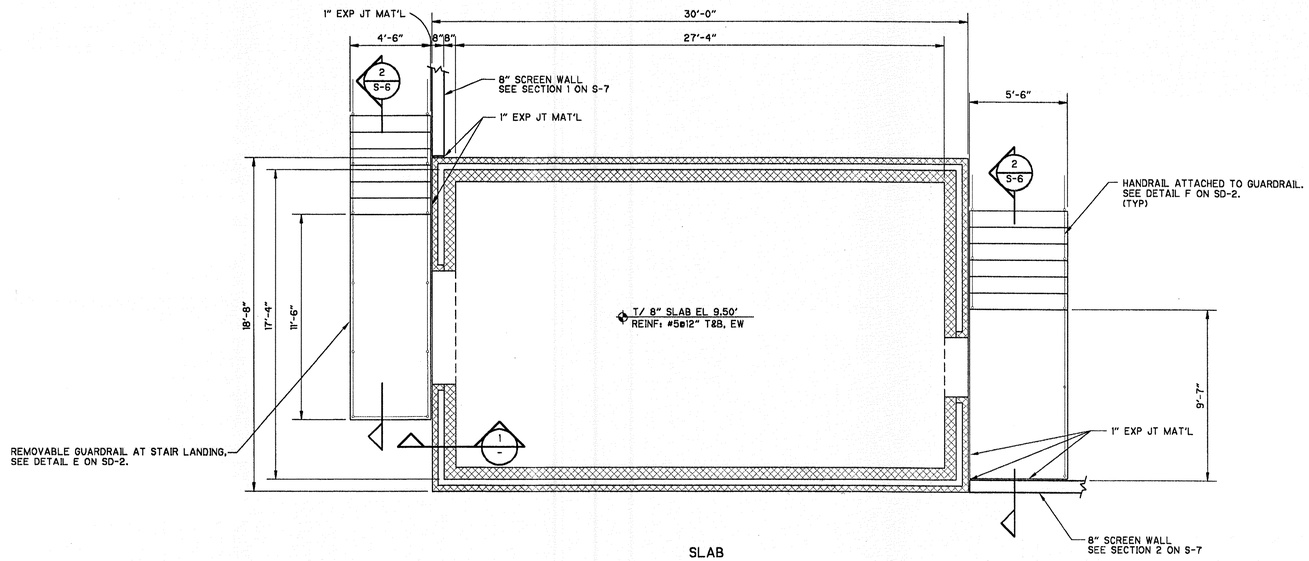
PROJECT NO. 6680-24619
FILE NAME: SPSPL203.DWG
SHEET NO.
S-3



FOUNDATION

PLAN

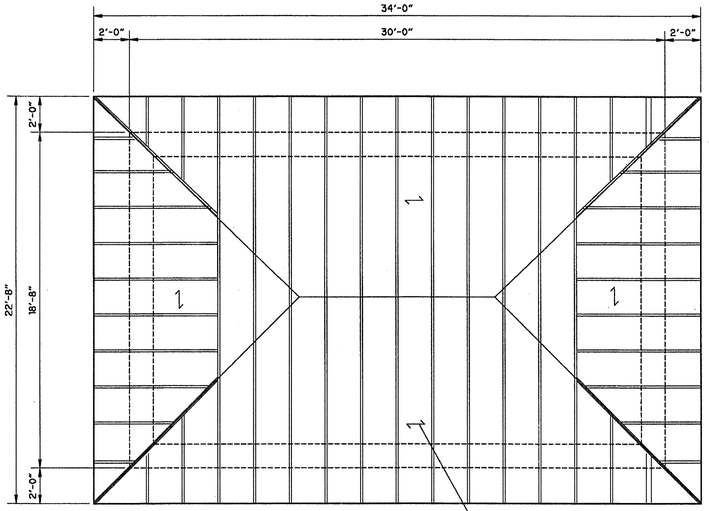
1/4" = 1'-0"



SLAB

PLAN

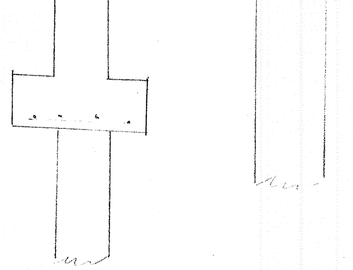
1/4" = 1'-0"



SLAB

PLAN

1/4" = 1'-0"



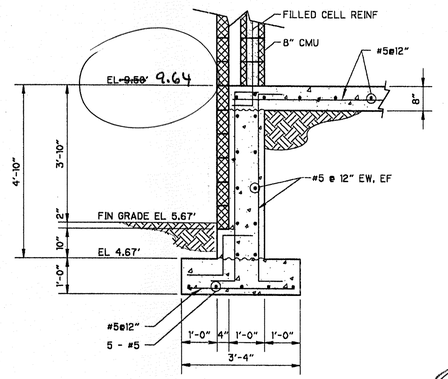
NOTES

1 - LUMBER SHALL BE SOUTHERN PINE #2

2 - ALL ROOF FRAMING SHALL BE 2xG (MIN) UNLESS OTHERWISE NOTED.

3 - WOOD TRUSSES SHALL BE DESIGNED BY THE MANUFACTURER FOR THE FOLLOWING LOADS:
SUPERIMPOSED LIVE LOAD = 30 PSF
SUPERIMPOSED DEAD LOAD = 25 PSF
WIND LOAD = 120 MPH WIND VELOCITY

4 - WOOD TRUSS CALCULATIONS AND SHOP DRAWINGS SHALL BE SIGNED AND SEALED BY A FLORIDA REGISTERED PROFESSIONAL ENGINEER AND SUBMITTED TO ENGINEER FOR REVIEW.



SECTION 1 / -

1/2" = 1'-0"

Adjust Floor Slab El.

SCANNED
JUL 2 2 2009
CITY OF NAPLES

CONFORMED DRAWINGS
OCTOBER 1999

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	10/99	BMC	DLF	CONFORMED DRAWING
1	10/99	BMC	DLF	REVISIONS PER ADDENDUM NO. 2

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CITY OF NAPLES, FLORIDA

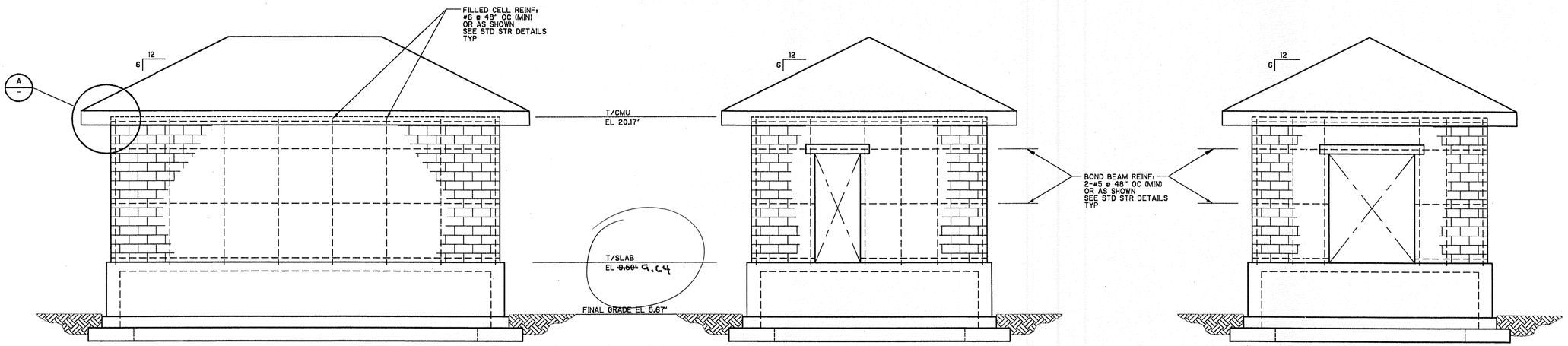
DRAINAGE BASIN IV -
PUMP STATION CONSTRUCTION

ELECTRICAL BUILDING PLANS AND SECTIONS

PROJECT NO. 6680-24619
FILE NAME: SEBPL104.DWG

SHEET NO.
S-4

D:\6680_SEB\GP\STRU\ Filled 18250.004 07/30/99 11:28:44 Sebpl104



NORTH (SOUTH SIMILAR)

ELEVATION

1/4" = 1'-0"

EAST

ELEVATION

1/4" = 1'-0"

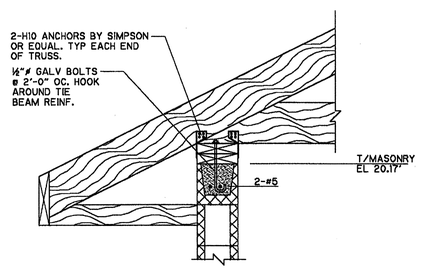
WEST

ELEVATION

1/4" = 1'-0"

NOTE:

STAIRS AND RETAINING WALLS NOT SHOWN IN ELEVATION VIEWS FOR CLARITY. (TYP)



DETAIL A

1" = 1'-0"

Adjust Floor Slab El.

SCANNED

JUL 2 2 2009

CITY OF NAPLES

CONFORMED DRAWINGS
OCTOBER 1999

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	10/99	BMC	DLF	CONFORMED DRAWING

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CITY OF NAPLES, FLORIDA

DRAINAGE BASIN IV -
PUMP STATION CONSTRUCTION

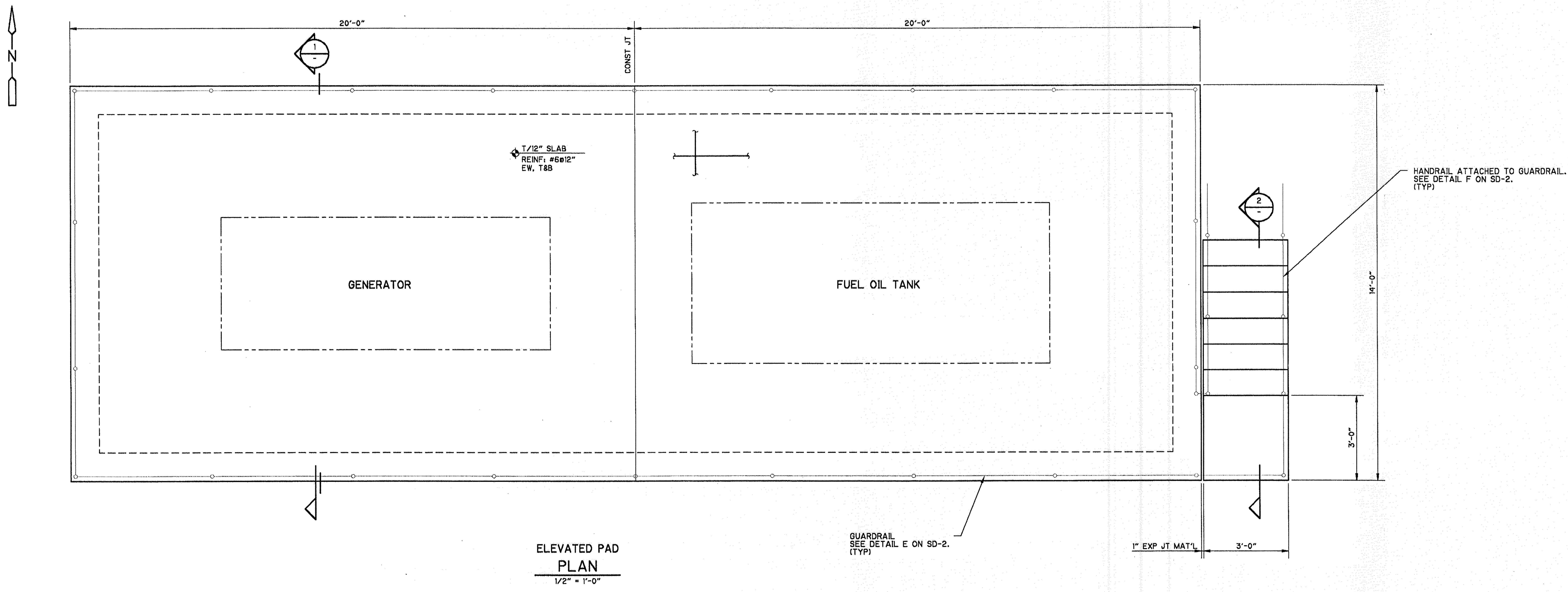
ELECTRICAL BUILDING ELEVATIONS AND DETAILS

PROJECT NO. 6680-24619
FILE NAME: SEBEL205.DWG

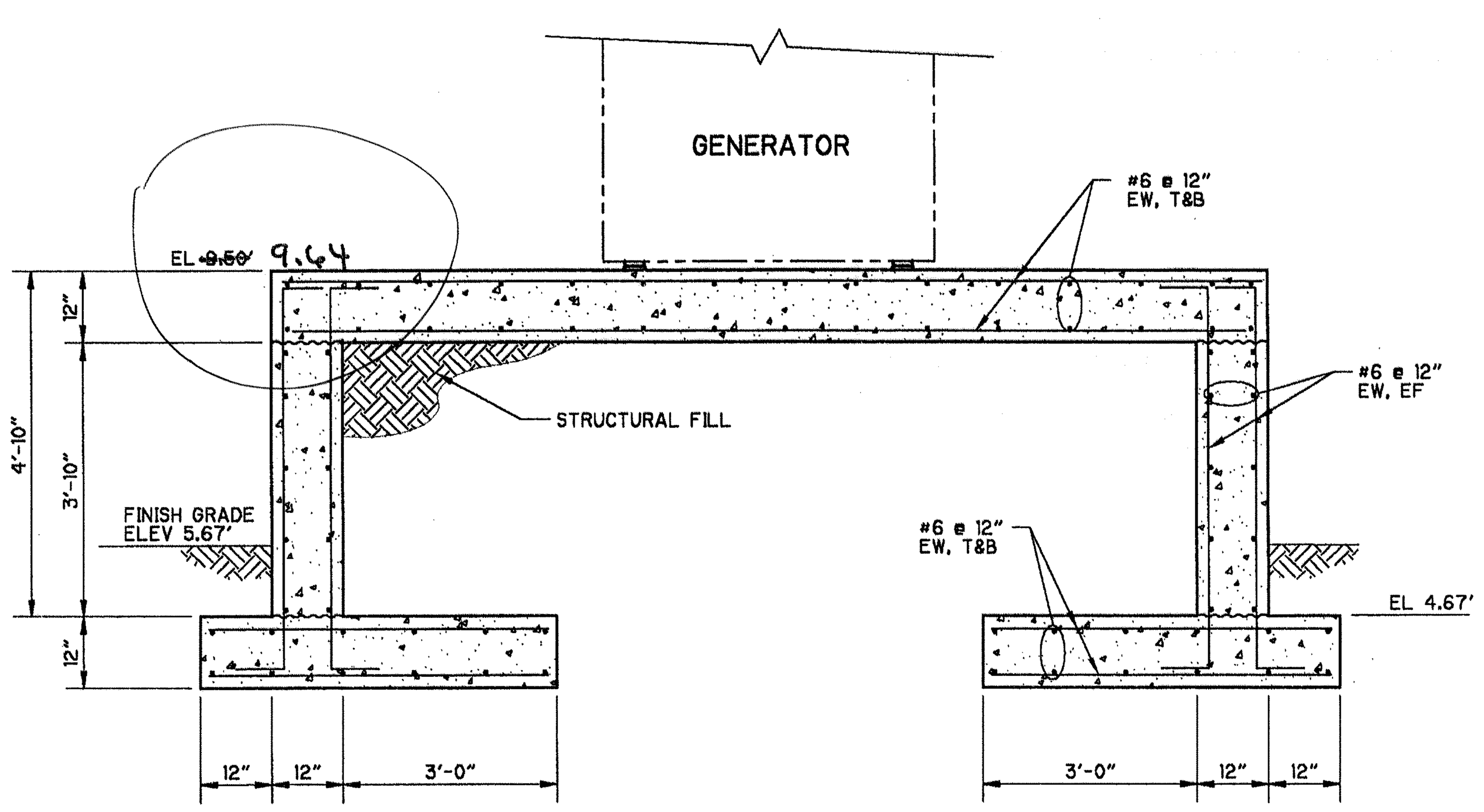
SHEET NO.

S-5

07/30/99 11:04:15 SEBEL205 O:\6680_69\DGN\STRU\ Friedl 16:29:37

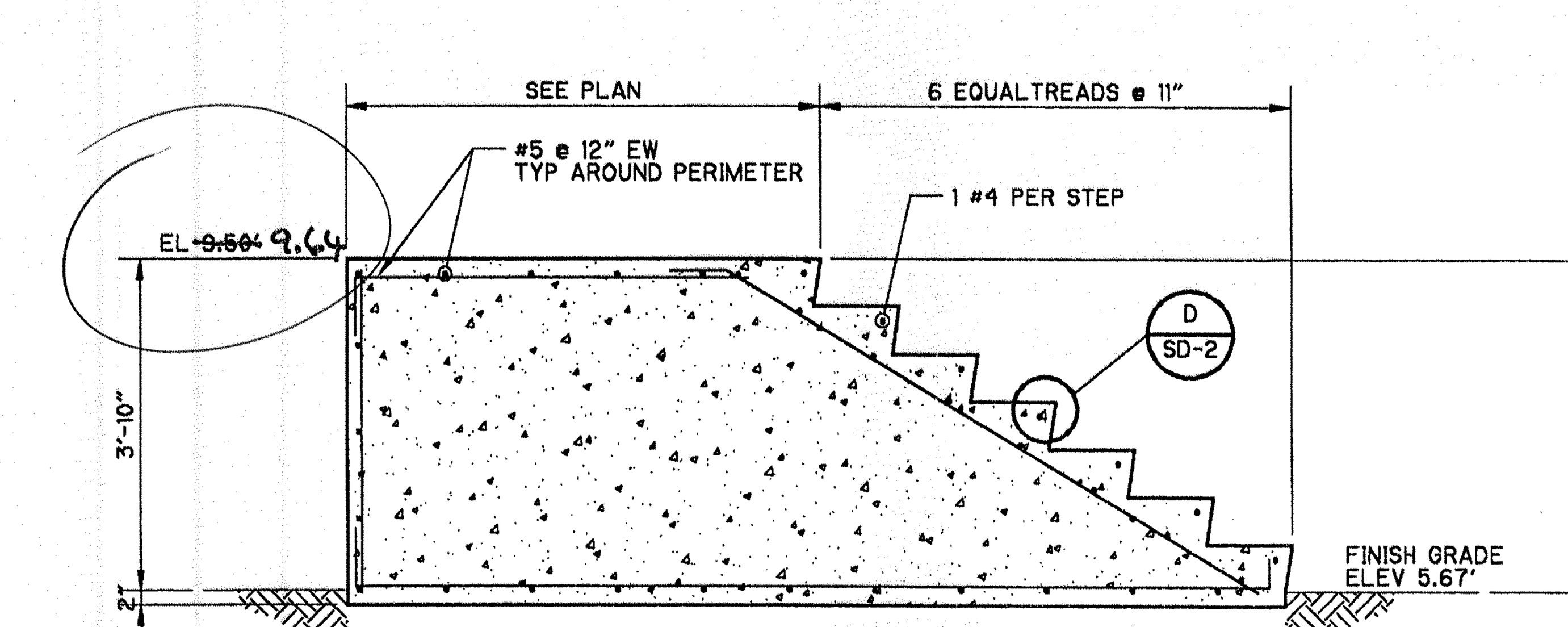


ELEVATED PAD
PLAN
1/2" = 1'-0"



SECTION 1
1/2" = 1'-0"

NOTE:
GUARDRAIL/HANDRAIL NOT SHOWN IN SECTION VIEWS FOR CLARITY.



SECTION 2
1/2" = 1'-0"

Adjust Floor Slab El.

SCANNED
JUL 2 2 2009
CITY OF NAPLES

CONFORMED DRAWINGS
OCTOBER 1999

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	10/99	BMC	DLF	CONFORMED DRAWING

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CITY OF NAPLES, FLORIDA
DRAINAGE BASIN IV - PUMP STATION CONSTRUCTION

MISCELLANEOUS STRUCTURES PLAN AND SECTIONS

PROJECT NO. 6680-24619
FILE NAME: SMSPL106
SHEET NO.
S-6

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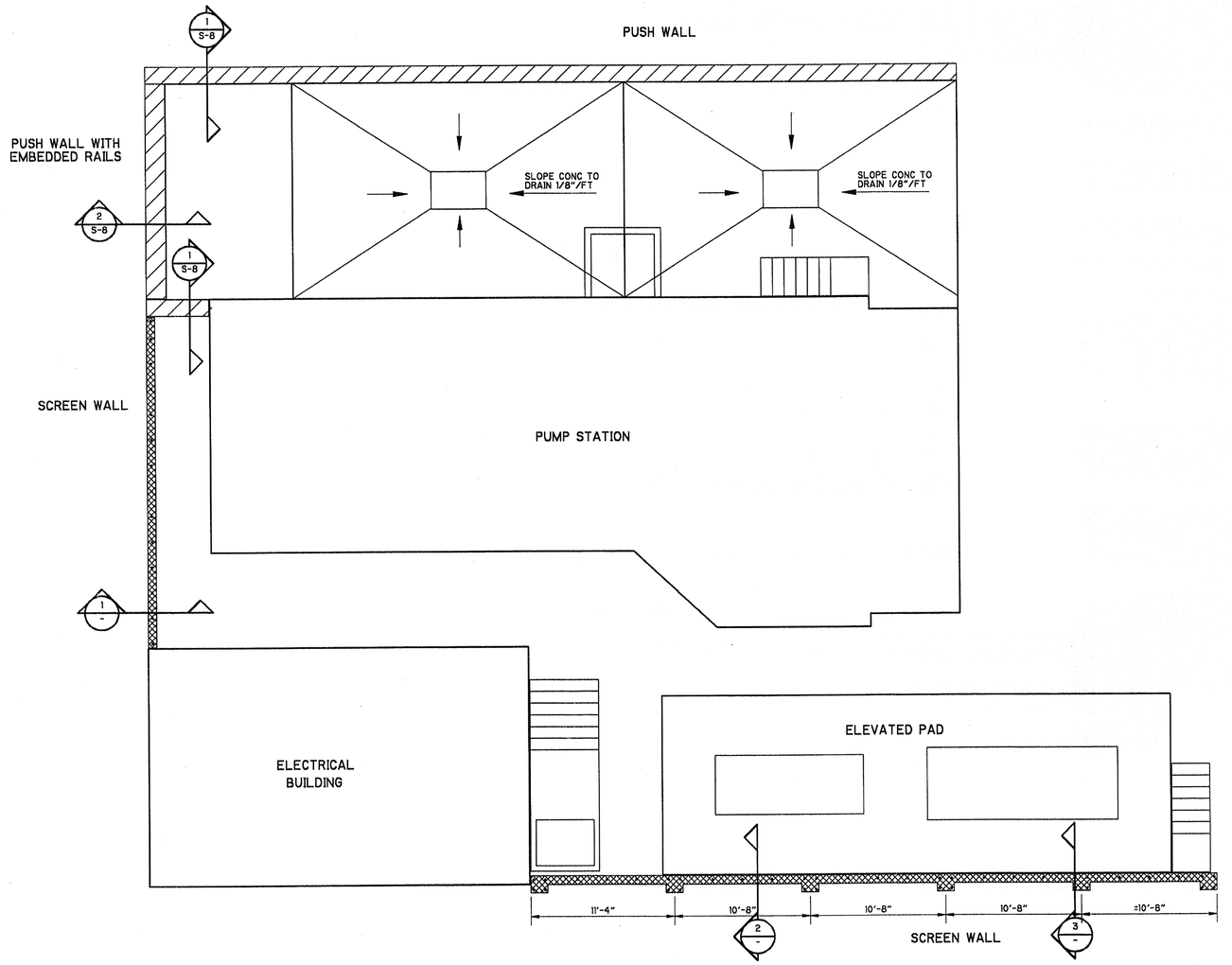
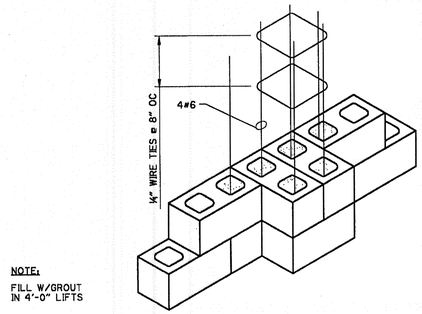


KEY PLAN

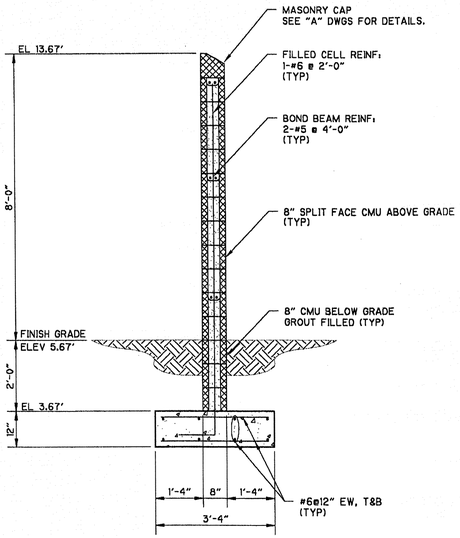
PLAN
3/16" = 1'-0"



NOTE:
FILL W/GROUT IN 4'-0" LIFTS

WALL PILASTER

DETAIL A
3/4" = 1'-0"



SPLIT FACE MASONRY SCREEN WALL

SECTION 1
1/2" = 1'-0"

SPLIT FACE MASONRY SCREEN WALL

SECTION 2
1/2" = 1'-0"

SPLIT FACE MASONRY SCREEN WALL AT PILASTER

SECTION 3
1/2" = 1'-0"

REV. NO.	DATE	DRWN	CHKD	REMARKS
	10/99	BMC	DLF	CONFORMED DRAWING

DESIGNED BY: T. VERWEY
DRAWN BY: R. PERMAN
SHEET CHK'D BY: D. FRIIS
CROSS CHK'D BY: J. HAGERTY
APPROVED BY: T. VERWEY
DATE: AUGUST 1999

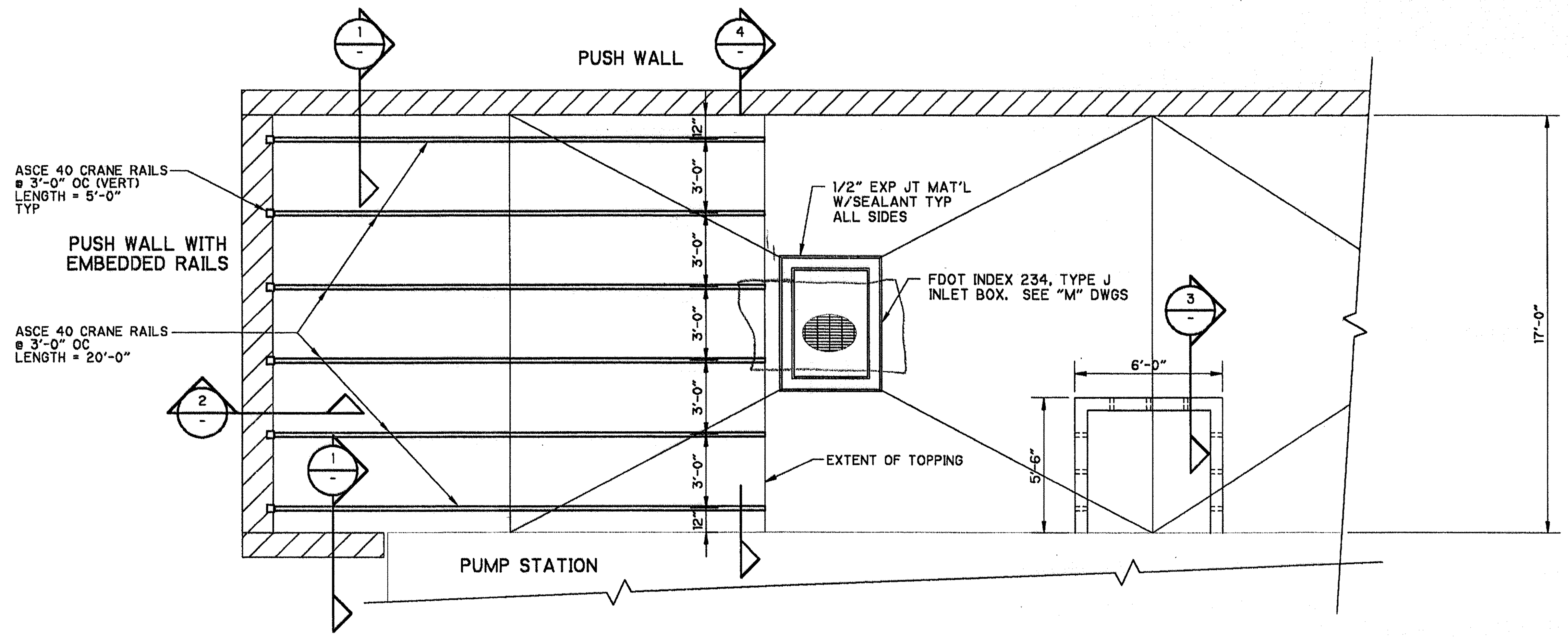
CDM Camp Dresser & McKee Inc.
consulting engineering construction operations

STORMWATER SYSTEM MAINTENANCE IMPROVEMENTS - PART I
CITY OF NAPLES, FLORIDA
DRAINAGE BASIN IV -
PUMP STATION CONSTRUCTION

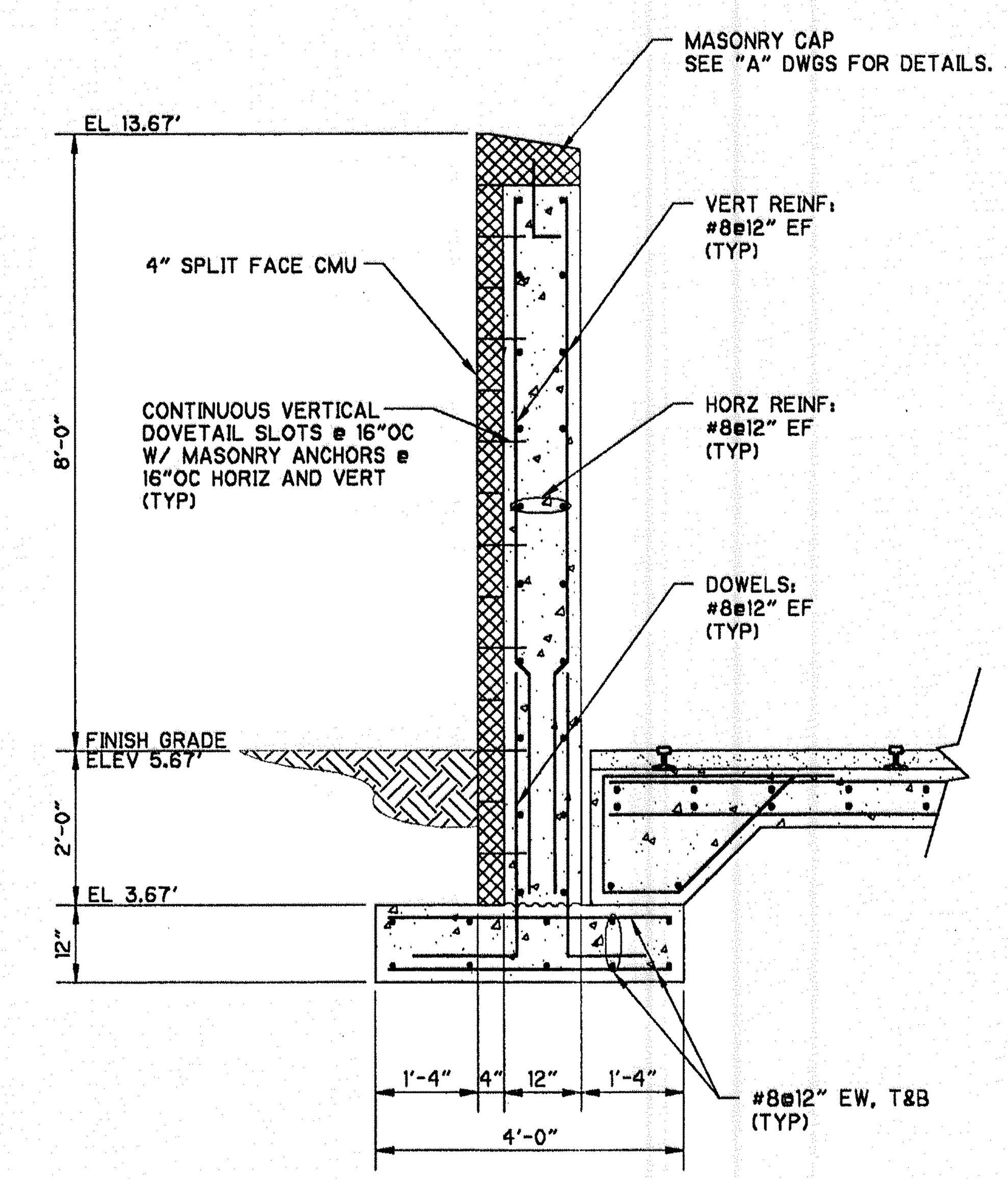
SCREEN WALLS
PLAN & SECTIONS

PROJECT NO. 6680-24619
FILE NAME: SWWASE105.DWG

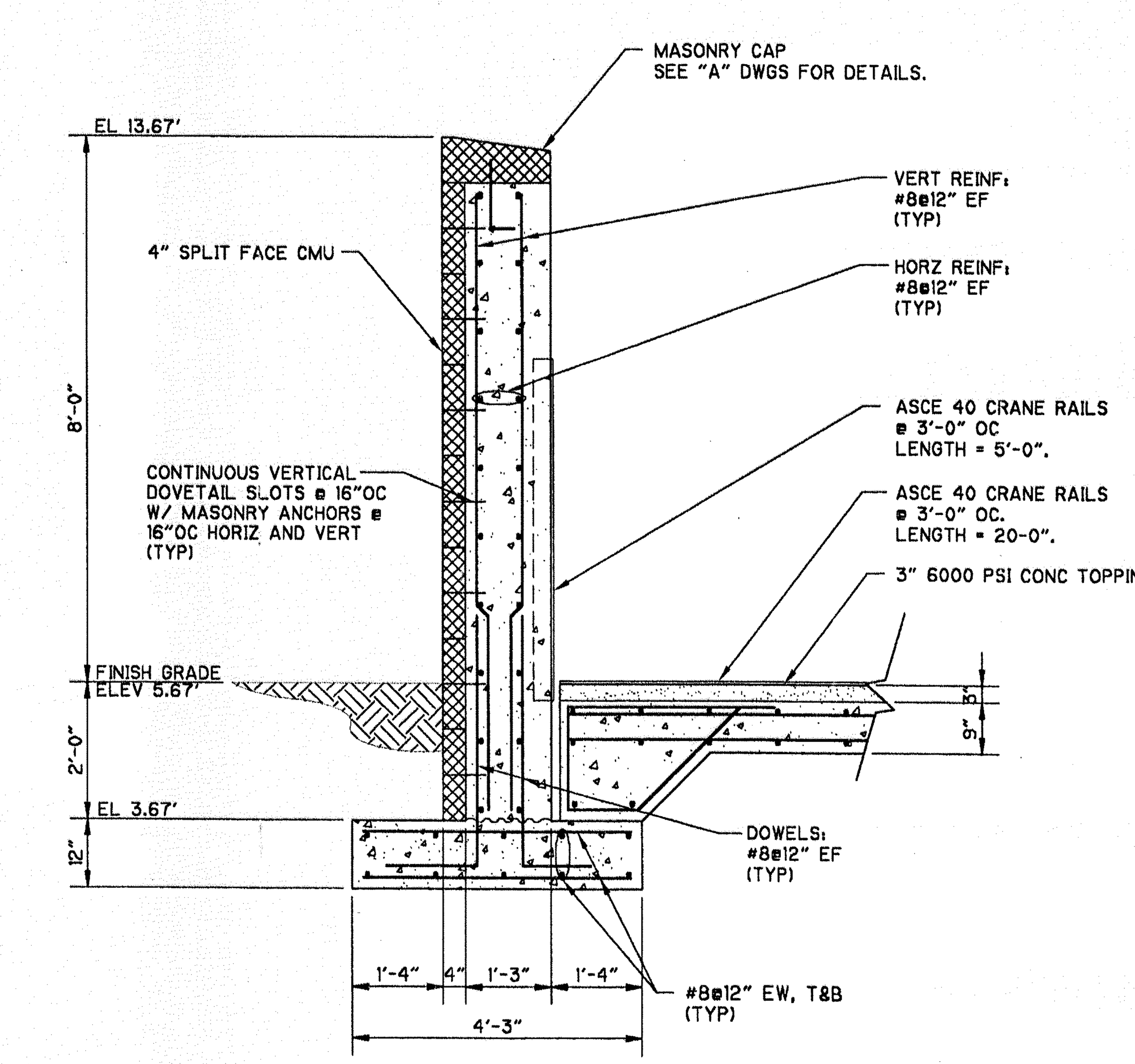
SHEET NO.
S-7



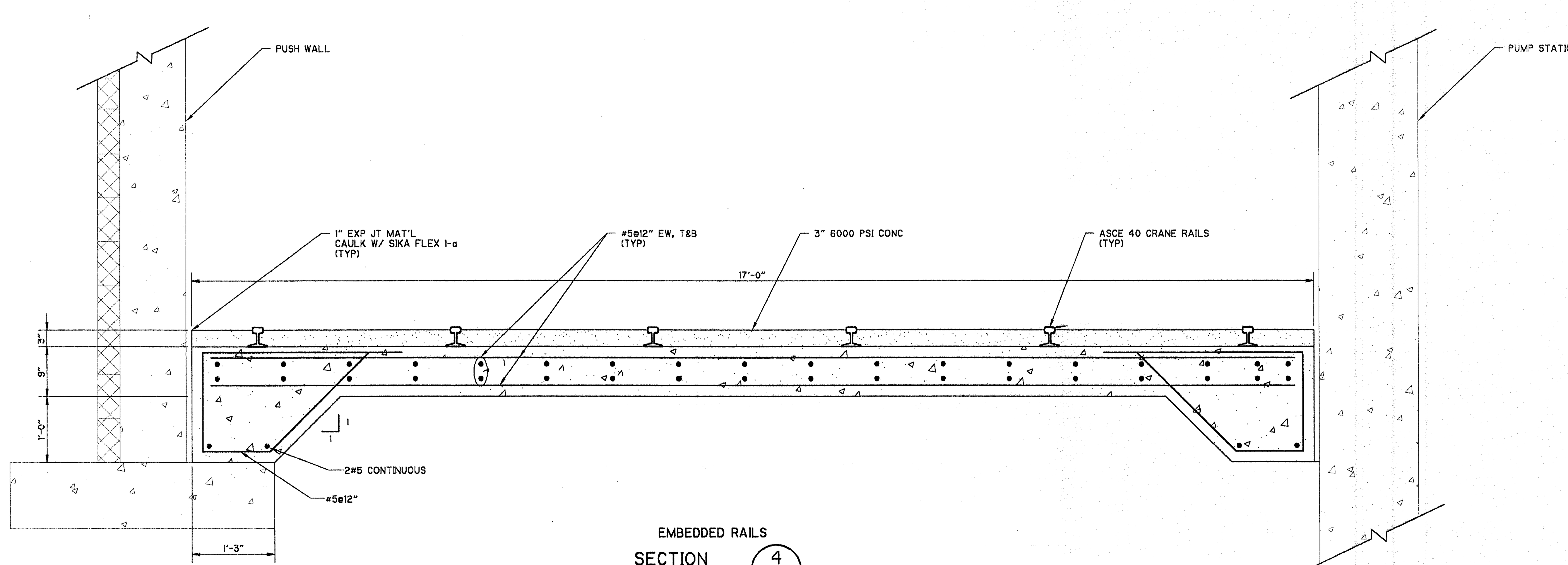
EMBEDDED RAIL
PLAN
1/4" = 1'-0"



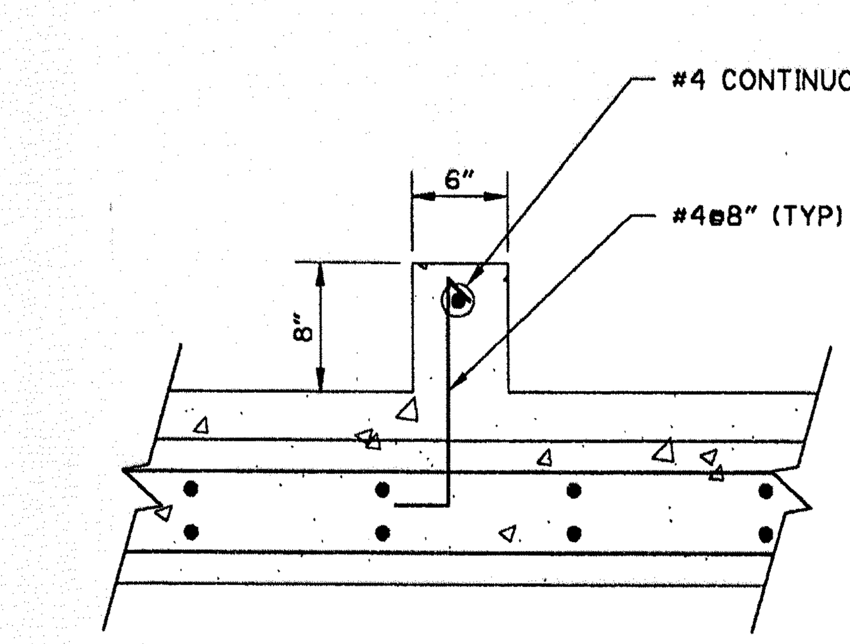
CONCRETE PUSH WALL
SECTION 1
1/2" = 1'-0"



CONCRETE PUSH WALL
SECTION 2
1/2" = 1'-0"



EMBEDDED RAILS
SECTION 4
1" = 1'-0"



8" HIGH CONCRETE CURB
SECTION 3
1" = 1'-0"

SCANNED
JUL 22 2009
CITY OF NAPLES

CONFORMED DRAWINGS
OCTOBER 1999

REV. NO.	DATE	DRWN	CHKD	REMARKS
	10/99	BMC	DLF	CONFORMED DRAWING

DESIGNED BY: T. VERWEY
DRAWN BY: R. PERMAN
SHEET CHK'D BY: D. FRIIS
CROSS CHK'D BY: J. HAGERTY
APPROVED BY: T. VERWEY
DATE: AUGUST 1999

CDM Camp Dresser & McKee Inc.
consulting engineering construction operations

STORMWATER SYSTEM MAINTENANCE IMPROVEMENTS - PART I
CITY OF NAPLES, FLORIDA
DRAINAGE BASIN IV - PUMP STATION CONSTRUCTION

PUSH WALLS PLAN AND SECTIONS

PROJECT NO. 6680-24619
FILE NAME: SWWASE108.DWG
SHEET NO. S-8

O:\6680_619\60F\STR\ Swase108 07/26/99 09:14:40 2/14/07 Permanent

NOTES:

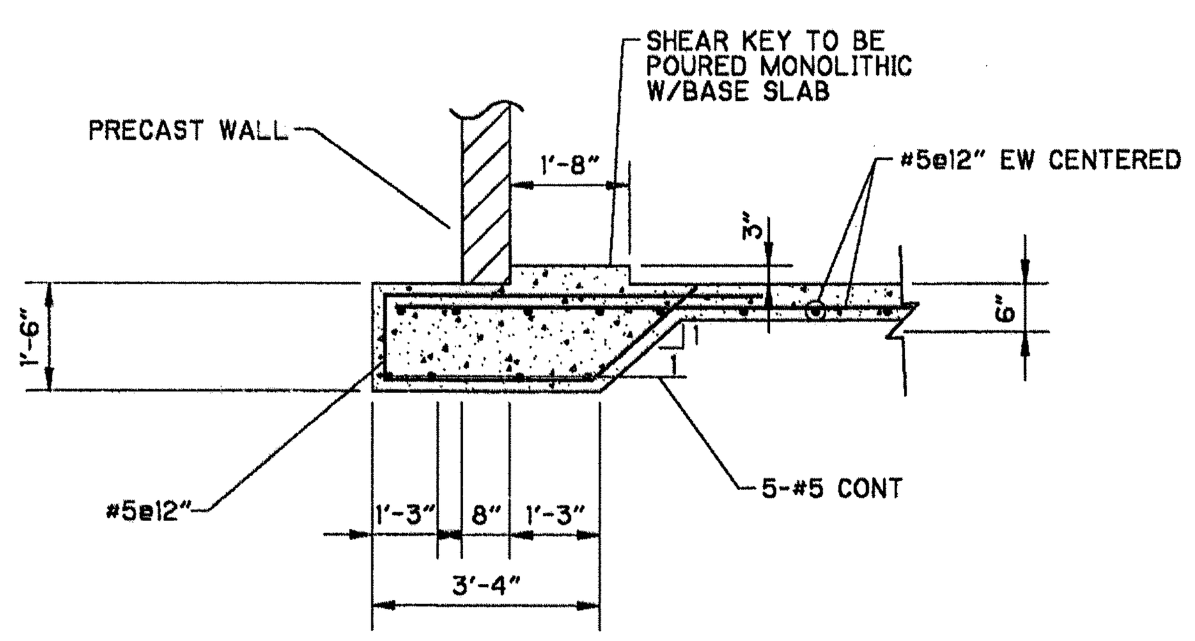
1. PRECAST ARCH CULVERT SHALL BE DESIGNED BY THE BRIDGE MANUFACTURER FOR THE FOLLOWING SUPERIMPOSED LOADS:

   H20 + EARTH FILL (DENSITY 120 PCF)

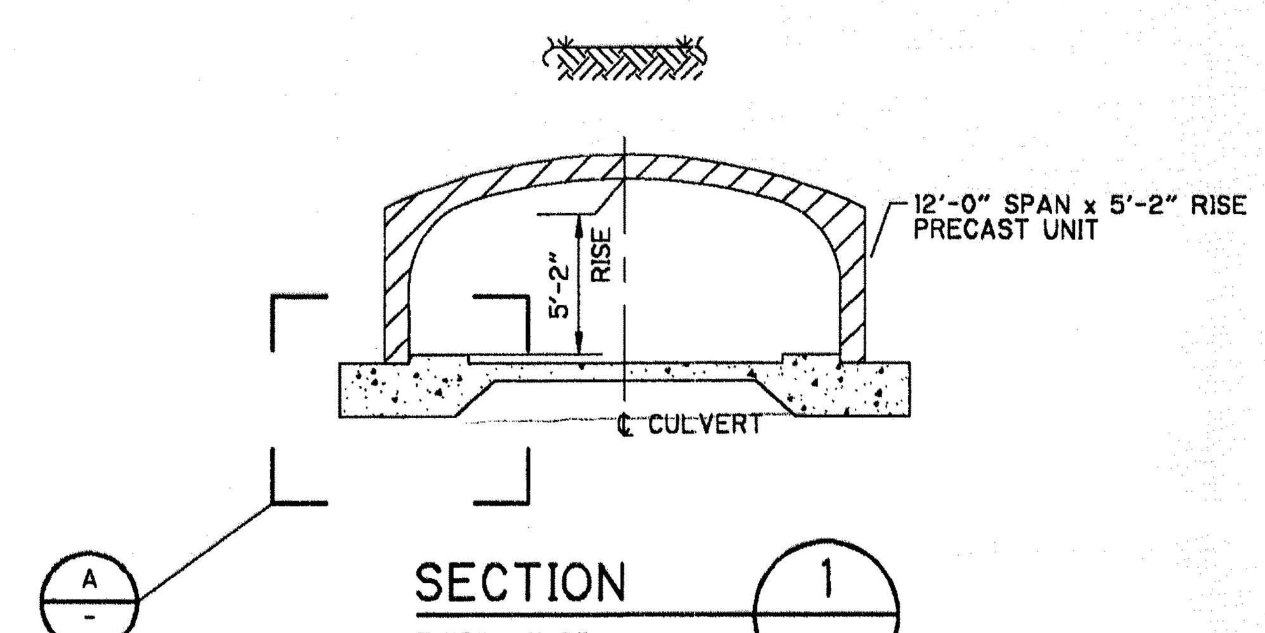
   SHOP DRAWINGS AND CALCULATIONS SHALL BE SIGNED AND SEALED BY A FLORIDA REGISTERED ENGINEER AND SUBMITTED TO ENGINEER FOR REVIEW

2. CONCRETE DESIGN STRENGTH

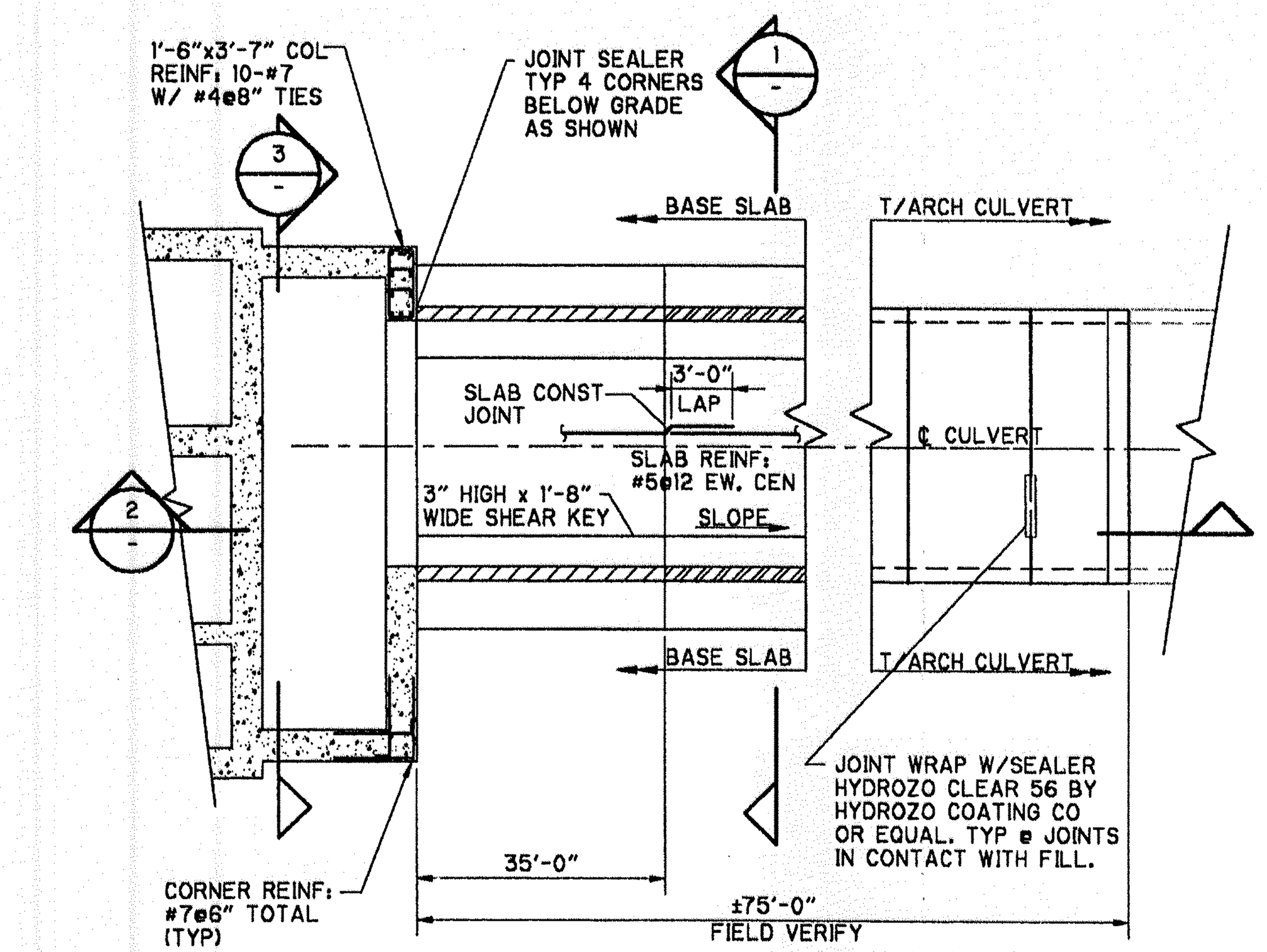
CAST IN PLACE CONCRETE	4000 PSI
PRECAST CONCRETE	5000 PSI
STEEL YIELD STRENGTH	
REINFORCEMENT STEEL	60,000 PSI



DETAIL A
3/8" = 1'-0"

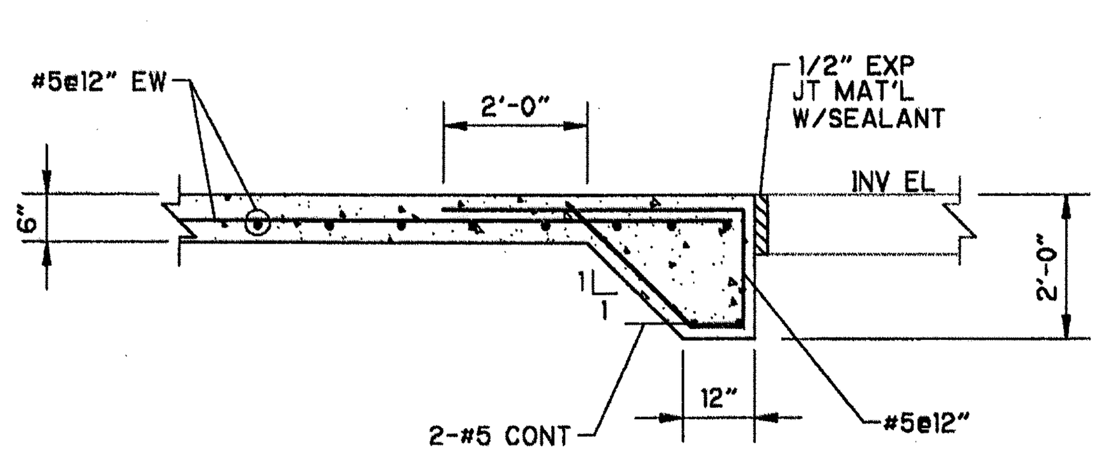


SECTION 1
3/16" = 1'-0"

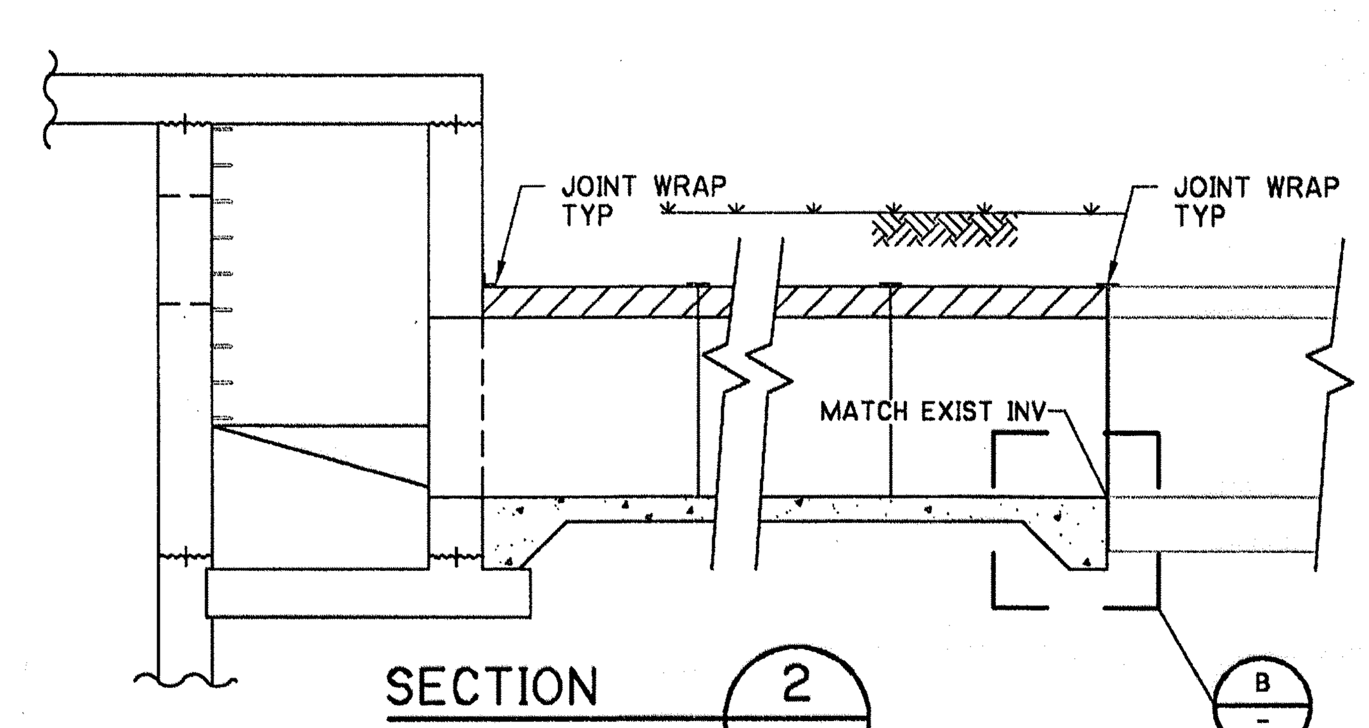


PRECAST ARCH CULVERT - FOUNDATION

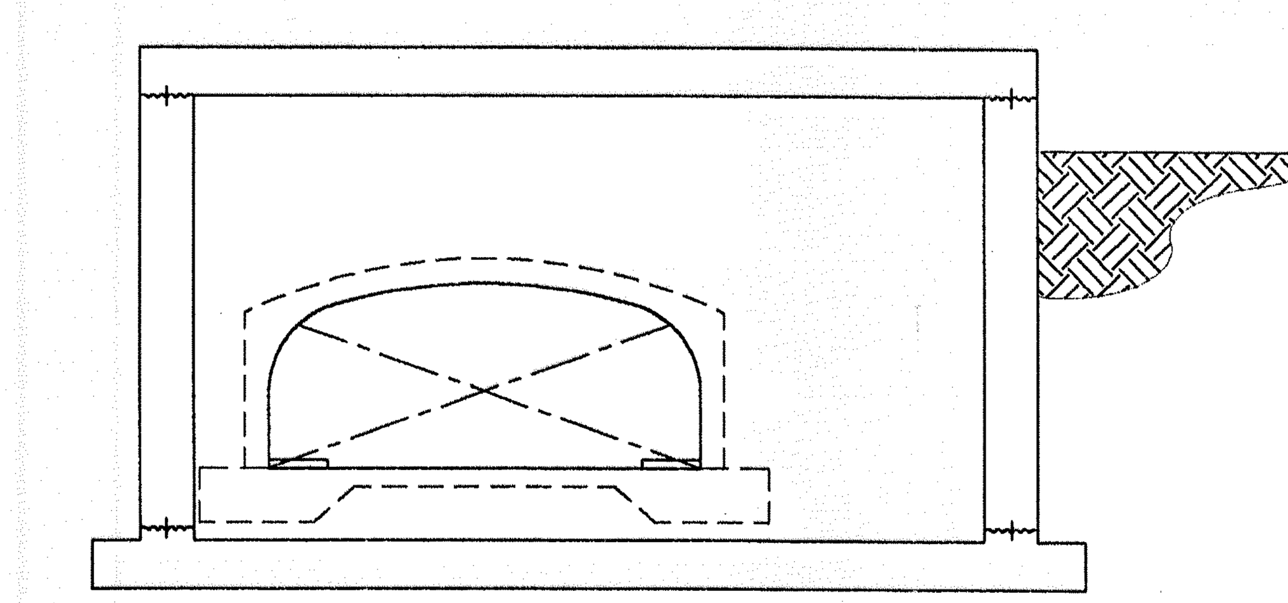
PLAN
NTS



DETAIL B
3/8" = 1'-0"



SECTION 2
3/16" = 1'-0"



SECTION 3
3/16" = 1'-0"

CONFORMED DRAWINGS
OCTOBER 1999

REV. NO.	DATE	DRWN	CHKD	REMARKS
	10/99	BMC	DLF	CONFORMED DRAWING
△	10/99	BMC	DLF	REVISIONS PER ADDENDUM NO. 2

DESIGNED BY:	T. VERWEY
DRAWN BY:	R. PERMAN
SHEET CHK'D BY:	D. FRIIS
CROSS CHK'D BY:	J. HAGERTY
APPROVED BY:	T. VERWEY
DATE:	AUGUST 1999

CDM Camp Dresser & McKee Inc.
consulting engineering construction operations

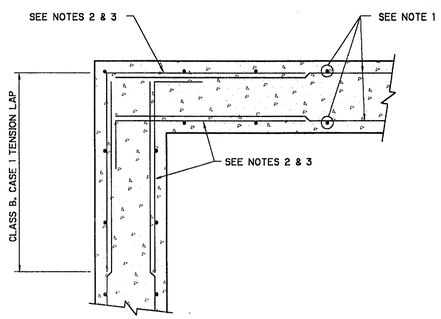
STORMWATER SYSTEM MAINTENANCE IMPROVEMENTS - PART I
CITY OF NAPLES, FLORIDA

DRAINAGE BASIN IV - PUMP STATION CONSTRUCTION

PRECAST ARCH CULVERT
PLAN, PROFILE, ELEVATION AND SECTIONS

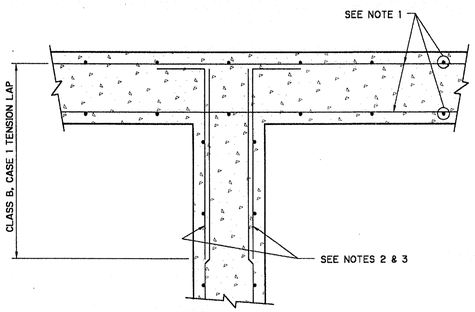
PROJECT NO. 6680-24619
FILE NAME: SCSPP109

SHEET NO.
S-9



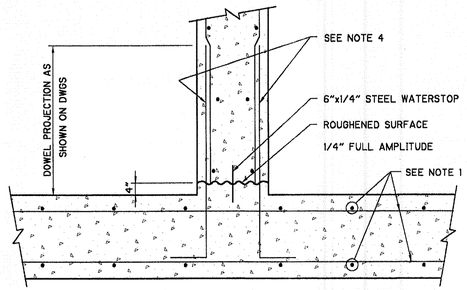
WALL CORNER REINFORCING

DETAIL A — NTS



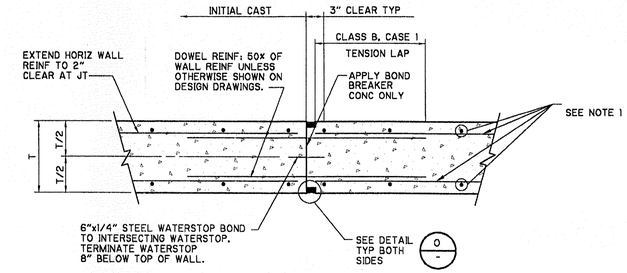
WALL INTERSECTION REINFORCING

DETAIL B — NTS



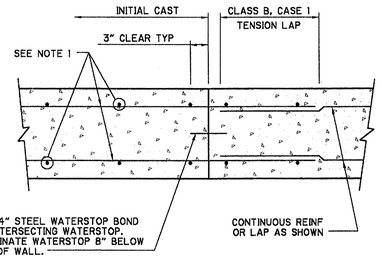
WALL BASE CONSTRUCTION JOINT

DETAIL C — NTS



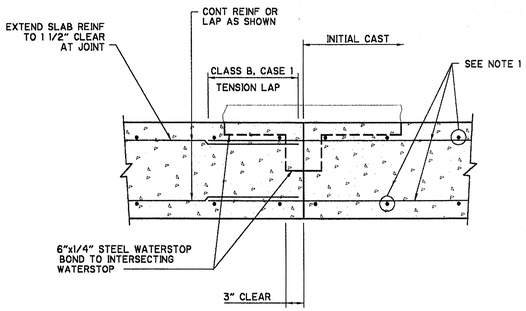
WALL CONTROL JOINT

DETAIL D — NTS



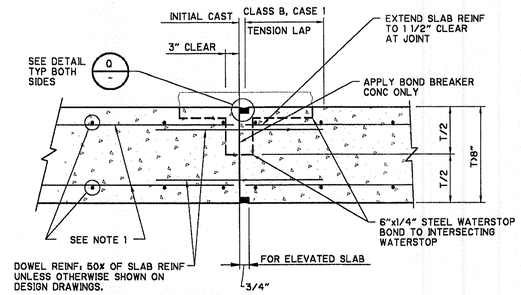
WALL CONSTRUCTION JOINT

DETAIL E — NTS



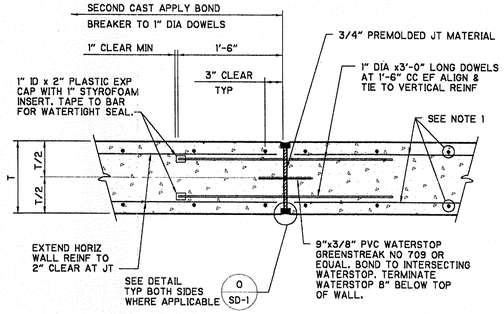
BASE/ELEVATED SLAB CONSTRUCTION JOINT

DETAIL F — NTS



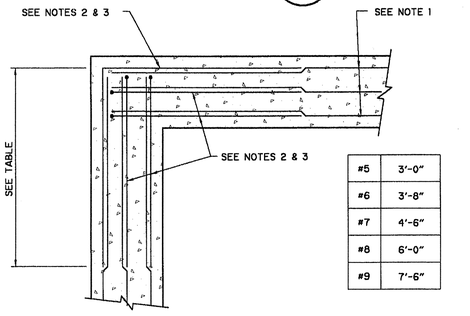
BASE/ELEVATED SLAB CONTROL JOINT

DETAIL G — NTS



BASE SLAB / WALL EXPANSION JOINT

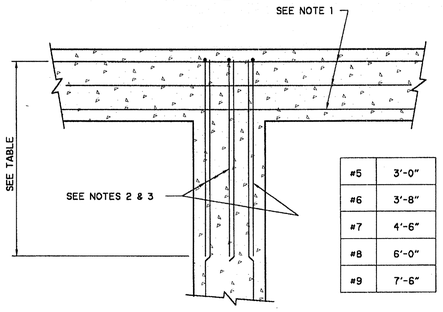
DETAIL H — NTS



#5	3'-0"
#6	3'-8"
#7	4'-6"
#8	6'-0"
#9	7'-6"

BEAM/GRADE BEAM CORNER REINFORCING

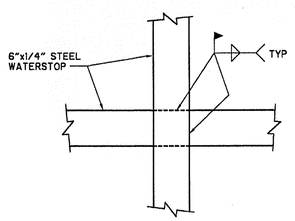
DETAIL I — NTS



#5	3'-0"
#6	3'-8"
#7	4'-6"
#8	6'-0"
#9	7'-6"

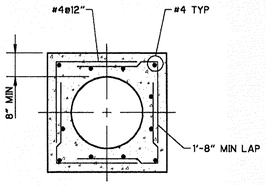
BEAM/GRADE BEAM INTERSECTION REINFORCING

DETAIL J



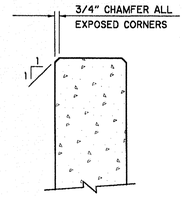
WATERSTOP SPLICE STEEL TO STEEL

DETAIL K



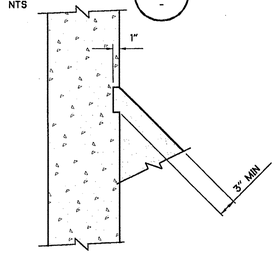
PIPE ENCASEMENT

DETAIL L — NTS



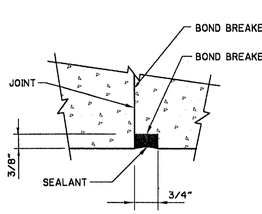
CHAMFER

DETAIL M — NTS



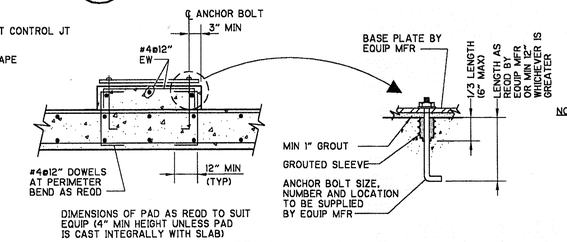
GROUT FILLET

DETAIL N — NTS



JOINT SEALANT

DETAIL O — NTS

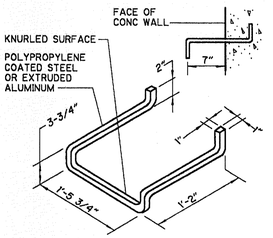


EQUIPMENT PAD

DETAIL P — NTS

NOTES:

1. BASIC SLAB/WALL/BEAM REINF AS SHOWN ON DESIGN DWGS
2. SIZE & SPACING OF BAR TO MATCH WALL/BEAM REINF AS SHOWN ON DESIGN DWGS
3. FOR ADD BARS AT CORNERS AND INTERSECTIONS SEE DESIGN DWGS
4. FOR DOWEL SIZE & SPACING SEE DESIGN DWGS
5. ALL HOOKS SHOWN ARE STANDARD



MANHOLE RUNG

DETAIL Q — NTS

SCANNED
JUL 2 2 2009
CITY OF NAPLES

CONFORMED DRAWINGS OCTOBER 1999

REV. NO.	DATE	DRWN	CHKD	REMARKS
	10/99	BMC	DLF	CONFORMED DRAWING

DESIGNED BY: T. VERWEY
DRAWN BY: R. PERMAN
SHEET CHK'D BY: D. FRIIS
CROSS CHK'D BY: J. HAGERTY
APPROVED BY: T. VERWEY
DATE: AUGUST 1999

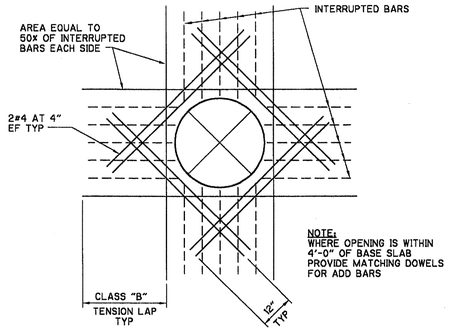
CDM Camp Dresser & McKee Inc.
consulting engineering construction operations

STORMWATER SYSTEM MAINTENANCE IMPROVEMENTS - PART I
CITY OF NAPLES, FLORIDA
DRAINAGE BASIN IV - PUMP STATION CONSTRUCTION

STANDARD STRUCTURAL DETAILS

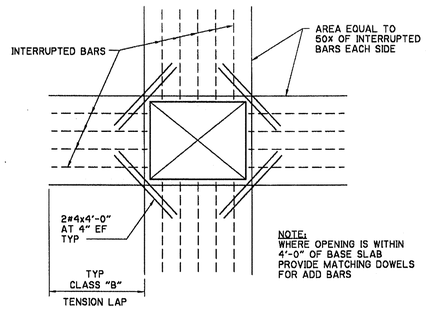
PROJECT NO. 6680-24619
FILE NAME: STDDET1

SHEET NO.
SD-1



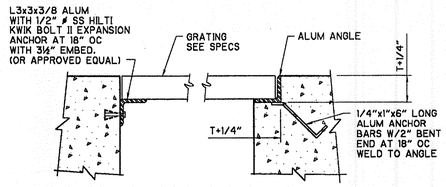
REINF AT CIRCULAR OPENINGS GREATER THAN 12"

DETAIL A
NTS



REINF AT RECTANGULAR OPENINGS GREATER THAN 12"

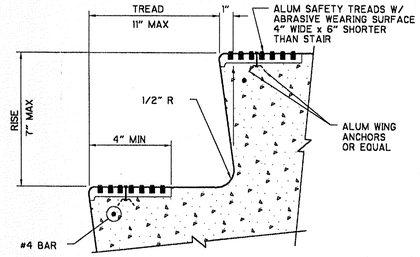
DETAIL B
NTS



MAXIMUM SPAN	DEPTH	BEARING BAR	
		THICKNESS	SPACING
3'-0"	1 1/4"	3/16"	1 3/16"
4'-0"	1 1/2"	3/16"	1 3/16"
5'-0"	2"	3/16"	1 3/16"
6'-0"	2 1/4"	3/16"	1 3/16"

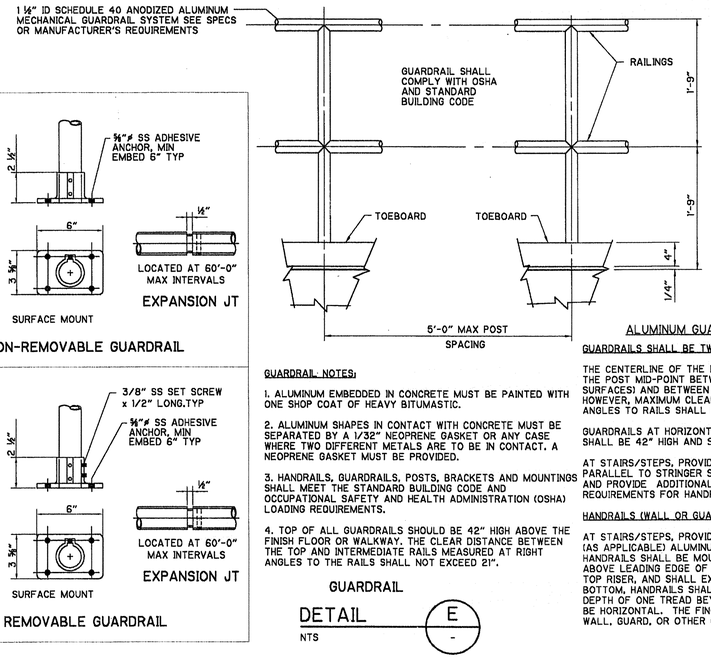
GRATING AND GRATING SUPPORT

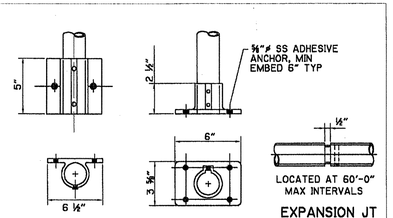
DETAIL C
NTS



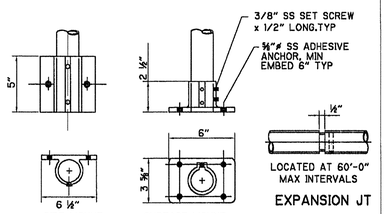
EMBEDDED SAFETY TREAD

DETAIL D
NTS





CONNECTIONS FOR NON-REMOVABLE GUARDRAIL



CONNECTIONS FOR REMOVABLE GUARDRAIL

GUARDRAIL

DETAIL E
NTS

GUARDRAIL NOTES:

1. ALUMINUM EMBEDDED IN CONCRETE MUST BE PAINTED WITH ONE SHOP COAT OF HEAVY BITUMASTIC.

2. ALUMINUM SHAPES IN CONTACT WITH CONCRETE MUST BE SEPARATED BY A 1/32" NEOPRENE GASKET OR ANY CASE WHERE TWO DIFFERENT METALS ARE TO BE IN CONTACT. A NEOPRENE GASKET MUST BE PROVIDED.

3. HANDRAILS, GUARDRAILS, POSTS, BRACKETS AND MOUNTINGS SHALL MEET THE STANDARD BUILDING CODE AND OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) LOADING REQUIREMENTS.

4. TOP OF ALL GUARDRAILS SHOULD BE 42" HIGH ABOVE THE FINISH FLOOR OR WALKWAY. THE CLEAR DISTANCE BETWEEN THE TOP AND INTERMEDIATE RAILS MEASURED AT RIGHT ANGLES TO THE RAILS SHALL NOT EXCEED 21".

ALUMINUM GUARDRAIL AND HANDRAIL NOTES:

GUARDRAILS SHALL BE TWO RAIL, 1.5" DIA SYSTEM AS DESCRIBED BELOW -

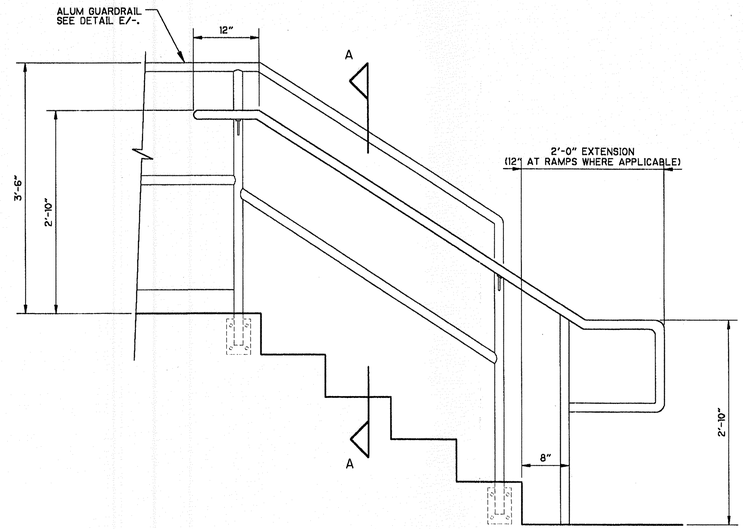
THE CENTERLINE OF THE INTERMEDIATE PARALLEL RAIL SHALL BE AT THE THE POST MID-POINT BETWEEN TOP RAIL AND KICKPLATE (AT HORIZ SURFACES) AND BETWEEN TOP RAIL AND STRINGER (AT STAIRS/STEPS). HOWEVER, MAXIMUM CLEAR DISTANCE BETWEEN RAILS MEASURED AT RIGHT ANGLES TO RAILS SHALL BE 21".

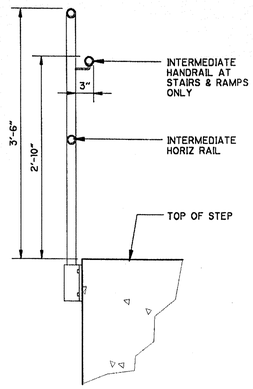
GUARDRAILS AT HORIZONTAL SURFACES (LANDINGS, MEZZANINES, ETC) SHALL BE 42" HIGH AND SHALL BE PROVIDED WITH A 4" KICKPLATE.

AT STAIRS/STEPS, PROVIDE STRINGER-MOUNTED GUARDRAIL SYSTEM PARALLEL TO STRINGER SLOPE, 42" HIGH ABOVE LEADING EDGE OF TREAD AND PROVIDE ADDITIONAL INSIDE MOUNTED HANDRAIL(S) MEETING THE REQUIREMENTS FOR HANDRAILS AS DESCRIBED BELOW.

HANDRAILS (WALL OR GUARDRAIL MOUNTED) SHALL BE -

AT STAIRS/STEPS, PROVIDE 1.5" DIA WALL AND/OR GUARDRAIL MOUNTED (AS APPLICABLE) ALUMINUM HANDRAILS AT BOTH SIDES OF STAIRS/STEPS. HANDRAILS SHALL BE MOUNTED PARALLEL TO STRINGER SLOPE, 36" HIGH ABOVE LEADING EDGE OF TREAD. HANDRAILS SHALL EXTEND 12" BEYOND TOP RISER, AND SHALL EXTEND 24" BEYOND THE BOTTOM RISER. AT THE BOTTOM, HANDRAILS SHALL CONTINUE TO SLOPE FOR A DISTANCE OF THE DEPTH OF ONE TREAD BEYOND THE BOTTOM RISER; THE REMAINDER SHALL BE HORIZONTAL. THE FINGER CLEARANCE BETWEEN HANDRAIL AND THE WALL, GUARD, OR OTHER OBSTRUCTION SHALL BE 1.5".





SECTION A-A

HANDRAIL ATTACHED TO GUARDRAIL SYSTEM

DETAIL F
NTS

SCANNED
JUL 2 2 2009
CITY OF NAPLES

CONFORMED DRAWINGS
OCTOBER 1999

REV. NO.	DATE	DRWN	CHKD	REMARKS
	10/99	BMC	DLF	CONFORMED DRAWING
1	10/99	BMC	DLF	REVISIONS PER ADDENDUM NO. 2

DESIGNED BY: T. VERWEY
DRAWN BY: R. PERMAN
SHEET CHK'D BY: D. FRIIS
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APPROVED BY: T. VERWEY
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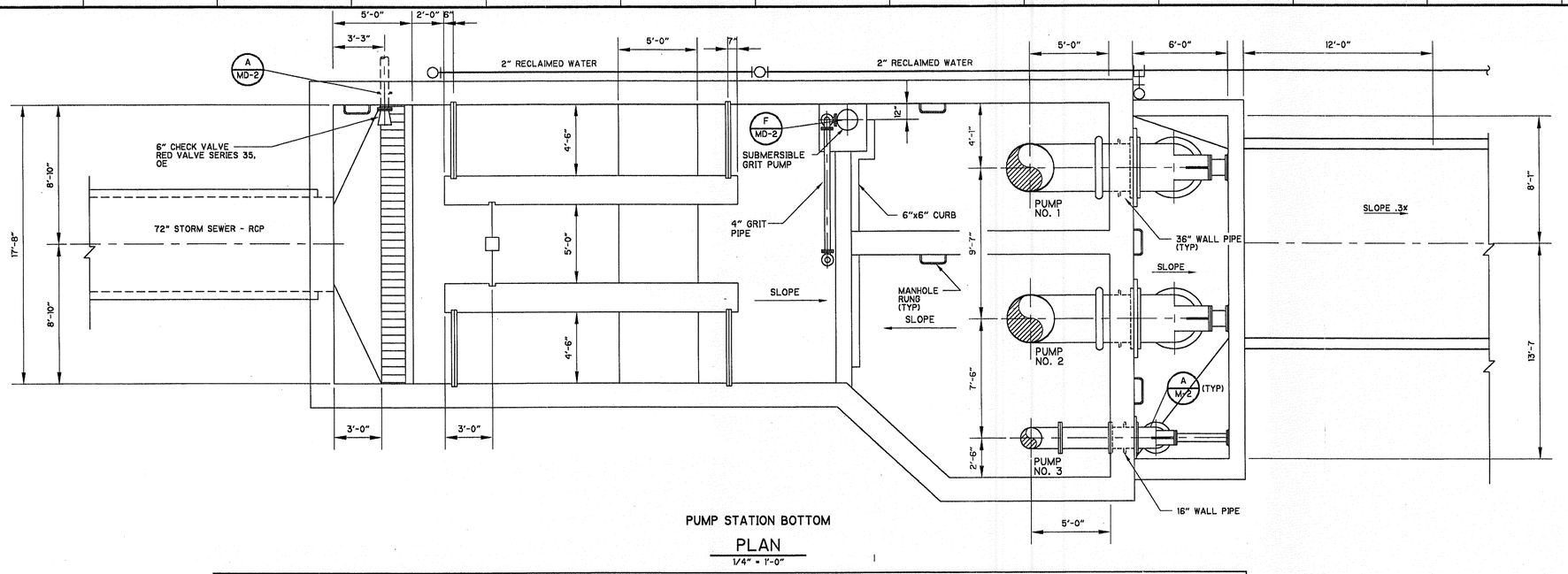
STORMWATER SYSTEM MAINTENANCE IMPROVEMENTS - PART I
CITY OF NAPLES, FLORIDA
DRAINAGE BASIN IV -
PUMP STATION CONSTRUCTION

STANDARD STRUCTURAL DETAILS

PROJECT NO. 6680-24619
FILE NAME: STDDET2

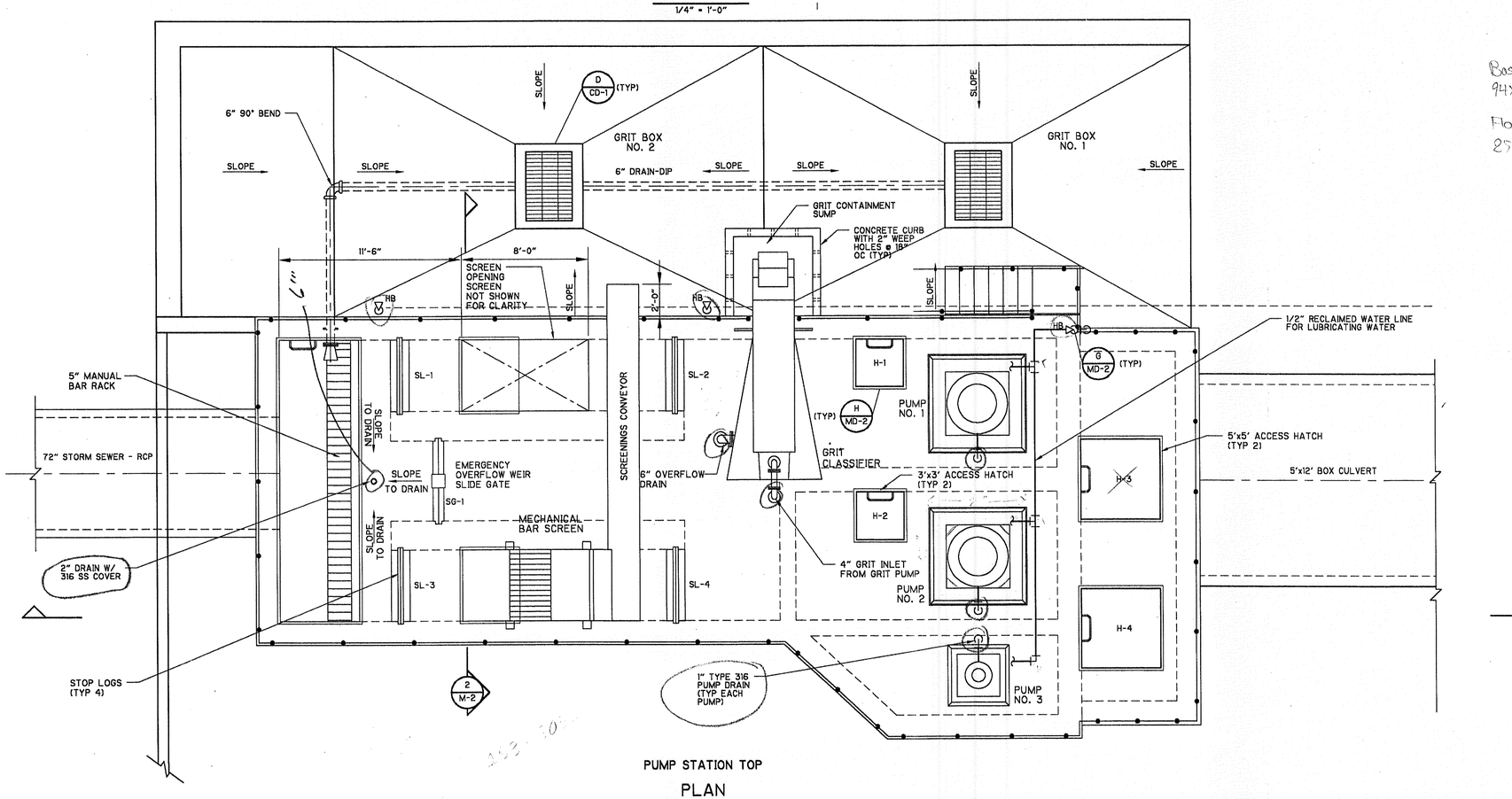
SHEET NO.
SD-2



PUMP STATION BOTTOM

PLAN

1/4" = 1'-0"



PUMP STATION TOP

PLAN

1/4" = 1'-0"

Base Plate
94 X 66

Floor Openins
25 X 57

SCANNED
JUL 2 2 2009
CITY OF NAPLES

CONFORMED DRAWINGS
OCTOBER 1999

REV. NO.	DATE	DRWN	CHKD	REMARKS
	10/99	BKW	JLH	CONFORMED DRAWING
1	08/99	BKW	JLH	REVISIONS PER ADDENDUM NO. 2

DESIGNED BY: M. NICHOLS
DRAWN BY: B. WILLIAMS
SHEET CHK'D BY: M. NICHOLS
CROSS CHK'D BY: J. HAGERTY
APPROVED BY: J. HAGERTY
DATE: AUGUST 1999

CDM Camp Dresser & McKee Inc.
consulting engineering construction operations

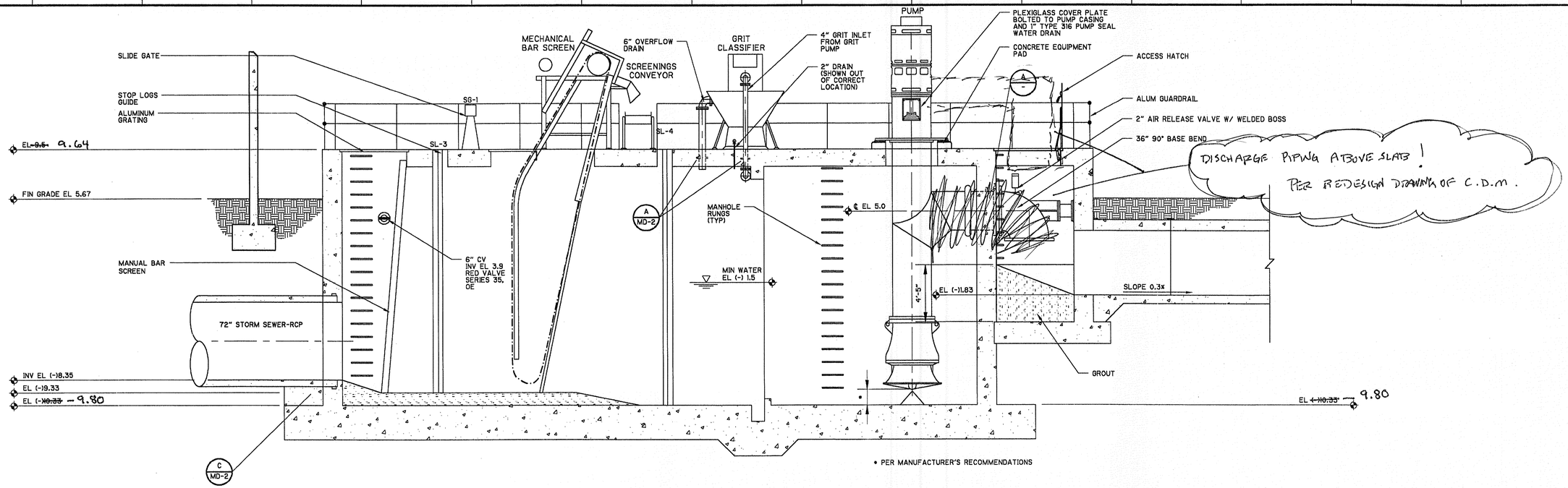
STORMWATER SYSTEM MAINTENANCE IMPROVEMENTS - PART I
CITY OF NAPLES, FLORIDA
DRAINAGE BASIN VI - PUMP STATION CONSTRUCTION

PUMP STATION PLAN

PROJECT NO. 6680-24619
FILE NAME: MPSPLM01.DWG

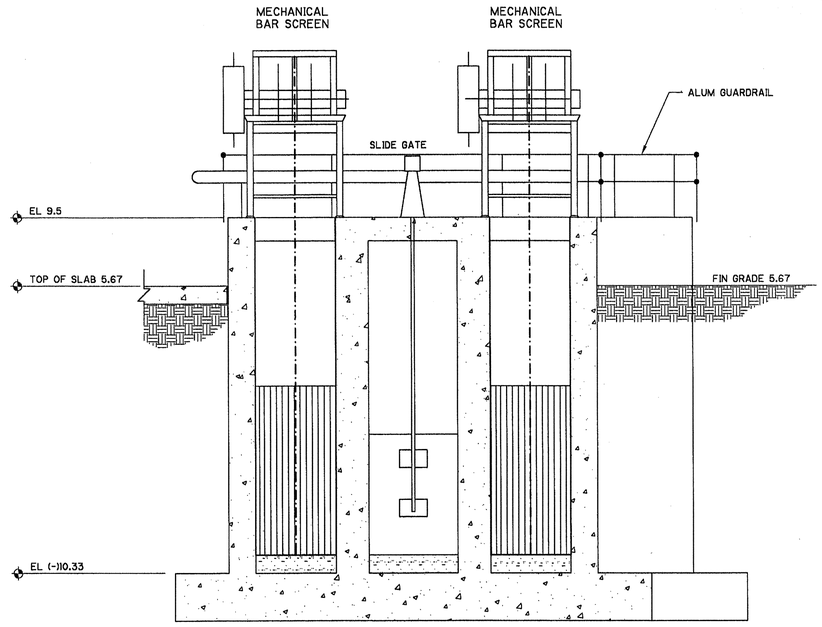
SHEET NO.
M-1

P:\6680-2-4619\Conformed\MECH\ Mpsplm01 10/22/99 06:28:09 Williamsb

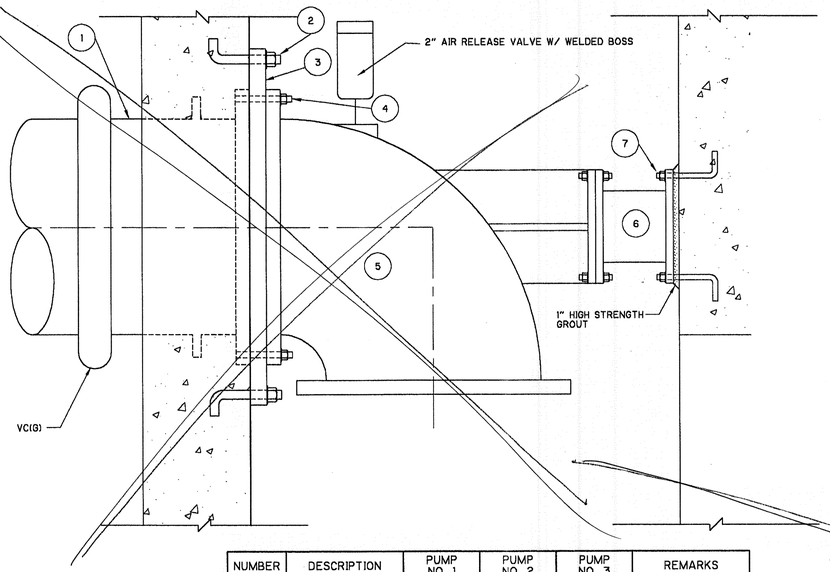


• PER MANUFACTURER'S RECOMMENDATIONS

SECTION 1 / M-1
1/4" = 1'-0"



SECTION 2 / M-1
1/4" = 1'-0"



NUMBER	DESCRIPTION	PUMP NO. 1	PUMP NO. 2	PUMP NO. 3	REMARKS
1	WALL PIPE	36"	36"	16"	SEE DETAIL A/MD-2
2	J-BOLT	1-1/2"	1-1/2"	1"	10" EMBEDMENT
3	REDUCING FLANGE	48"x36"	48"x36"	24"x16"	
4	STUD	1-1/2"x9-1/2"	1-1/2"x9-1/2"	1"x6-3/8"	
5	BASE BEND	36"	36"	16"	
6	FLANGED SPOOL PIECE	12"	12"	6"	LENGTH AS REQUIRED
7	J-BOLT	7/8"	7/8"	3/4"	10" EMBEDMENT

DETAIL A / M-2
1" = 1'-0"

OPERATING ELEVATIONS TABLE

HIGH LEVEL ALARM	5.0
LAG PUMP ON	2.0
LEAD PUMP ON	0.0
LAG PUMP OFF	(-)0.5
JOCKY PUMP ON	(-)0.8
ALL PUMPS OFF	(-)1.5
LOW LEVEL ALARM	(-)1.7

Note: Top Slab + Floor Slab Elevations Adjusted

DISCHARGE PIPING ABOVE SLAB ! * REDESIGNED BY C.D.M.

SCANNED
JUL 2 2 2009
CITY OF NAPLES

CONFORMED DRAWINGS
OCTOBER 1999

REV. NO.	DATE	DRWN	CHKD	REMARKS
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⚠	08/99	BKW	JLH	REVISIONS PER ADDENDUM NO. 2

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CDM Camp Dresser & McKee Inc.
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STORMWATER SYSTEM MAINTENANCE IMPROVEMENTS - PART I
CITY OF NAPLES, FLORIDA
DRAINAGE BASIN VI - PUMP STATION CONSTRUCTION

PUMP STATION SECTION AND DETAILS

PROJECT NO. 6680-24619
FILE NAME: MPSSCM02.DWG

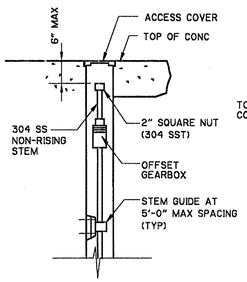
SHEET NO.
M-2

F:\6680\24619\Conformed\MECH\ Mission02 10/22/99 08:33:50 13-48x27 Williams

STRUCTURE	DESIGNATION	TYPE	DESCRIPTION	DIMENSIONS (IN)		ELEVATION (FT)		MAXIMUM HEAD (FT)		OPERATOR	MATERIAL
				WIDTH	HEIGHT	INVERT	TOP OF WALL	SEATING	UNSEATING	TYPE	
PUMP STATION	SG-1	SLIDE GATE	EMERGENCY OVERFLOW CHANNEL	60	168	(-)9.33	9.5	16.9	13	NON-RISING STEM	6061-T6 ALUMINUM
PUMP STATION	SL-1	STOP LOG	NORTH MECHANICAL BAR SCREEN CHANNEL UPSTREAM	54	168	(-)9.33	9.5	16.9	13	N/A	6061-T6 ALUMINUM
PUMP STATION	SL-2	STOP LOG	NORTH MECHANICAL BAR SCREEN CHANNEL DOWNSTREAM	54	180	(-)10.33	9.5	17.9	14	N/A	6061-T6 ALUMINUM
PUMP STATION	SL-3	STOP LOG	SOUTH MECHANICAL BAR SCREEN CHANNEL UPSTREAM	54	168	(-)9.33	9.5	16.9	13	N/A	6061-T6 ALUMINUM
PUMP STATION	SL-4	STOP LOG	SOUTH MECHANICAL BAR SCREEN CHANNEL DOWNSTREAM	54	180	(-)10.33	9.5	17.9	14	N/A	6061-T6 ALUMINUM

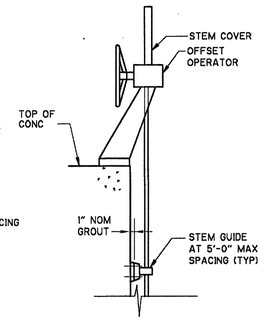
NOTES:

1. SELF CONTAINED GATE
2. FABRICATED SS SLIDE GATE, RODNEY HUNT SERIES 600 OR APPROVED EQUAL
3. DOUBLE LEAF GATE
4. TRIPLE LEAF GATE
5. INVERT ELEVATION MUST BE FIELD VERIFIED BY CONTRACTOR'S SURVEYOR.
6. GATES SHALL BE CONFIGURED WITH WALL BRACKET MOUNTED PARALLEL DRIVE UNIT WITH RECESSED OPERATOR SHOWN IN DETAIL A.
7. CENTERLINE ELEVATION SHOWN FOR BIDDING PURPOSES ONLY. PUMP MANUFACTURER TO SET ELEVATION DURING SHOP DRAWING PHASE.
8. INVERT ELEVATION TO BE DETERMINED DURING SHOP DRAWING PHASE. FIELD VERIFY TOP OF WALL ELEVATION.
9. NOTE THAT MAXIMUM HEAD IS GREATER THAN THE HEIGHT OF THE SLIDE GATE. WHEN WATER LEVEL IS HIGH, GATE ACTS AS A WEIR. HOWEVER, GATE MUST BE ABLE TO OPEN UPWARDS UNDER THIS CONDITION.
10. PROVIDE STAINLESS STEEL ODOR CONTROL COVER SURROUNDING GATE FRAME ABOVE TOP OF SLAB.
11. PROVIDE ALUMINUM COVER PLATE FOR ODOR CONTROL - SEE DETAIL E



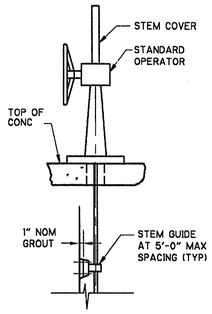
RECESSED OPERATOR

DETAIL A NTS



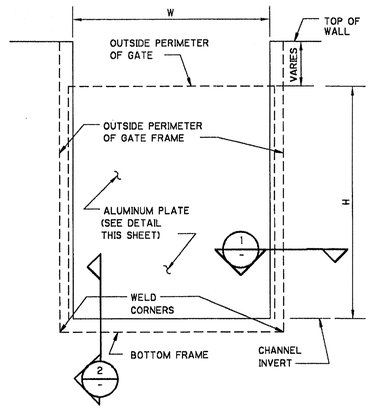
OFFSET OPERATOR

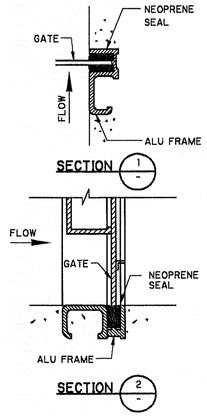
DETAIL B NTS



OVERHUNG OPERATOR

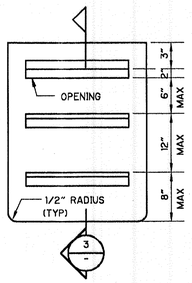
DETAIL C NTS

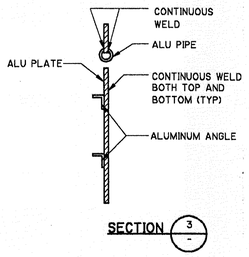




ALUMINUM STOP PLATE

DETAIL D NTS

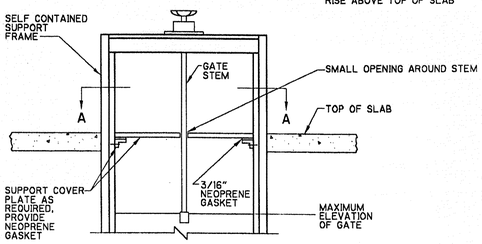


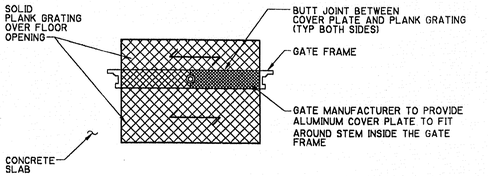


ALUMINUM COVER PLATE FOR ODOR CONTROL

DETAIL E NTS

NOTE
TO BE USED ONLY WHEN GATE DISC DOES NOT RISE ABOVE TOP OF SLAB





SECTION A-A

SCANNED
JUL 22 2009
CITY OF NAPLES

CONFORMED DRAWINGS OCTOBER 1999

REV. NO.	DATE	DRWN	CHKD	REMARKS
	10/99	BKW	JLH	CONFORMED DRAWING
1	08/99	BKW	JLH	REVISIONS PER ADDENDUM NO. 2

DESIGNED BY: M. NICHOLS
DRAWN BY: B. WILLIAMS
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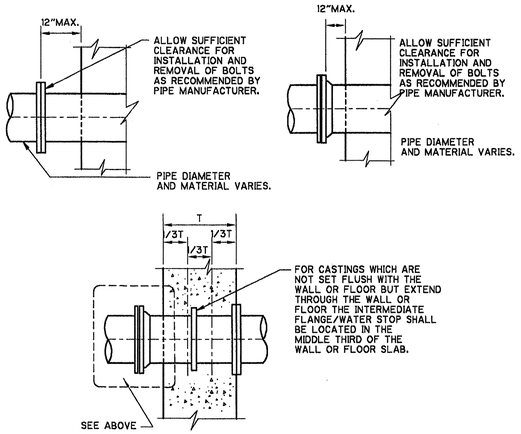
consulting engineering construction operations

STORMWATER SYSTEM MAINTENANCE IMPROVEMENTS - PART I
CITY OF NAPLES, FLORIDA
DRAINAGE BASIN VI - PUMP STATION CONSTRUCTION

GATE DETAILS

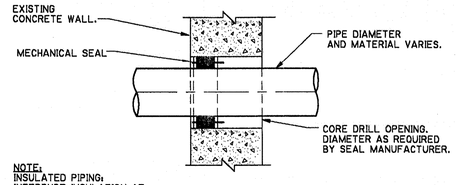
PROJECT NO. 6680-24619
FILE NAME: MMMDLMD1.DWG

SHEET NO.
MD-1



CASTING WITH NON-FLUSH JOINTS

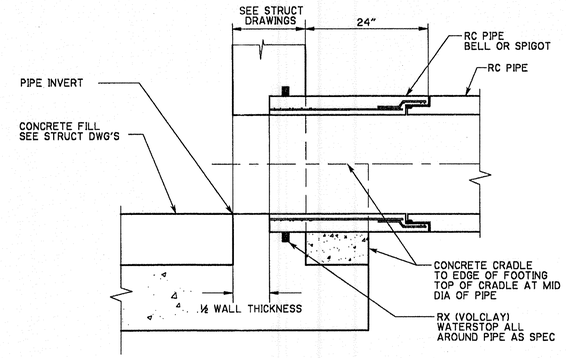
DETAIL A
NTS



NOTE:
INSULATED PIPING:
INTERRUPT INSULATION AT BOTH SIDES OF WALL. INSTALL INSULATION FLUSH WITH WALL. AFTER WATER TIGHT INSTALLATION OF MECHANICAL SEAL.

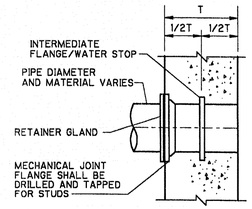
CORE DRILLED OPENING AND MECHANICAL SEAL PENETRATION THROUGH EXISTING CONCRETE

DETAIL B
NTS



RC PIPE CONNECTION

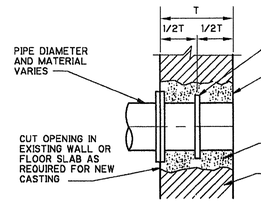
DETAIL C
NTS



FURNISH RESTRAINED MECHANICAL JOINT WHERE INDICATED ON THE DRAWINGS OR SPECIFIED

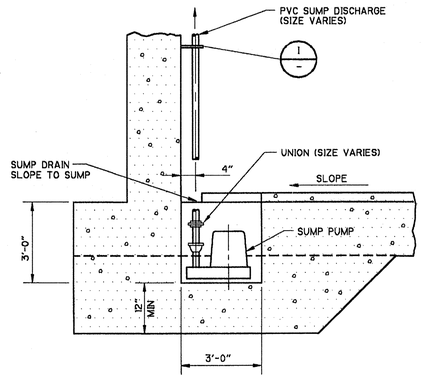
MECHANICAL JOINT X PLAIN END WALL PIPE

DETAIL D
NTS



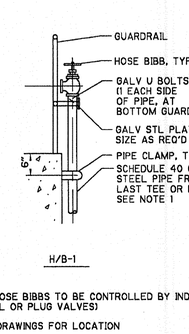
CASTINGS OR SLEEVES TO BE INSTALLED IN EXISTING WALLS OR FLOOR SLABS

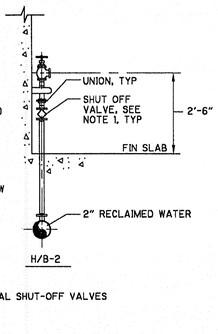
DETAIL E
NTS



SUMP PUMP-ELEVATION

DETAIL F
NTS
M-1

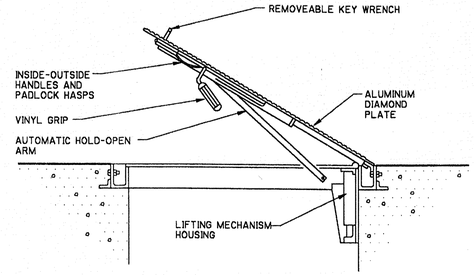




NOTES:
1 ALL HOSE BIBBS TO BE CONTROLLED BY INDIVIDUAL SHUT-OFF VALVES (BALL OR PLUG VALVES)
2 SEE DRAWINGS FOR LOCATION
3 ALL HOSE BIBS TO BE A MIN OF 1 INCH.

HOSE BIBBS

DETAIL G
NTS
M-1

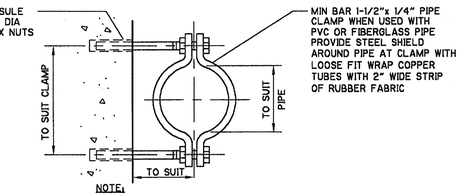


SINGLE LEAF HATCH

HATCH SCHEDULE			
NO.	LOCATION	SIZE	REMARKS
H-1	PUMP STATION	3'-0"x3'-0"	BILCO TYPE K, OR APPROVED EQUAL
H-2	PUMP STATION	3'-0"x3'-0"	BILCO TYPE K, OR APPROVED EQUAL
H-3	PUMP STATION	5'-0"x5'-0"	BILCO TYPE KD, OR APPROVED EQUAL
H-4	PUMP STATION	5'-0"x5'-0"	BILCO TYPE KD, OR APPROVED EQUAL

TYPICAL HATCH DETAILS AND SCHEDULE
NTS

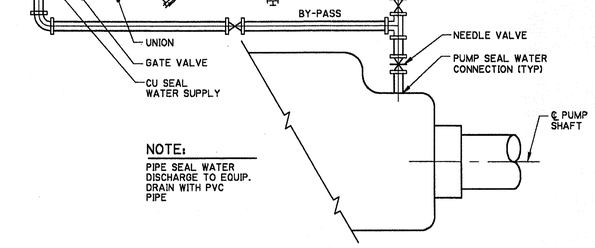
HATCH NOTES
1. ALUMINUM HATCHES TO BE SUPPLIED WITH TYPE 316 STAINLESS STEEL HARDWARE.
2. ALL HATCHES TO BE SUPPLIED WITH SAFETY CHAINS. CORNER POST WITH FLOOR INSERTS MUST ALSO BE PROVIDED FOR SINGLE LEAF HATCHES.



NOTE:
GALVANIZE ALL PARTS AFTER FABRICATION WHERE SUBMERGED OR LOCATED ON OR ABOVE TOP OF WALL OF HYDRAULIC STRUCTURE. PIPE CLAMP, WASHER AND SHIELD SHALL BE TYPE 316 STAINLESS STEEL

PIPE CLAMP

DETAIL I
NTS



NOTE:
PIPE SEAL WATER DISCHARGE TO EQUIP. DRAIN WITH PVC PIPE

SEAL WATER SYSTEM

DETAIL J
NTS

SCANNED
JUL 22 2009
CITY OF NAPLES

CONFORMED DRAWINGS OCTOBER 1999

REV. NO.	DATE	DRWN	CHKD	REMARKS
	10/99	BKW	JLH	CONFORMED DRAWING
⚠	08/99	BKW	JLH	REVISIONS PER ADDENDUM NO. 2

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STORMWATER SYSTEM MAINTENANCE IMPROVEMENTS - PART I
CITY OF NAPLES, FLORIDA
DRAINAGE BASIN VI -
PUMP STATION CONSTRUCTION

MISCELLANEOUS DETAILS

PROJECT NO. 6680-24619
FILE NAME: MMMDLMD2.DWG

SHEET NO.
MD-2

AIR COOLED CONDENSING UNIT SCHEDULE

ITEM NO.	NO. REQ'D	LOCATION	MATCH WITH	SYSTEM CAPACITY		PIPING		CONDENSER				COMPRESSOR					REMARKS	MANUFACTURER MODEL
				BTUH	SEER	SUCT.	LIQ.	OSA F	CFM	ROWS	RLA	NO.	TYPE	RLA	VOLT	PHASE		
ACCU-1	1	ELECTRICAL BUILDING NORTH WALL	AHU-1	35,000	14.0	¾"	⅜"	95	3190	2	1.2	1	HERMETIC	16.0	208	1	SEE NOTE A BELOW	WEATHERKING WAPA-036JA

NOTE A: PROVIDE UNIT WITH THE FOLLOWING OPTIONS: LOW PRESSURE CONTROL, LIQUID LINE FILTER DRIER, LOW AMBIENT CONTROL, TIME DELAY CONTROL.

AIR HANDLING UNIT SCHEDULE

ITEM NO.	NO. REQ'D	AREA SERVED	SHEET NO.	COIL DATA							FAN DATA						FILTERS		REMARKS	MANUFACTURER MODEL
				ENTERING AIR		LEAVING AIR		TOTAL MBH	SENSIBLE MBH	ROWS/ FINS	CFM	OSA CFM	ESP	HP	DRIVE	VOLT PHASE	TYPE	SIZE NO.		
				DB	WB	DB	WB													
AHU-1	1	ELECTRICAL ROOM ELECTRICAL BUILDING	H-1	80	67	-	-	35.0	25.3	-	1200	0	0.7"	½	DIRECT	208 V 1ø	TA	- -	SEE NOTE A BELOW	WEATHERKING WBHJ-21

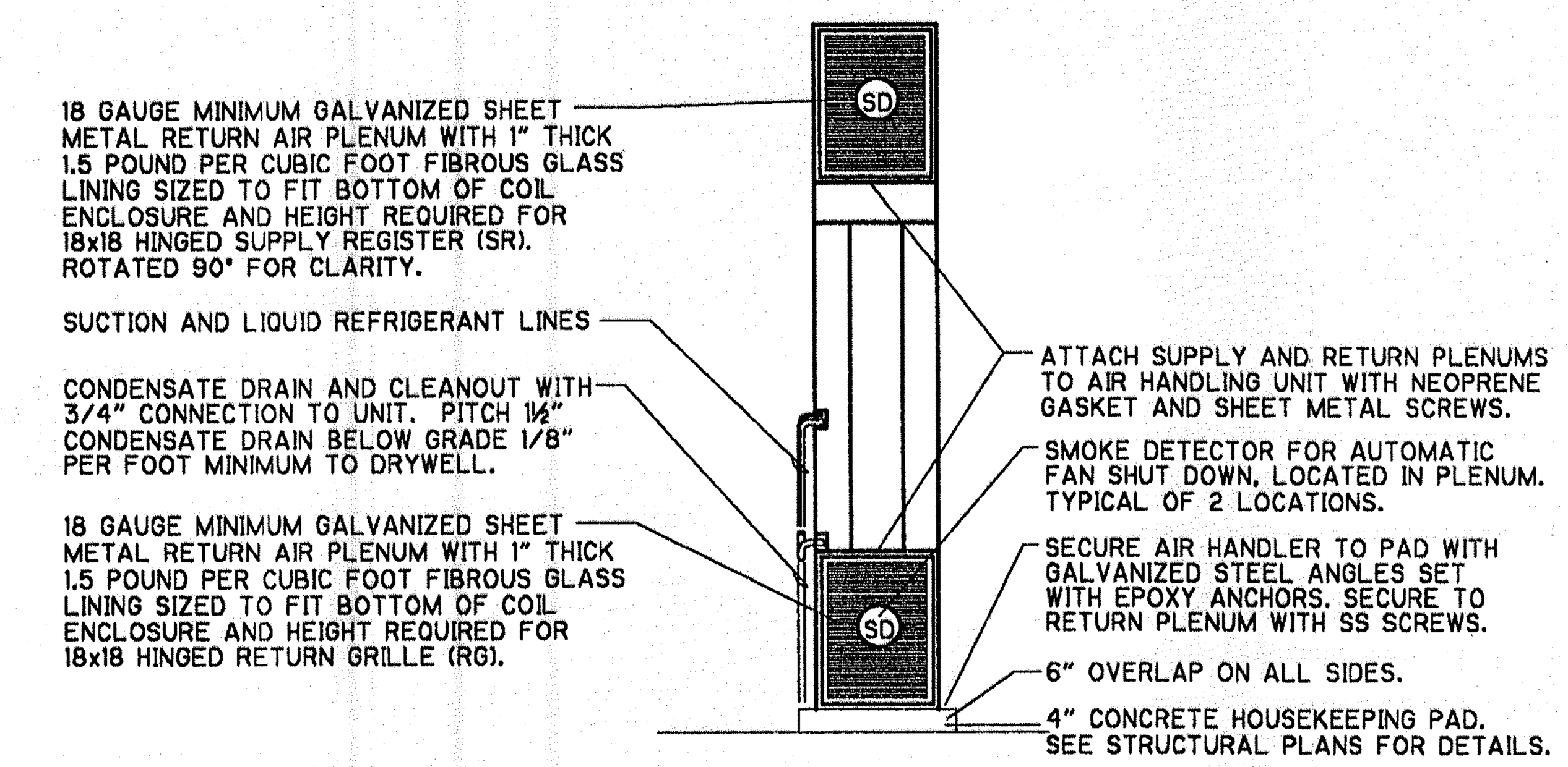
NOTE A: PROVIDE UNIT WITH THE FOLLOWING OPTIONS: 1" FARR 30/30 FILTERS. PROVIDE SINGLE COIL CABINET.

AIR DISTRIBUTION DEVICE SCHEDULE

SYMBOL	DESCRIPTION	MODEL	FRAME TYPE	MATERIAL	FINISH	REMARKS
RG	RETURN GRILLE HEAVY DUTY	METAL*AIRE RH-HD	PLASTER OR LAY-IN	ALUMINUM	OFF-WHITE ENAMEL	-
SR	SUPPLY REGISTER DOUBLE DEFLECTION	METAL*AIRE V4004D	PLASTER	ALUMINUM	OFF-WHITE ENAMEL	OPPOSED BLADE DAMPER

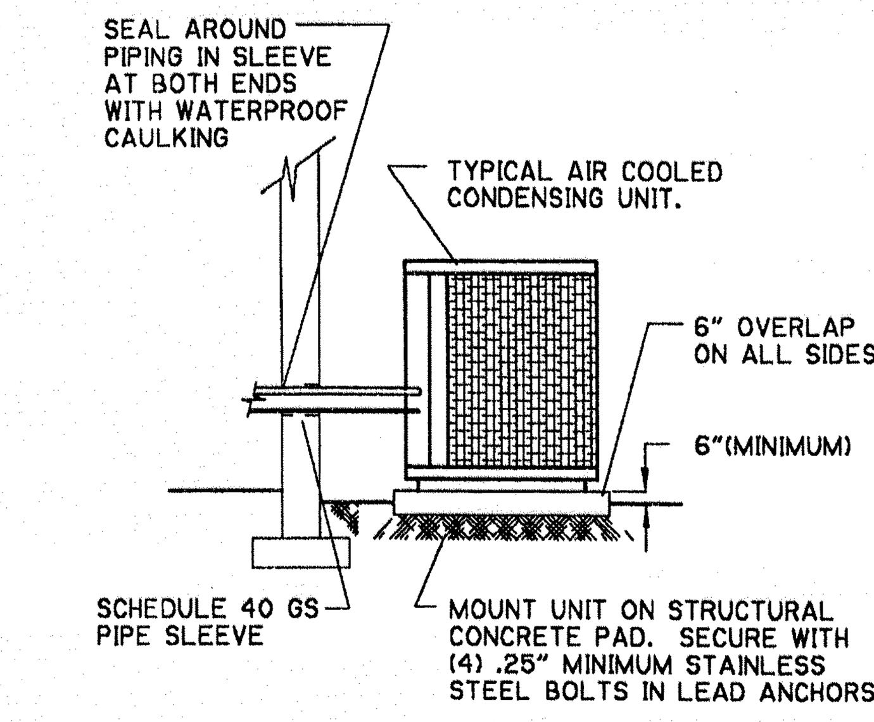
LEGEND

SYMBOL	DESCRIPTION
(T)	HEAVY DUTY, CORROSION RESISTANT LINE VOLTAGE THERMOSTAT



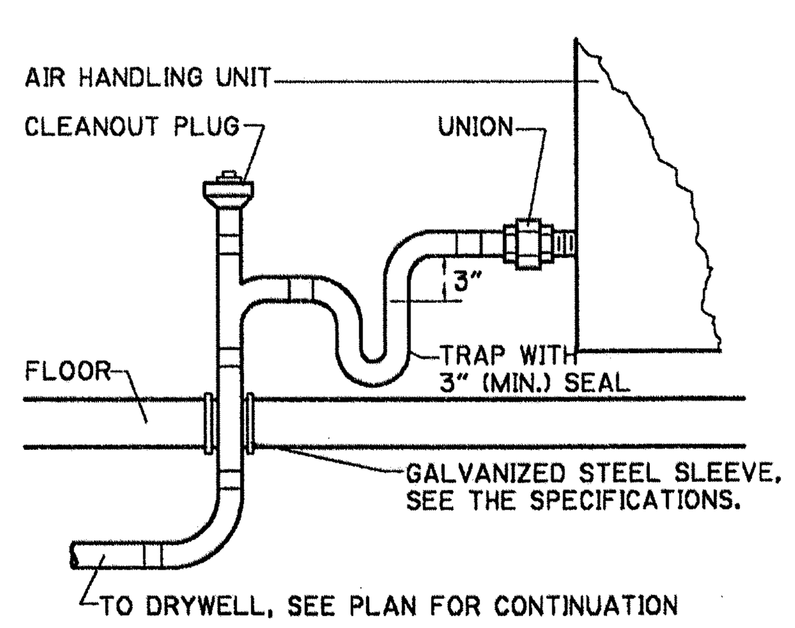
AHU-1 MOUNTING

DETAIL A / -
NTS



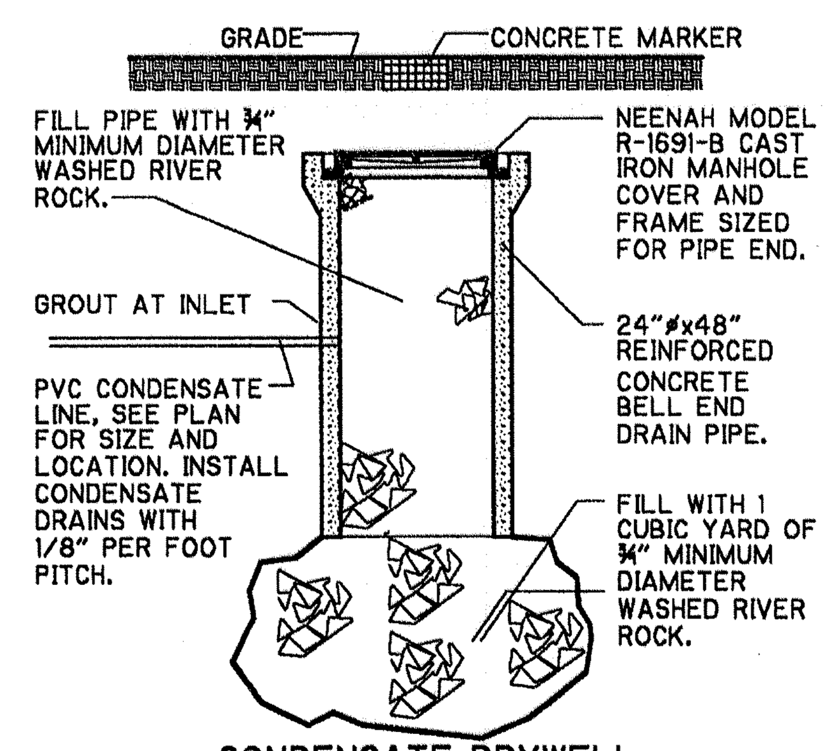
THROUGH WALL PIPING AND CONDENSER MOUNTING

DETAIL B / -
NTS



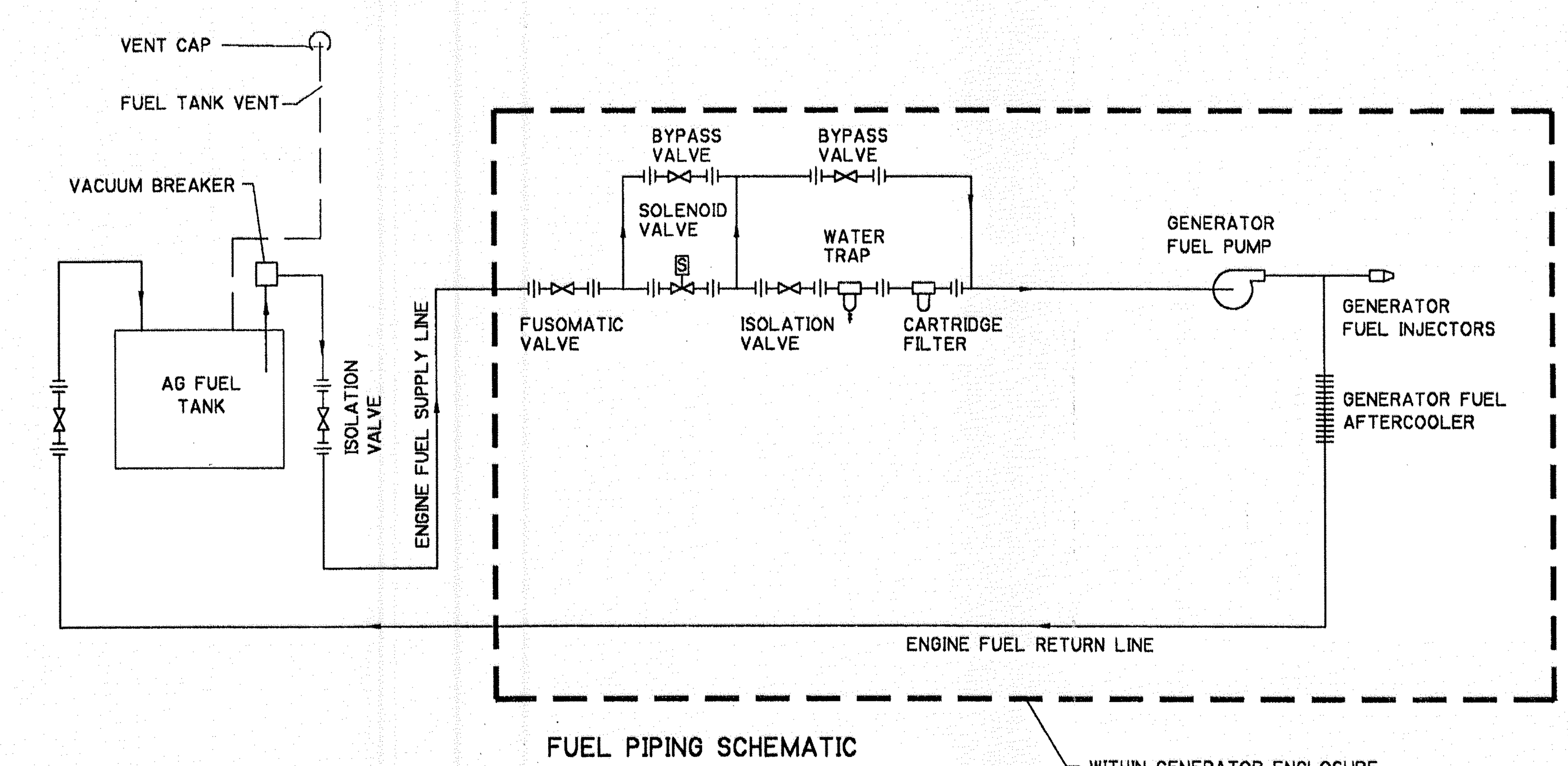
CONDENSATE DRAIN

DETAIL C / -
NTS



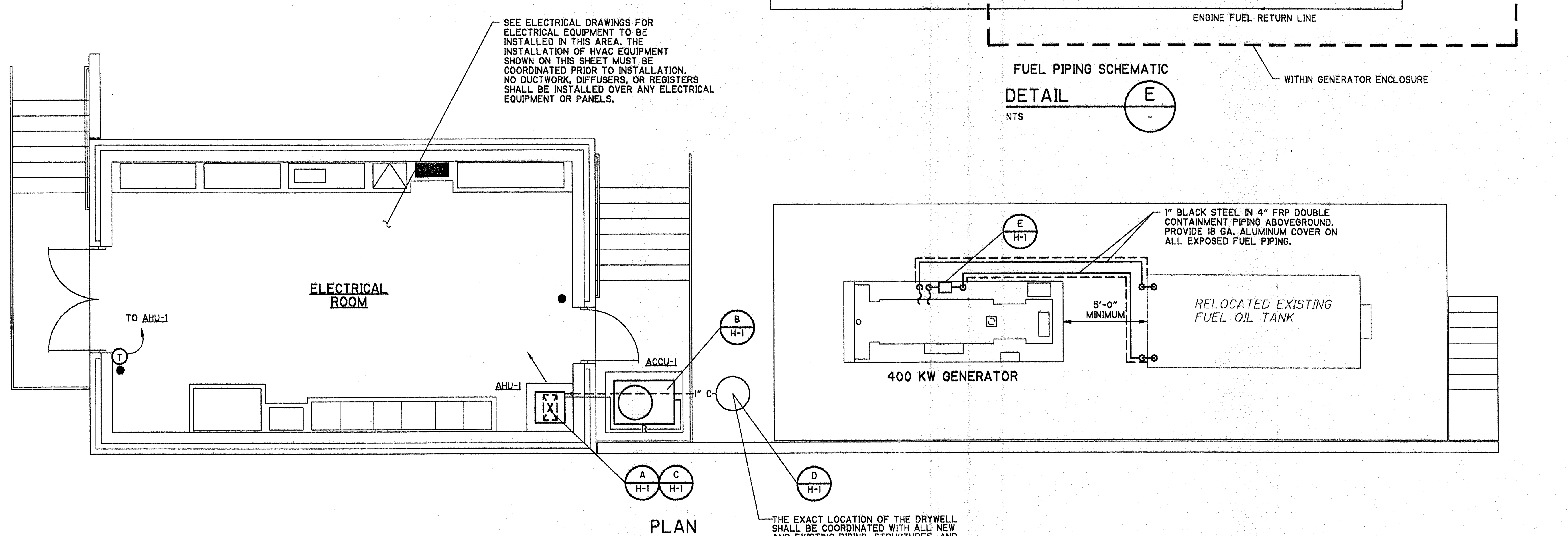
CONDENSATE DRYWELL

DETAIL D / -
NTS



FUEL PIPING SCHEMATIC

DETAIL E / -
NTS



PLAN
1/4" = 1'-0"

SCANNED
JUL 22 2009
CITY OF NAPLES

CONFORMED DRAWINGS
OCTOBER 1999

REV. NO.	DATE	DRWN	CHKD	REMARKS
	10/99	PAP	WRH	CONFORMED DRAWING

DESIGNED BY: W. HAYGOOD
DRAWN BY: P. POULIOT
SHEET CHK'D BY: W. HAYGOOD
CROSS CHK'D BY: J. HAGERTY
APPROVED BY: W. HAYGOOD
DATE: AUGUST 1999

CDM Camp Dresser & McKee Inc.
consulting engineering construction operations

STORMWATER SYSTEM MAINTENANCE IMPROVEMENTS - PART I
CITY OF NAPLES, FLORIDA
DRAINAGE BASIN VI - PUMP STATION CONSTRUCTION

ELECTRICAL BUILDING HVAC PLAN

PROJECT NO. 6680-24619
FILE NAME: HELPL001
SHEET NO. **H-1**

O:\6680_619\conform\hvac\ Helpl001 10/25/99 09:53:05 8/02/06

PLAN SYMBOLS

	HOME RUN TO DESIGNATED EQUIPMENT. NUMBER OF ARROWS INDICATE NUMBER OF CIRCUITS. HASH MARKS INDICATE NUMBER OF #12 AWG. CONDUCTORS. NO HASH MARKS INDICATE 2#12 CONDUCTORS. UNLESS OTHERWISE NOTED.
	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 b	CEILING MOUNTED LIGHTING FIXTURE, UPPER CASE LETTER INDICATES TYPE (TYPICAL). LOWER CASE LETTER INDICATES SWITCH DESIGNATION (TYPICAL).
	WALL MOUNTED LIGHTING FIXTURE.
A b	FLUORESCENT LIGHTING FIXTURE, CEILING MOUNTED. UPPER CASE LETTER INDICATES TYPE (TYPICAL). LOWER CASE LETTER INDICATES SWITCH DESIGNATION (TYPICAL).
	FLUORESCENT STRIP FIXTURE.
	EXTERIOR LUMINARE AND MOUNTING STANDARD.
	EMERGENCY BATTERY PACK LIGHTING FIXTURE.
	CEILING OR WALL MOUNTED EXIT LIGHT FIXTURE WITH BATTERY PACK. PROVIDE ARROWS AS REQUIRED.
	EXIT LIGHT FIXTURES WITHOUT BATTERY PACK.
J	JUNCTION BOX PER N.E.C., FLUSH MOUNTED UNLESS INDICATED OTHERWISE.
	FLUSH OR SURFACE MOUNTED LIGHTING PANELBOARD.
	FLUSH OR SURFACE MOUNTED POWER PANELBOARD.
45	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 "HOSPITAL GRADE" DUPLEX RECEPTACLE WITH ISOLATED GROUND CONNECTION.
	WIREMOLD SURFACE METAL RACEWAY SYSTEM WITH 20A, 125V, 3W RECEPTACLES.
	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.
	20A, 250V, 1Ø, 3W SINGLE RECEPTACLE IN FLUSH OUTLET BOX, 18" ABOVE FINISHED FLOOR.
	30A, 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_S	SINGLE POLE SWITCH, SURFACE MOUNTED.
S_3	THREE-WAY SWITCH IN FLUSH OUTLET BOX.
S_4	FOUR-WAY SWITCH IN FLUSH OUTLET BOX.
S_D	2000 W INCANDESCENT DIMMING SWITCH IN FLUSH OUTLET BOX, 48" ABOVE FINISHED FLOOR.
	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
(S)	ELECTRIC A.C. MOTOR, NO. INDICATES HORSEPOWER.
(S)	ELECTRIC D.C. MOTOR, NO. INDICATES HORSEPOWER.
(M)	MOTORIZED VALVE
	MAGNETIC MOTOR STARTER
VFD	VARIABLE FREQUENCY DRIVE
(H)	HUMIDISTAT
M	MOTOR OPERATOR
(T)	THERMOSTAT
	FLUSH OUTLET BOX AND TELEPHONE COVER PLATE 18" ABOVE FINISHED FLOOR.
	FLUSH FLOOR MOUNTED OUTLET BOX AND TELEPHONE COVER PLATE.
E	EMERGENCY STOP SWITCH
J	JUNCTION BOX

PLAN SYMBOLS (CONTINUED)

	FLUSH OUTLET BOX AND COVER PLATE SUITABLE FOR COMPUTER DEVICE CONNECTION.
SD	CEILING MOUNTED SMOKE DETECTOR.
SD	DUCT MOUNTED SMOKE DETECTOR.
F	FIRE ALARM MANUAL PULL STATION IN FLUSH OUTLET BOX, 48" ABOVE FINISHED FLOOR.
H	FIRE ALARM HORN IN FLUSH OUTLET BOX, 12" BELOW CEILING.
FS	FLOW SWITCH
TS	TAMPER SWITCH
HS	HANDSWITCH
LS	LIMIT SWITCH
XS	TORQUE SWITCH
PS	PRESSURE SWITCH
ZS	ZERO SPEED SWITCH OR POSITION SWITCH
SV	SOLENOID VALVE
LLS	LIQUID LEVEL SWITCH
LSL	LEVEL SWITCH LOW
LSH	LEVEL SWITCH HIGH
VS	VIBRATION SWITCH
TS	TEMPERATURE SWITCH
FIT	FLOW INDICATING TRANSMITTER
LIT	LEVEL INDICATING TRANSMITTER
FS	EMERGENCY EYEWASH/SHOWER

SINGLE LINE DIAGRAM SYMBOLS

V	VOLTMETER
A	AMMETER
VS	THREE PHASE VOLT SWITCH
AS	THREE PHASE AMP SWITCH
GFI	GROUND FAULT INTERRUPTER
W	WATT HOUR METER
	FUSE
	CAPACITOR
	DRAW-OUT CIRCUIT BREAKER
	MOLDED CASE CIRCUIT BREAKER
	TYPICAL SELECTOR SWITCH CONTROL. SEE ELEMENTARY DIAGRAMS FOR EXACT TYPE.
(S)	ELECTRIC A.C. MOTOR, NO. INDICATES HORSEPOWER.
(S)	ELECTRIC D.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
K	KIRK KEY INTERLOCK
	CURRENT TRANSFORMERS
	POTENTIAL TRANSFORMERS
	MANUAL OR AUTOMATIC TRANSFER SWITCH
	LIGHTNING ARRESTER & SURGE CAPACITOR

CONTROL DIAGRAM SYMBOLS

	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
LS	LIMIT SWITCH
XS	TORQUE SWITCH
PS	PRESSURE SWITCH
ZS	ZERO SPEED 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 CONTACT PUSHBUTTON
	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
AC	ALTERNATING CURRENT
ACCU	AIR COOLED CONDENSING UNIT
AF	AMP FRAME
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AHU	AIR HANDLING UNIT
AIC	AMPERE INTERRUPTING CAPACITY
AT	AMP TRIP
ATS	AUTOMATIC TRANSFER SWITCH
BKR	BREAKER
BLDG	BUILDING
CIR	CIRCUIT
CLB	CURRENT LIMITING BREAKER
CONT	CONTROL
CU	COPPER
CWP	COLD WATER PIPE
CP	CONTROL PANEL
DIA	DIAMETER
ELEC	ELECTRICAL
ELR	EMERGENCY LOCK-OUT RELAY
EM	EMERGENCY
ENCL	ENCLOSURE
EP	EXPLOSION PROOF
ESB	ENERGY SAVING BALLAST
EUH	ELECTRIC UNIT HEATER
EWH	ELECTRIC WATER HEATER
EXIST	EXISTING
FAAP	FIRE ALARM ANNUNCIATOR PANEL
FACP	FIRE ALARM CONTROL PANEL
FOEH	FIBER OPTIC ETHERNET HUB
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GND	GROUND
HOA	HAND-OFF-AUTOMATIC
HOR	HAND-OFF-REMOTE
HORC	HAND-OFF-REMOTE-COMPUTER
HP	HORSEPOWER
HPS	HIGH PRESSURE SODIUM
INSTR	INSTRUMENTATION
KVA	KILOVOLT-AMPERES
KW	KILOWATT
LDR	LOAD DUMP RELAY
LTG	LIGHTING
MAX	MAXIMUM
MB	MAIN BREAKER
MCC	MOTOR CONTROL CENTER
MCP	MOTOR CIRCUIT PROTECTOR, MAIN CONTROL PANEL
MFR	MANUFACTURER
MH	METAL HALIDE, MANHOLE
MIN	MINIMUM
MLO	MAIN LUGS ONLY
MOD'S	MOTOR OPERATED DAMPERS
MTD	MOUNTED
NC	NORMALLY CLOSED
NEC	NATIONAL ELECTRICAL CODE
NEUT	NEUTRAL
NO	NORMALLY OPEN
NTS	NOT TO SCALE
OC	ON CENTER
OH	OVERHEAD
OLCP	OUTSIDE LIGHTING CONTROL PANEL
OL'S	OVERLOADS
OMI	OPERATOR MACHINE INTERFACE
P	POLE
PB	PULL BOX
PC	PHOTOELECTRIC CONTROL
PC/TC	PHOTOELECTRIC CONTROL/TIME CLOCK
PLC	PROGRAMMABLE LOGIC CONTROLLER
PNL	PANEL
QTY	QUANTITY
RECPT	RECEPTACLE
RS	RAPID START
RVAT	REDUCED VOLTAGE AUTOTRANSFORMER
S/S	START/STOP
SH	SHIELDED
SS	STAINLESS STEEL
SW	SWITCH
SWGR	SWITCHGEAR
TC	TRAY CABLE
TR	TRANSFORMER
TTC	TELEPHONE TERMINAL CABINET
TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSOR
TYP	TYPICAL
UG	UNDERGROUND
UPS	UNINTERRUPTABLE POWER SUPPLY
US	UNIT SUBSTATION
V	VOLT
VFD	VARIABLE FREQUENCY DRIVE
VVT	VARIABLE VOLUME TERMINAL
W	WIRE, WATT, WITH
WP	WEATHERPROOF

SCANNED
JUL 22 2009
CITY OF NAPLES

CONFORMED DRAWINGS
OCTOBER 1999

REV. NO.	DATE	DRWN	CHKD	REMARKS
	10/99	JSC	RTS	CONFORMED DRAWING

DESIGNED BY: R. SAVAGE
DRAWN BY: J. CLARK
SHEET CHK'D BY: W. NELSON
CROSS CHK'D BY: P. LEFAVE
APPROVED BY: P. LEFAVE
DATE: AUGUST 1999

CDM Camp Dresser & McKee Inc.
consulting engineering construction operations

STORMWATER SYSTEM MAINTENANCE IMPROVEMENTS - PART I
CITY OF NAPLES, FLORIDA
DRAINAGE BASIN VI - PUMP STATION CONSTRUCTION

ELECTRICAL SYMBOLS AND ABBREVIATIONS

PROJECT NO. 6680-24619
FILE NAME: ESYAB001

SHEET NO.
E-1

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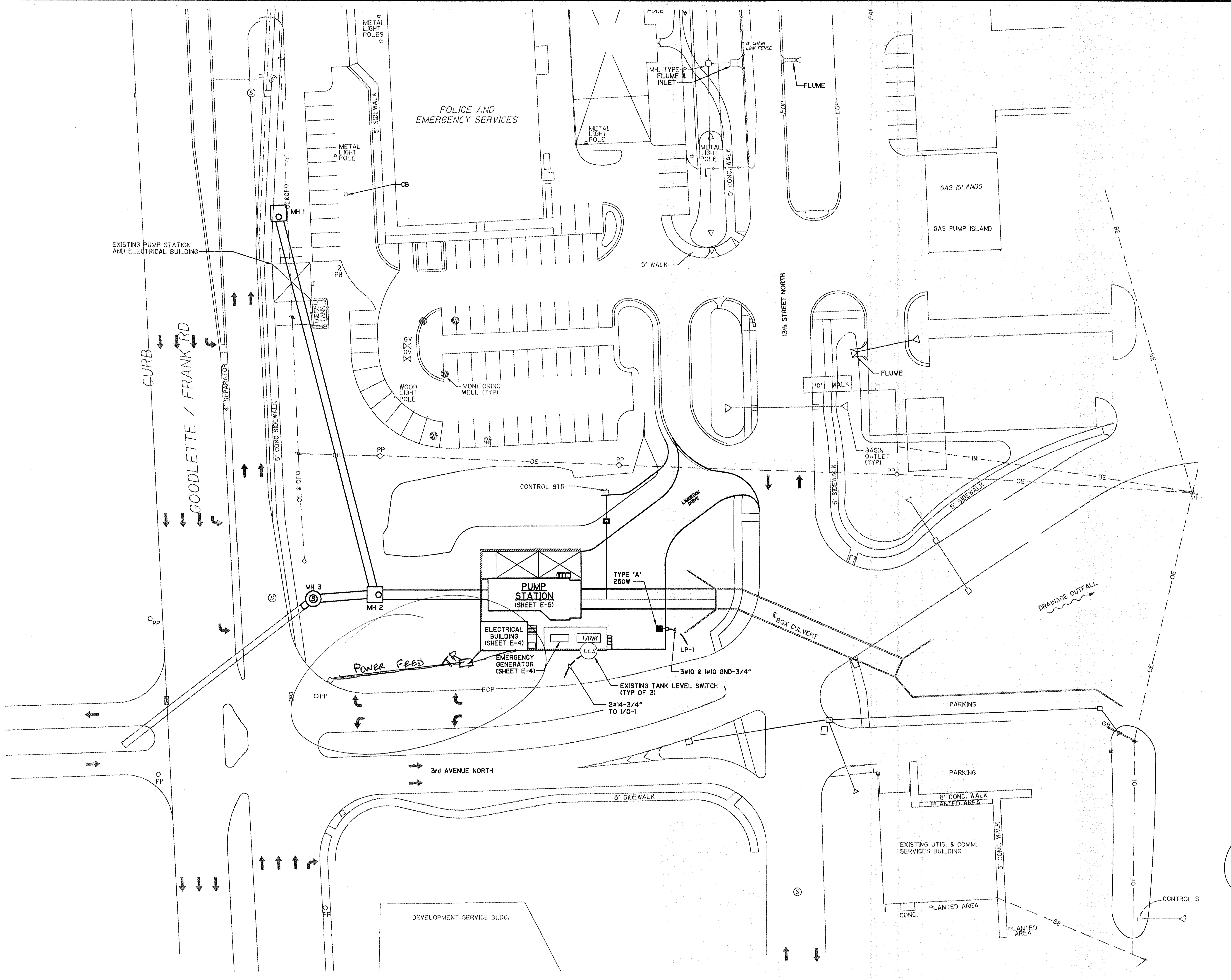

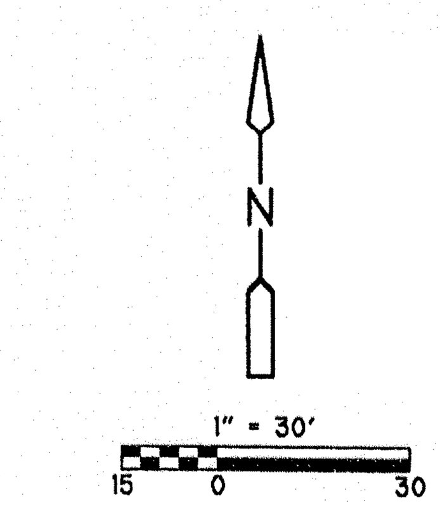

PLAN

GENERAL NOTES

1. DO NOT SCALE THE ELECTRICAL DRAWINGS REFER TO THE MECHANICAL, STRUCTURAL DRAWINGS, AND APPROVED MANUFACTURER'S SHOP DRAWINGS FOR THE EXACT LOCATION OF ALL EQUIPMENT.
2. ALL WORK SHALL COMPLY WITH NEC AND LOCAL CODES.
3. CONDUCTORS SHALL NOT BE SPLICED EXCEPT AS NOTED IN SPECS.
4. ALL CONDUITS SHALL HAVE A BOND WIRE SIZED PER TABLE 250-122 OF THE NEC (UNLESS OTHERWISE NOTED).
5. CONTRACTOR SHALL FIELD VERIFY EXISTING UNDERGROUND UTILITIES, PIPING, ETC.
6. COORDINATE WITH FPL FOR THE LOCATION OF THE FPL TRANSFORMER AND FPL METER. PROVIDE ANY REQUIREMENTS PER FPL.
7. THE CONTRACTOR SHALL ASSUME AN APPROXIMATE DISTANCE OF 100 FEET TO THE UTILITY POWER POLE TO BE PROVIDED BY FLORIDA POWER AND LIGHT.

CONFORMED DRAWINGS
OCTOBER 1999

REV. NO.	DATE	DRWN	CHKD	REMARKS
	10/99	JSC	RTS	CONFORMED DRAWING
1	8/99	JSC	RTS	REVISIONS PER ADDENDUM NO. 2

DESIGNED BY: R. SAVAGE
DRAWN BY: J. CLARK
SHEET CHK'D BY: W. NELSON
CROSS CHK'D BY: P. LEFAVE
APPROVED BY: P. LEFAVE
DATE: AUGUST 1999

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STORMWATER SYSTEM MAINTENANCE IMPROVEMENTS - PART I
CITY OF NAPLES, FLORIDA

DRAINAGE BASIN VI - PUMP STATION CONSTRUCTION

ELECTRICAL SITE PLAN

PROJECT NO. 6680-24619
FILE NAME: ESTPL002
SHEET NO.
E-2

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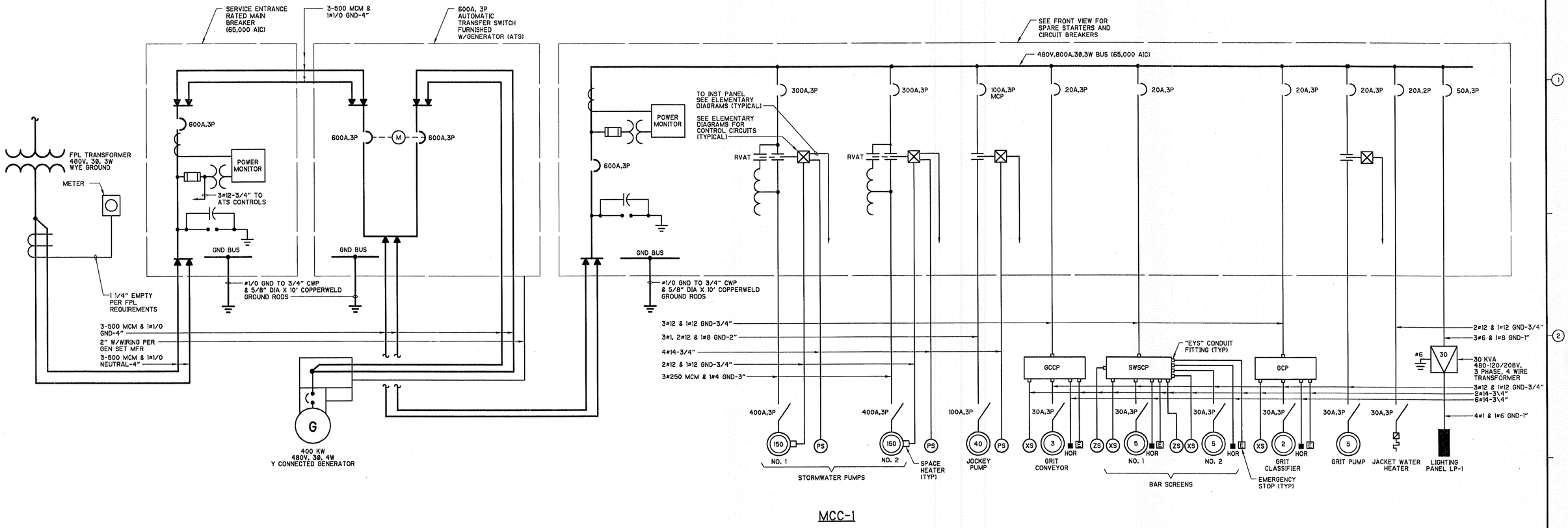
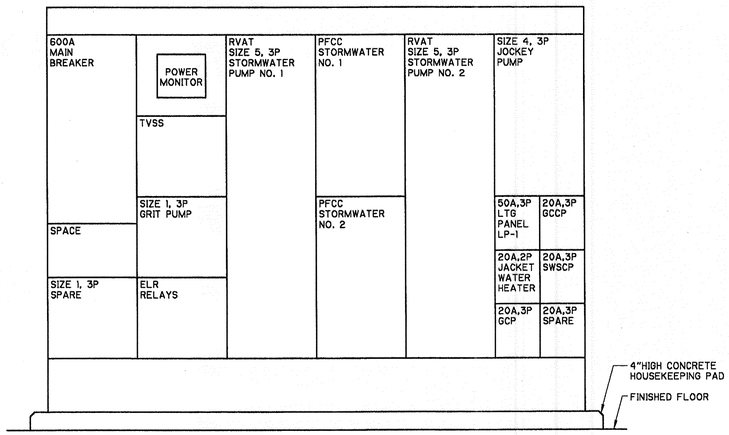


MCC-1



MCC-1 FRONT VIEW
NTS

NOTE:
1. SERVICE ENTRANCE MAIN BREAKER AND THE AUTOMATIC TRANSFER SWITCH SHALL HAVE SHUNT TRIP CAPABILITIES. PROVIDE PUSHBUTTON SWITCH IN 'BREAK GLASS' HOUSING.

REV. NO.	DATE	DRWN	CHKD	REMARKS
	10/99	JSC	RTS	CONFORMED DRAWING
1	8/99	JSC	RTS	REVISIONS PER ADDENDUM NO. 2

DESIGNED BY: R. SAVAGE
DRAWN BY: J. CLARK
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CROSS CHK'D BY: P. LEFAVE
APPROVED BY: P. LEFAVE
DATE: AUGUST 1999

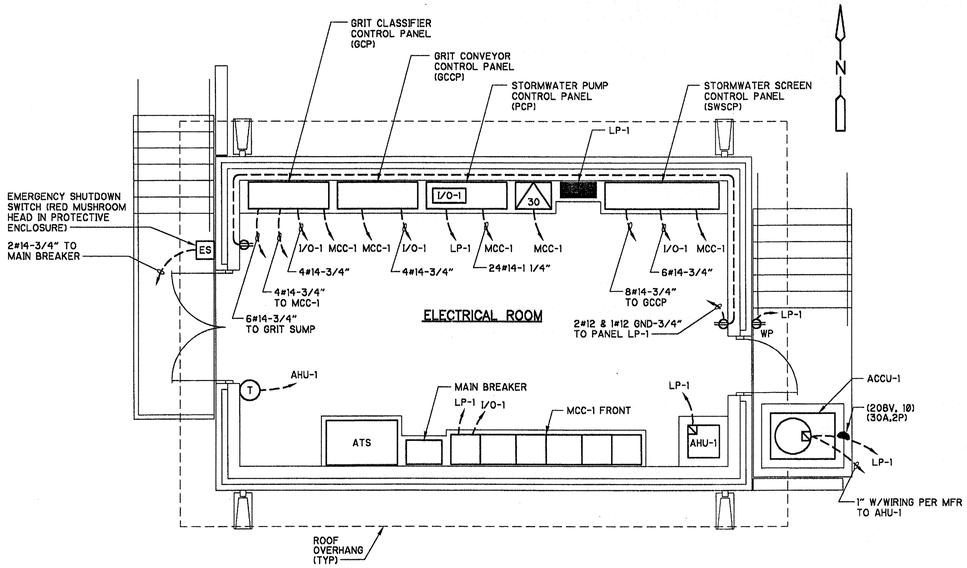
CDM Camp Dresser & McKee Inc.
consulting engineering construction operations

STORMWATER SYSTEM MAINTENANCE IMPROVEMENTS - PART I
CITY OF NAPLES, FLORIDA
DRAINAGE BASIN VI - PUMP STATION CONSTRUCTION

MCC-1 SINGLE LINE DIAGRAM AND FRONT VIEW

PROJECT NO. 6680-24619
FILE NAME: EGESL003

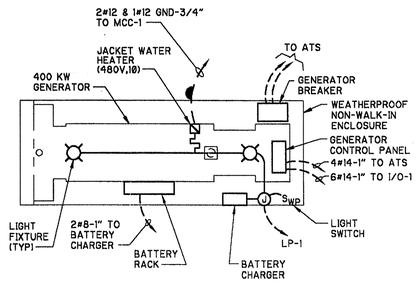
SHEET NO.
E-3



ELECTRICAL BUILDING

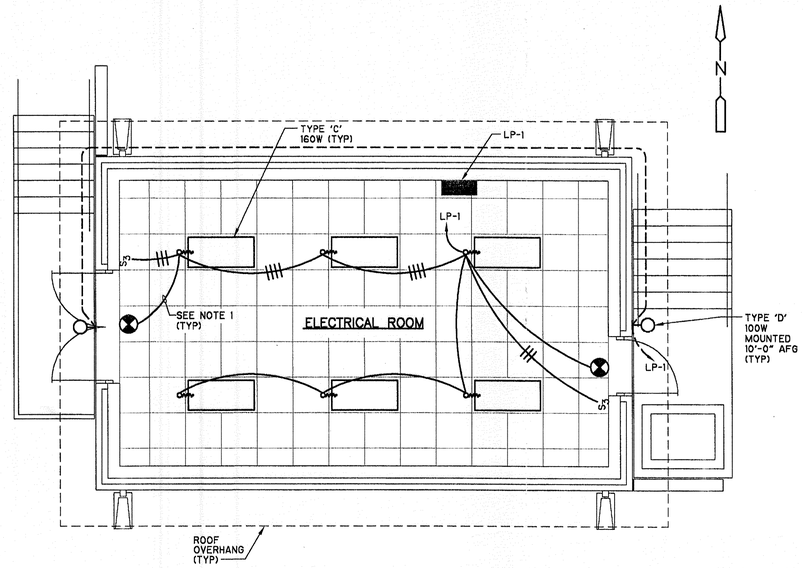
POWER PLAN

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



400 KW GENERATOR

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



ELECTRICAL BUILDING

LIGHTING PLAN

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

NOTE:

1. EXIT LIGHTS SHALL BE WIRED TO THE NORMAL LIGHTING CIRCUIT OF THE ROOM IT WILL SERVES AND TO THE LINE-SIDE OF THE SWITCH.

SCANNED
JUL 22 2009
CITY OF NAPLES

CONFORMED DRAWINGS OCTOBER 1999

REV. NO.	DATE	DRWN	CHKD	REMARKS
	10/99	JSC	RTS	CONFORMED DRAWING
1	8/99	JSC	RTS	REVISIONS PER ADDENDUM NO. 2

DESIGNED BY: R. SAVAGE
DRAWN BY: J. CLARK
SHEET CHK'D BY: W. NELSON
CROSS CHK'D BY: P. LEFAVE
APPROVED BY: P. LEFAVE
DATE: AUGUST 1999

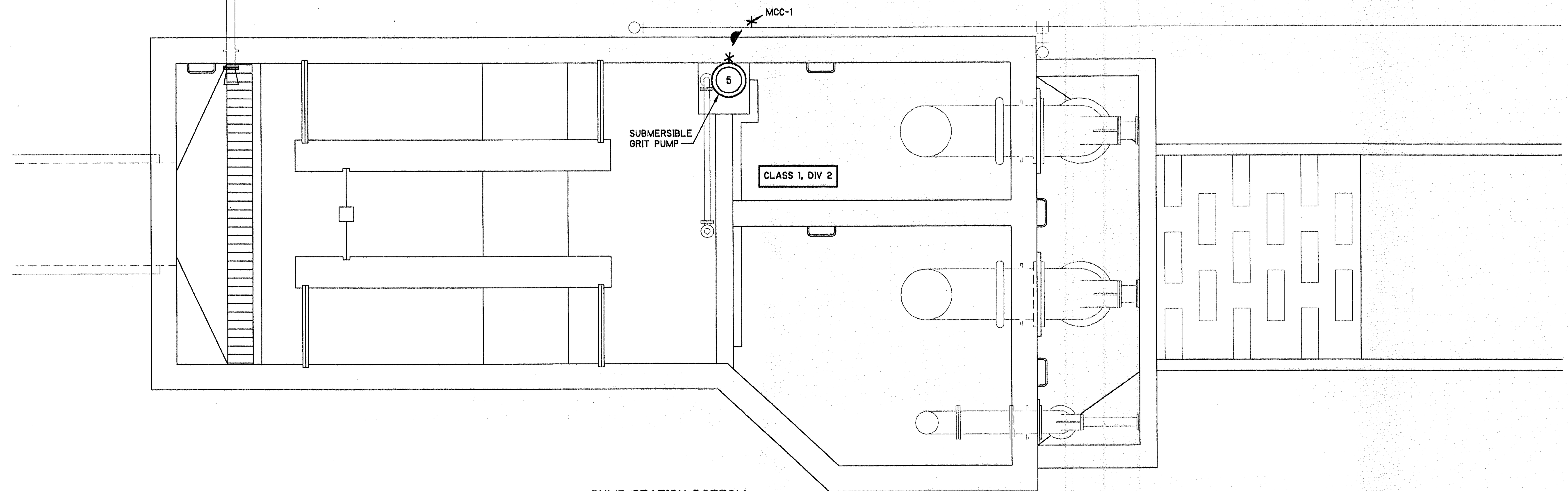
CDM Camp Dresser & McKee Inc.
consulting engineering construction operations

STORMWATER SYSTEM MAINTENANCE IMPROVEMENTS - PART I
CITY OF NAPLES, FLORIDA
DRAINAGE BASIN VI - PUMP STATION CONSTRUCTION

ELECTRICAL BUILDING POWER, LIGHTING AND GENERATOR PLANS

PROJECT NO. 6680-24619
FILE NAME: EELPL004

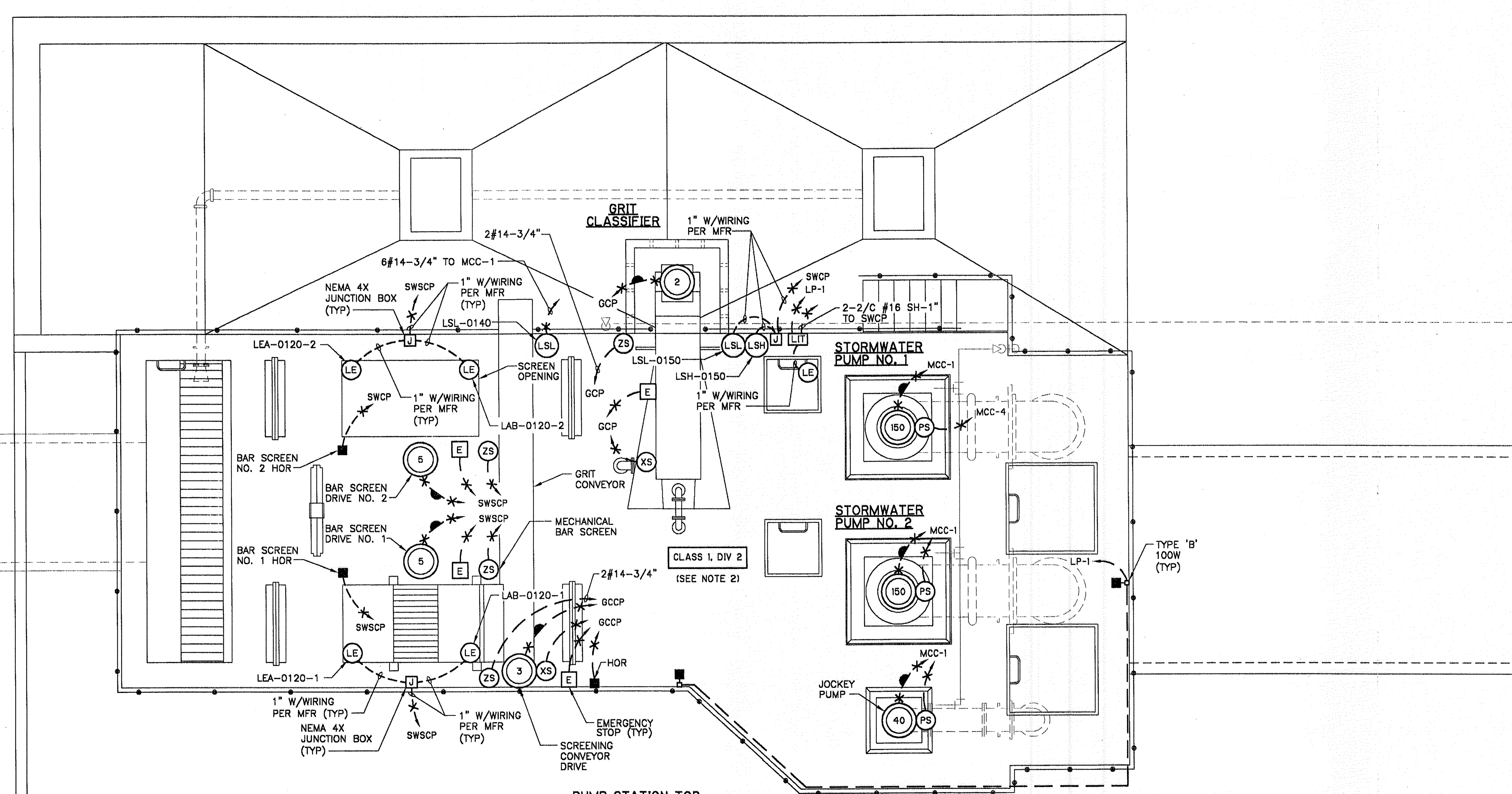
SHEET NO.
E-4



PUMP STATION BOTTOM

PLAN

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



PUMP STATION TOP

PLAN

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

NOTES:

1. X - INDICATES EXPLOSION RATED CONDUIT SEAL FITTINGS.
2. FOR THE PUMP STATION BOTTOM PLAN, THIS AREA WILL BE CLASSIFIED HAZARDOUS CLASS I, DIVIION 2, GROUP D.
3. FOR THE PUMP STATION TOP PLAN, THE AREA WITHIN A 3 FEET RADIUS ENVELOPE AROUND ANY OPENING, HATCH OR VENT OPEN TO THE AIR SHALL BE CLASSIFIED HAZARDOUS CLASS I, DIVIION 2, GROUP D. ALL EQUIPMENT LOCATED WITHIN THE ENVELOPE SHALL BE RATED EXPLOSION PROOF. ALL CONDUIT ENTERING OR LEAVING THE HAZARDOUS AREA SHALL HAVE EXPLOSION PROOF RATED CONDUIT SEAL FITTINGS.

CONFORMED DRAWINGS
OCTOBER 1999

REV. NO.	DATE	DRWN	CHKD	REMARKS
	10/99	JSC	RTS	CONFORMED DRAWING
1	8/99	JSC	RTS	REVISIONS PER ADDENDUM NO. 2

DESIGNED BY: R. SAVAGE
DRAWN BY: J. CLARK
SHEET CHK'D BY: W. NELSON
CROSS CHK'D BY: P. LEFAVE
APPROVED BY: P. LEFAVE
DATE: AUGUST 1999

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STORMWATER SYSTEM MAINTENANCE IMPROVEMENTS - PART I
CITY OF NAPLES, FLORIDA

DRAINAGE BASIN VI - PUMP STATION CONSTRUCTION

PUMP STATION ELECTRICAL PLAN

PROJECT NO. 6680-24619
FILE NAME: ESPPL005

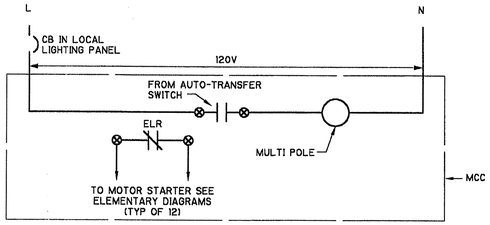
SHEET NO.
E-5

LIGHTING FIXTURE SCHEDULE

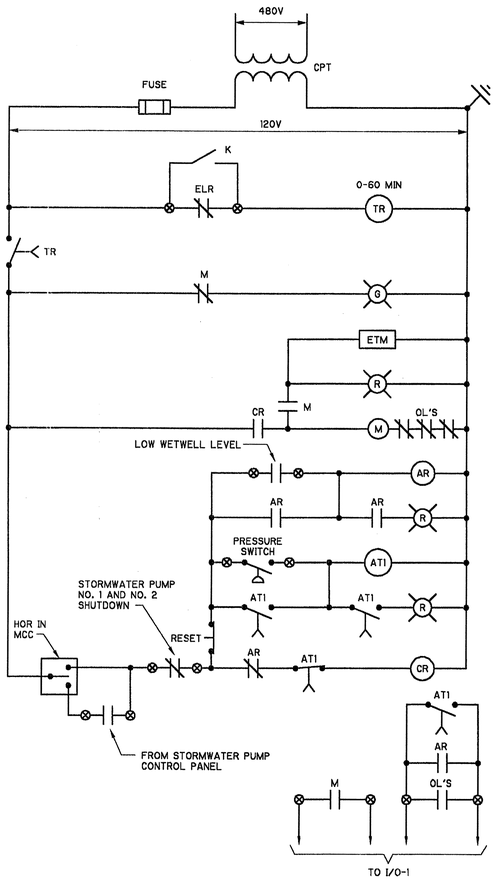
TYPE	WATT	DESCRIPTION	MFR (OR APPROVED EQUAL)
A	250	SEE POLE MOUNTED FIXTURE DETAIL 'A' THIS SHEET. FIXTURE SHALL BE PROVIDED WITH PHOTOCELL OPTION.	
B	100	SEE POLE MOUNTED FIXTURE DETAIL 'B' THIS SHEET.	
C	120	2'x4' FLUORESCENT RECESSED TROFFER W/3-32 WATT T8 RS LAMPS, COLD-ROLLED STEEL HOUSING, FLUSH WHITE ALUMINUM DOOR FRAME , #15 PATTERN ACRYLIC DIFFUSER, 120V, ELECTRONIC BALLAST W/EMERGENCY BATTERY PACK.	LITHONIA: SP SERIES
D	100	SURFACE MOUNTED WALL-PAK OUTDOOR FIXTURE W/100 WATT HPS LAMP, DIE-CAST ALUMINUM HOUSING, TAMPER-PROOF FASTENERS, DARK BRONZE THERMOSET POLYESTER POWDER FINISH, PRISMATIC BOROSILICATE GLASS REFRACTOR, GASKETED, 120V, HPF ESB. FIXTURE SHALL BE PROVIDED WITH PHOTOCELL OPTION.	LITHONIA: TWH SERIES
⊗		EXIT SIGN W/CAST ALUM HOUSING & ALUM STENCIL FACE, BLACK BAKED ENAMEL FINISH, SEALED NICKEL CADMIUM BATTERY, SELF CONTAINED AUTO-CHARGING, FLAT OR CEILING MOUNTED AS REQUIRED, 120V AC, 12V DC.	EMERGI-LITE X22 & 23 SERIES
⊂⊃		EMERGENCY LIGHTING UNIT SELF CONTAINED AUTO-CHARGING BATTERY BACKUP W/TEST SW & PILOT LIGHT, SEALED NICKEL CADMIUM BATTERY, (2) EF-18 HEADS W/9 W HIT LAMP PER HEAD, 120V AC, 12V DC.	EMERGI-LITE 12 JS SERIES

PANEL: LP-1 BUS: 100A BUS, 60A. MB VOLTAGE: 120/208V,3Ø,4W
MOUNTING: SURFACE POLES: 24
LOCATION: ELECTRICAL ROOM REMARKS:

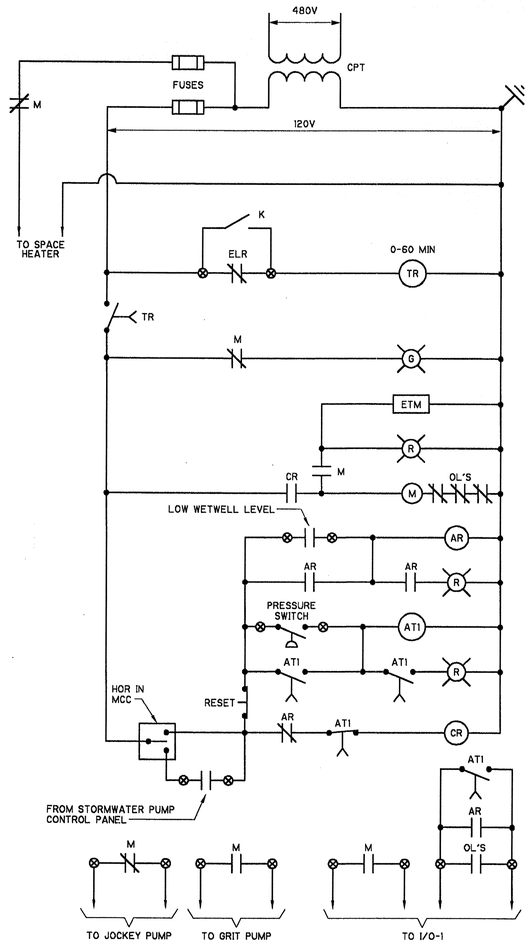
CIR. NO.	DESCRIPTION	TRIP	POLES	REMARKS
1-4	GENERAL LIGHTING	20	1	
5-7	GENERAL RECEPTACLES	20	1	
8	LIT (LOOP 0150)	20	1	
9	MCC-1	20	2	
10,12	AHU-1	20	2	
11,13	ACCU-1	20	2	
14,15	GENERATOR ENCLOSURE	20	1	
16-21	SPARES	20	1	
22-24	SPACE	-	-	



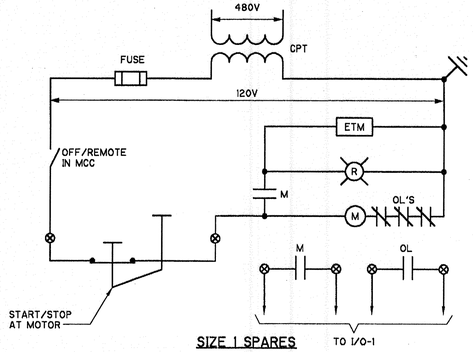
ELR RELAYS



JOCKEY PUMP



STORMWATER PUMP NO. 1 AND NO. 2



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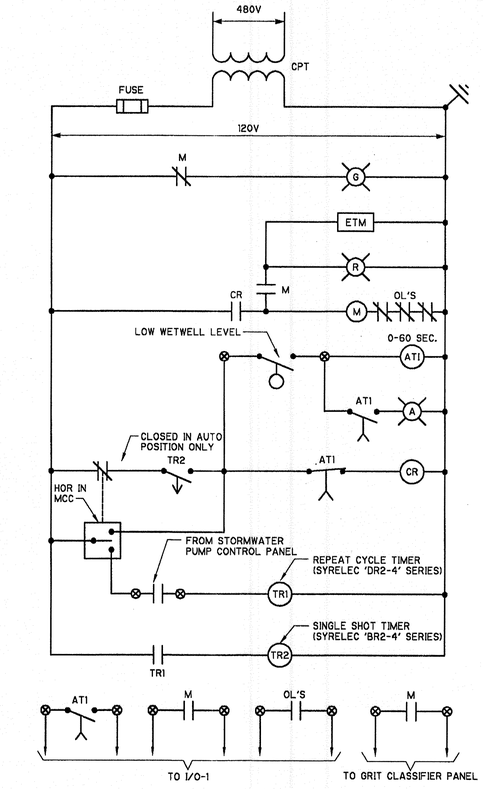
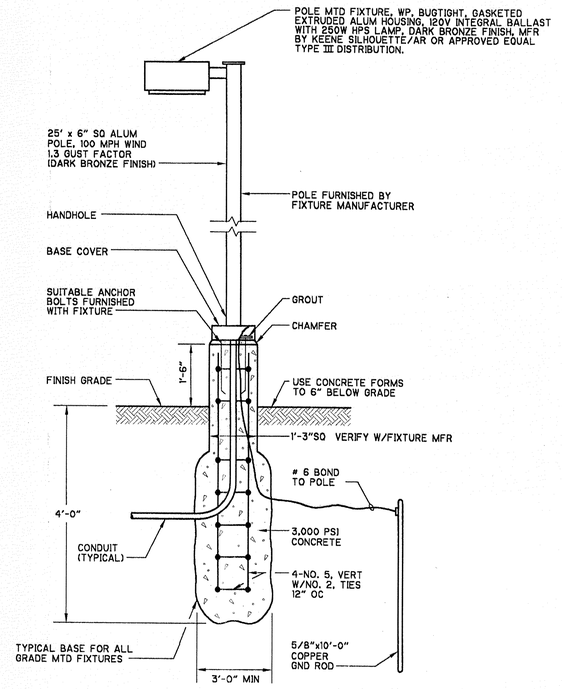
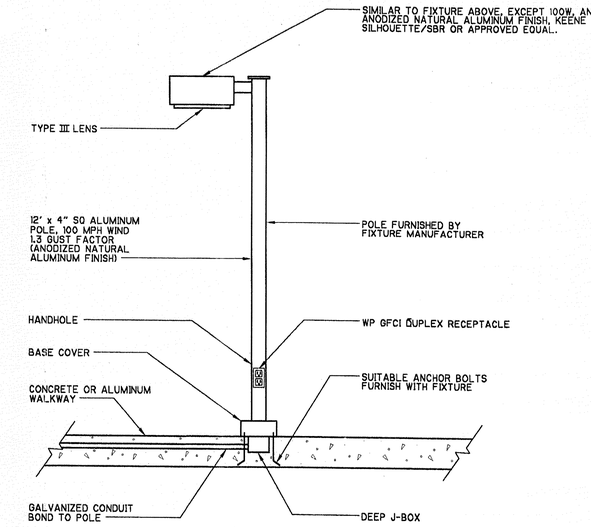


GRIT PUMP



POLE MOUNTED FIXTURE DETAIL 'A'
NTS



POLE MOUNTED FIXTURE DETAIL 'B'
NTS

SCANNED
JUL 22 2009
CITY OF NAPLES

CONFORMED DRAWINGS
OCTOBER 1999

REV. NO.	DATE	DRWN	CHKD	REMARKS
	10/99	JSC	RTS	CONFORMED DRAWING
1	8/99	JSC	RTS	REVISIONS PER ADDENDUM NO. 2

DESIGNED BY: R. SAVAGE
DRAWN BY: J. CLARK
SHEET CHK'D BY: W. NELSON
CROSS CHK'D BY: P. LEFAVE
APPROVED BY: P. LEFAVE
DATE: AUGUST 1999

CDM Camp Dresser & McKee Inc.
consulting engineering construction operations

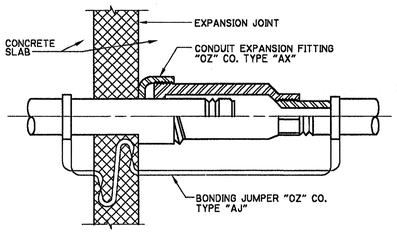
STORMWATER SYSTEM MAINTENANCE IMPROVEMENTS - PART I
CITY OF NAPLES, FLORIDA
DRAINAGE BASIN VI - PUMP STATION CONSTRUCTION

LIGHTING FIXTURE SCHEDULES, PANEL SCHEDULE AND DETAILS AND ELEMENTARY DIAGRAMS

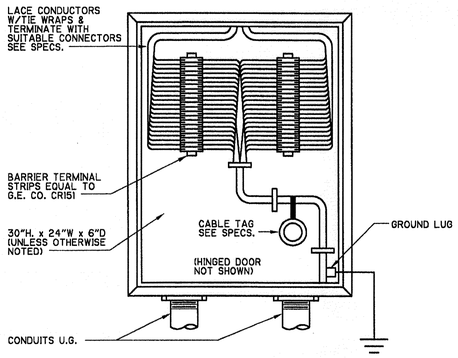
PROJECT NO. 6680-24619
FILE NAME: EGESH006

SHEET NO.
E-6

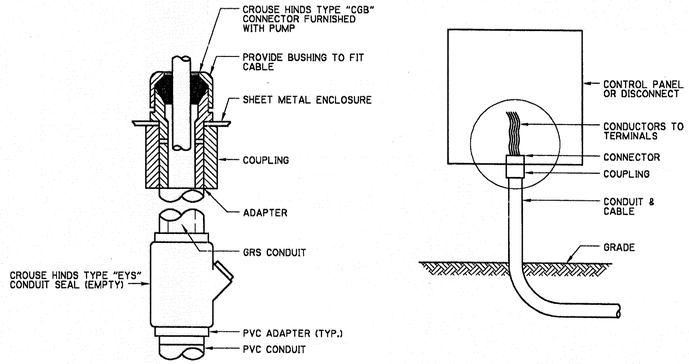
D:\6680_619\conform\Esx\ Clarkja 2:05:33 10/26/99 17:01:27 Egesh006



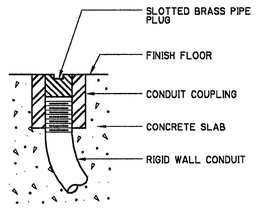
EXPANSION FITTING DETAIL
NTS



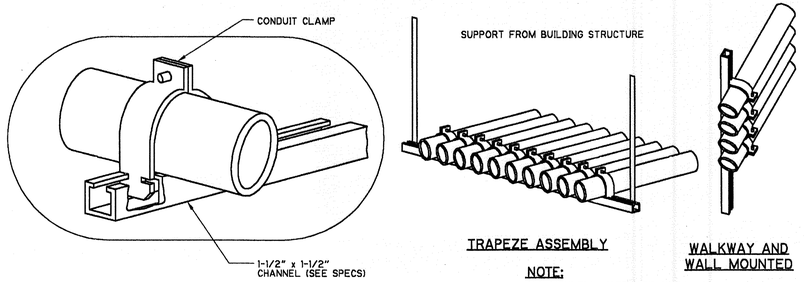
TYPICAL TERMINAL CABINET
NTS



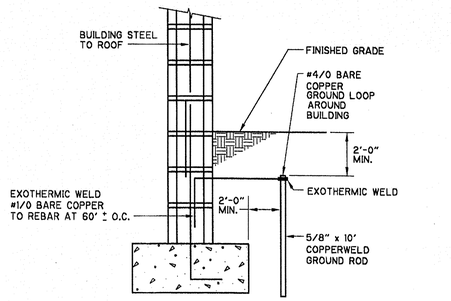
WATER TIGHT CONNECTION DETAIL
NTS



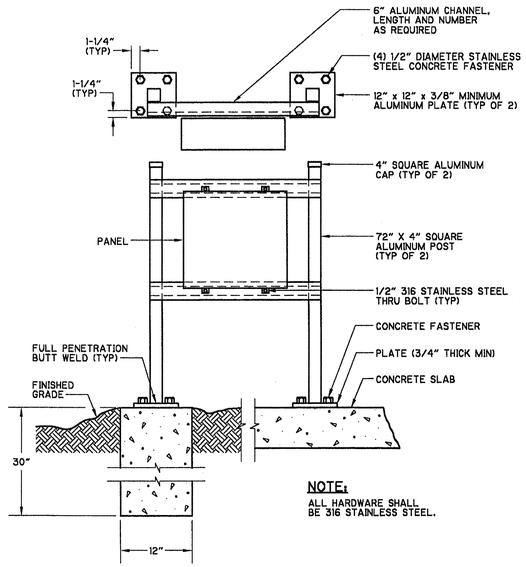
DETAIL OF CONDUIT TERMINATION STUB OUT
NTS



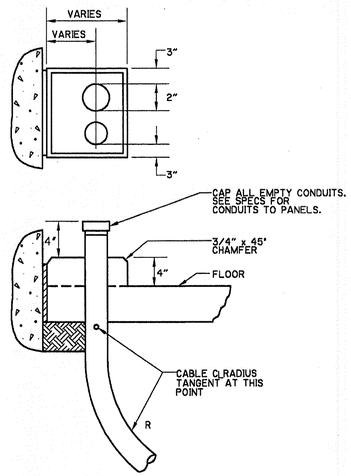
CONDUIT PIPE STRAP MOUNTING DETAILS
NTS



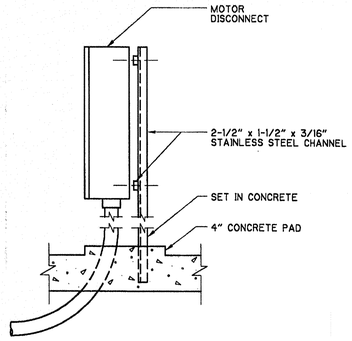
BUILDING STRUCTURE BONDING
NTS



CONTROL PANEL MOUNTING DETAIL
NTS



TYPICAL CONDUIT THRU SLAB
NTS



TYPICAL DISCONNECT
NTS

SCANNED
JUL 22 2009
CITY OF NAPLES

CONFORMED DRAWINGS OCTOBER 1999

REV. NO.	DATE	DRWN	CHKD	REMARKS
	10/99	JSC	RTS	CONFORMED DRAWING

DESIGNED BY: R. SAVAGE
DRAWN BY: J. CLARK
SHEET CHK'D BY: W. NELSON
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APPROVED BY: P. LEFAVE
DATE: AUGUST 1999

CDM Camp Dresser & McKee Inc.
consulting engineering construction operations

STORMWATER SYSTEM MAINTENANCE IMPROVEMENTS - PART I
CITY OF NAPLES, FLORIDA
DRAINAGE BASIN VI - PUMP STATION CONSTRUCTION

ELECTRICAL DETAILS

PROJECT NO. 6680-24619
FILE NAME: ESDDT007

SHEET NO.
E-7

O:\6680_EB\conform\Elec\ Eddt007 10/26/99 17:04:31 Clarkjs 0.5b56

GENERAL INSTRUMENT OR FUNCTION SYMBOLS

	PRIMARY LOCATION NORMALLY ACCESSIBLE TO OPERATOR	FIELD MOUNTED	AUXILIARY LOCATION NORMALLY ACCESSIBLE TO OPERATOR
DISCRETE INSTRUMENTS	**		**
SHARED DISPLAY, SHARED CONTROL OR COMPUTER FUNCTION			
PROGRAMMABLE LOGIC CONTROL			

** NORMALLY INACCESSIBLE OR BEHIND-THE-PANEL DEVICES OR FUNCTIONS MAY BE DEPICTED BY USING THE SAME SYMBOL BUT WITH DASHED HORIZONTAL BARS, i.e.:

INSTRUMENTS SHARING COMMON HOUSING

DENOTES EQUIPMENT SPECIFIED UNDER OTHER SECTIONS OF THIS CONTRACT

DENOTES EXISTING EQUIPMENT OR EQUIPMENT PROVIDED BY OTHERS UNDER A SEPARATE CONTRACT

FUTURE EQUIPMENT

CONTROL INTERLOCK FUNCTION, SOFTWARE OR HARDWIRED.
I2 — SEE DESCRIPTION PROVIDED, ELECTRICAL SCHEMATIC, AND/OR SYSTEM SPECIFICATIONS FOR SPECIFIC FUNCTION.
DETAIL NUMBER IF USED

DIGITAL SYSTEM I/O INTERFACE. DIRECTION OF TRIANGLE DENOTES WHETHER INPUT OR OUTPUT

LETTER DENOTES SIGNAL TYPE. THE LETTER "A" DENOTES AN ANALOG SIGNAL. THE LETTER "D" DENOTES A DISCRETE SIGNAL

TYPICAL TAG NUMBERS & DESIGNATION

LOOP NO. 1234 — TYPICAL LOOP NUMBER

CL2 — ADDITIONAL INSTRUMENT IDENTIFICATION SEE FUNCTION SYMBOLS & ABBREVIATIONS

AE *A — WHEN USED, LETTER DISTINGUISHES BETWEEN MULTIPLE, SIMILAR DEVICES IN THE SAME INSTRUMENT LOOP.

WHEN USED, NUMBER DENOTES DEVICES IN IDENTICAL DUPLICATE SYSTEMS.

GENERAL NOTES

1. THIS IS A GENERAL LEGEND SHEET, SOME SYMBOLS AND ABBREVIATIONS MAY NOT APPLY TO THIS SPECIFIC PROJECT.
2. THIS LEGEND APPLIES TO INSTRUMENTATION DIAGRAMS ONLY AND MAY DIFFER FROM LEGENDS FOR OTHER SHEETS.
3. IN GENERAL THIS LEGEND SHEET AND THE INSTRUMENTATION DIAGRAMS ARE BASED ON INSTRUMENT SOCIETY OF AMERICA, STANDARDS FOR PRACTICES FOR INSTRUMENTATION. SOME MODIFICATIONS, ADDITIONS AND ALTERATIONS HAVE BEEN MADE AS REQUIRED TO ACCOMODATE THE PROJECT REQUIREMENTS.
4. SOME PROCESS ITEMS, SUCH AS EQUIPMENT ISOLATION VALVES, BYPASS LINES, etc., WHICH ARE NOT CRITICAL FOR AN UNDERSTANDING OF THE INSTRUMENTATION FUNCTIONS ARE NOT SHOWN ON THE INSTRUMENTATION SHEETS.
5. SEE ELECTRICAL SHEETS AND SPECIFICATIONS FOR ADDITIONAL CONTROL AND INTERLOCK REQUIREMENTS FOR EQUIPMENT NOT SHOWN IN THE LOOP DIAGRAMS.
6. ALL EQUIPMENT AND DEVICES SHOWN ARE TO BE SUPPLIED BY THE GENERAL CONTRACTOR (WHERE SPECIFIED WITH EQUIPMENT) AND THE ELECTRICAL CONTRACTOR (FOR ALL OTHER APPLICATIONS). EQUIPMENT FURNISHED BY GENERAL SHALL COMPLY WITH THE CONTROL AND INSTRUMENTATION REQUIREMENTS SHOWN ON THE RESPECTIVE LOOP DIAGRAMS.

LINE SYMBOLS

- MAJOR PROCESS PIPING, FLOW CHANNEL OR DATA HIGHWAY WITH FLOW OR SIGNAL DIRECTION AS SHOWN.
- MINOR PROCESS PIPING WITH FLOW DIRECTION AS SHOWN
- MISCELLANEOUS PIPINGWITH FLOW DIRECTION AS SHOWN
- FUTURE PIPING
- ELECTRIC OR ELECTRONIC SIGNAL WITH SIGNAL DIRECTION AS SHOWN
- SOFTWARE SIGNAL LINK
- HYDRAULIC SIGNAL
- PNEUMATIC SIGNAL
- CAPILLARY TUBE OR FILLED SYSTEM SIGNAL
- ELECTROMAGNETIC OR SONIC SIGNAL
- (A) PROCESS OR SIGNAL LINE CONTINUED AT ANOTHER LOCATION
- (A) PROCESS OR SIGNAL LINE CONTINUED FROM ANOTHER LOCATION (MATCH LETTERS)

PROCESS DEVICE SYMBOLS

- DIAPHRAGM SEAL
- ANNULAR TYPE DIAPHRAGM SEAL
- BUBBLER SYSTEM
- PURGE OR FLUSHING DEVICE
- REDUCER OR ENLARGER
- PRIMARY ELEMENT VENTURI TUBE
- PRIMARY ELEMENT MAGNETIC FLOWMETER
- PRIMARY ELEMENT ULTRASONIC FLOWMETER
- PRIMARY ELEMENT PARSHALL FLUME OR TRAPEZOIDAL FLUME
- PRIMARY ELEMENT ORIFICE PLATE
- PRIMARY ELEMENT WEIR FLOWMETER
- PRIMARY ELEMENT TURBINE OR PROPELLER TYPE METER
- PRIMARY ELEMENT PITOT TUBE
- PRIMARY ELEMENT ROTAMETER
- NUCLEAR DENSITY METER
- PRIMARY ELEMENT STRAP ON ULTRASONIC METER
- LE OR FE — PRIMARY ELEMENT ULTRASONIC FLOW OR LEVEL METER
- FLOAT SWITCH
- REGULATED SIDE — PRESSURE REGULATING VALVE SELF CONTAINED
- BALL VALVE
- VALVE: GLOBE OR OTHER IN-LINE TYPE NOT OTHERWISE IDENTIFIED
- BUTTERFLY VALVE
- CHECK VALVE WITH FLOW DIRECTION AS INDICATED
- PLUG VALVE
- FLOW CONTROL GATE OR GATE VALVE
- RUPTURE DISK
- CENTRIFUGAL BLOWER
- CENTRIFUGAL PUMP
- T — ENERGY RECOVERY TURBINE
- RATE SET / STROKE ADJUST — DIAPHRAGM PUMP AND MOTOR
- PROGRESSIVE CAVITY PUMP
- VERTICAL PUMP
- MIXER
- MOTOR - MAY BE ELECTRIC, HYDRAULIC OR PNEUMATIC ARROW DENOTES VARIABLE SPEED
- DRAIN
- CHEMICAL INJECTION POINT

LOGIC SYMBOLS

- DI, DI, DI → A → DO AND FUNCTION
- DI, DI, DI → OR → DO OR FUNCTION
- DI → O → DO INVERTER OR NOT FUNCTION (SYMBOL MAY BE DRAWN TANGENT TO AN ADJACENT LOGIC SYMBOL)
- DI → S, DI → R → DO SET/RESET FUNCTION (OPERATES LIKE LATCHING RELAY)
- DI → [STATEMENT OF SPECIAL REQUIREMENTS] → DO RELATIONSHIP FUNCTION
- DI → DI t → DO TIME DELAY ON (AFTER INITIATION) t DENOTES TIME DELAY IN SECONDS UNLESS NOTED OTHERWISE
- DI → DT t → DO TIME DELAY OFF (AFTER TERMINATION) t DENOTES TIME DELAY IN SECONDS UNLESS NOTED OTHERWISE
- SETPOINT, INPUT → Δ, K, S, d/dt → OUTPUT — CONTROLLER FUNCTION PROPORTIONAL PLUS INTEGRAL PLUS DERIVATIVE SHOWN AS EXAMPLE. OTHER COMBINATIONS POSSIBLE.

VALVE ACTUATOR SYMBOLS

AUTOMATIC POSITIONER

VALVE OR GATE ACTUATOR WITH * DEFINED AS FOLLOWS:
- P: AIR CYLINDER
- S: SOLENOID
- P/O: AIR/OIL CYLINDER
- E: ELECTRIC MOTOR
- H: HYDRAULIC CYLINDER
- EH: ELECTROHYDRAULIC
- Z: MISCELLANEOUS

FOR PRESSURE RELIEF OR SAFETY VALVES ONLY

OR NO SYMBOL — MANUALLY (HAND) OPERATED

FUNCTION SYMBOLS AND ABBREVIATIONS

- k PROPORTIONAL GAIN OR ATTENUATE (INPUT:OUTPUT)
- -k REVERSE PROPORTIONAL GAIN OR ATTENUATE (INPUT:OUTPUT)
- Σ SUMMING
- Σ/n AVERAGING
- Δ SUBTRACTING
- √ EXTRACT SQUARE ROOT
- ÷ DIVIDE
- X MULTIPLY
- ∫ INTEGRATE
- + BIAS POSITIVE
- − BIAS NEGATIVE
- F(x) NONLINEAR OR UNSPECIFIED FUNCTION
- > HIGH SELECT
- < LOW SELECT
- HIGH LIMIT
- LOW LIMIT
- */* SIGNAL TRANSDUCER OR CONVERTER (INPUT/OUTPUT) * DEFINED AS FOLLOWS:
  - E - VOLTAGE
  - I - CURRENT
  - P - PNEUMATIC
  - PD - PULSE DURATION
  - H - HYDRAULIC
  - O - ELECTROMAGNETIC, SONIC
  - R - RESISTANCE (ELECTRIC)

CHEMICAL ABBREVIATIONS
STANDARD CHEMICAL FORMULAS ARE USED.

HAND SWITCH ABBREVIATIONS
- H - HAND
- O - OFF OR OPEN
- C - COMPUTER OR CLOSE
- A - AUTOMATIC
- L - LOCAL
- R - REMOTE
- S - START OR STOP
- M - MODULATE

AI	ANALOG INPUT
AO	ANALOG OUTPUT
AS	AIR SUPPLY
ATM	ATMOSPHERE
COND	CONDUCTIVITY
CL	CHLORINE
CL2G	CHLORINE GAS
CPOL	CATIONIC POLYMER
CR	CHLORINE RESIDUAL
CTU	CENTRAL TELEMETRY UNIT
DCU	DISTRIBUTED CONTROL UNIT
DI	DIGITAL OR DISCRETE INPUT
DO	DISSOLVED OXYGEN OR DIGITAL OUTPUT
ES	ELECTRIC SUPPLY
ETM	ELAPSED TIME METER
FC	FAIL CLOSED
FLP	FAIL LAST POSITION
FO	FAIL OPEN
H2O2	PEROXIDE
HYP	HYPOCHLOR
MC	MOTOR CONTROLLER
NC	NORMALLY CLOSED
NO	NORMALLY OPEN
PAC	POWDER ACTIVATED CARBON
pH	HYDROGEN ION CONCENTRATION
PLC	PROGRAMMABLE LOGIC CONTROLLER
POLM	POLYMER
RTU	REMOTE TERMINAL UNIT
TURB	TURBIDITY
VFD	VARIABLE FREQUENCY DRIVE
VIB	VIBRATION
VSD	VARIABLE SPEED DRIVE

MEANINGS OF IDENTIFICATION LETTERS

THIS TABLE APPLIES TO THE FUNCTIONAL IDENTIFICATION OF INSTRUMENTS.

	FIRST LETTER		SUCCEEDING LETTERS		
	MEASURED OR INITIATING VARIABLE	MODIFIER	READOUT OR PASSIVE FUNCTION	OUTPUT FUNCTION	MODIFIER
A	ANALYSIS		ALARM		
B	BURNER, COMBUSTION		EMERGENCY	USER'S CHOICE	USER'S CHOICE
C	USER'S CHOICE		CLEANER	CONTROL	
D	DENSITY (MASS) OR SPECIFIC GRAVITY	DIFFERENTIAL			
E	VOLTAGE (EMF)		PRIMARY ELEMENT		
F	FLOW RATE	RATIO (FRACTION)			
G	GAUGING (DIMENSIONAL)		GLASS		
H	HAND (MANUALLY INITIATED)				HIGH OR OPEN
I	CURRENT (ELECTRICAL)		INDICATE		
J	POWER	SCAN			
K	TIME OR TIME SCHEDULE			CONTROL STATION	
L	LEVEL		LIGHT (PILOT)		LOW OR CLOSED
M	USER'S CHOICE	MOMENTARY			MIDDLE OR INTERMEDIATE
N	USER'S CHOICE		USER'S CHOICE	USER'S CHOICE	USER'S CHOICE
O	USER'S CHOICE		ORIFICE (RESTRICTION)		
P	PRESSURE OR VACUUM		POINT (TEST CONNECTION)		
Q	QUANTITY	INTERGRATE OR TOTALIZE			
R	RUN		RECORD		
S	SPEED OR FREQUENCY	SAFETY		SWITCH	
T	TEMPERATURE			TRANSMIT	
U	MULTIVARIABLE		MULTIFUNCTION	MULTIFUNCTION	MULTIFUNCTION
V	VISCOSITY, VIBRATION			VALVE, DAMPER OR LOUVER	
W	WEIGHT OR FORCE		WELL		
X	FAILURE	X AXIS			
Y	EVENT, STATE OR PRESENCE	Y AXIS		RELAY, COMPUTE, CONVERT	
Z	POSITION, DIMENSION	Z AXIS		DRIVE, ACTUATE OR UNCLASSIFIED CONTROL ELEMENT	

CONFORMED DRAWINGS OCTOBER 1999

REV. NO.	DATE	DRWN	CHKD	REMARKS
	10/99	JHH	JEE	CONFORMED DRAWING

DESIGNED BY: D. BESENYE
DRAWN BY: D. BESENYE
SHEET CHK'D BY: D. WESTON
CROSS CHK'D BY: J. HAGERTY
APPROVED BY: W. NELSON
DATE: AUGUST 1999

CDM Camp Dresser & McKee Inc.
consulting engineering construction operations

STORMWATER SYSTEM MAINTENANCE IMPROVEMENTS - PART I
CITY OF NAPLES, FLORIDA

DRAINAGE BASIN IV - PUMP STATION CONSTRUCTION

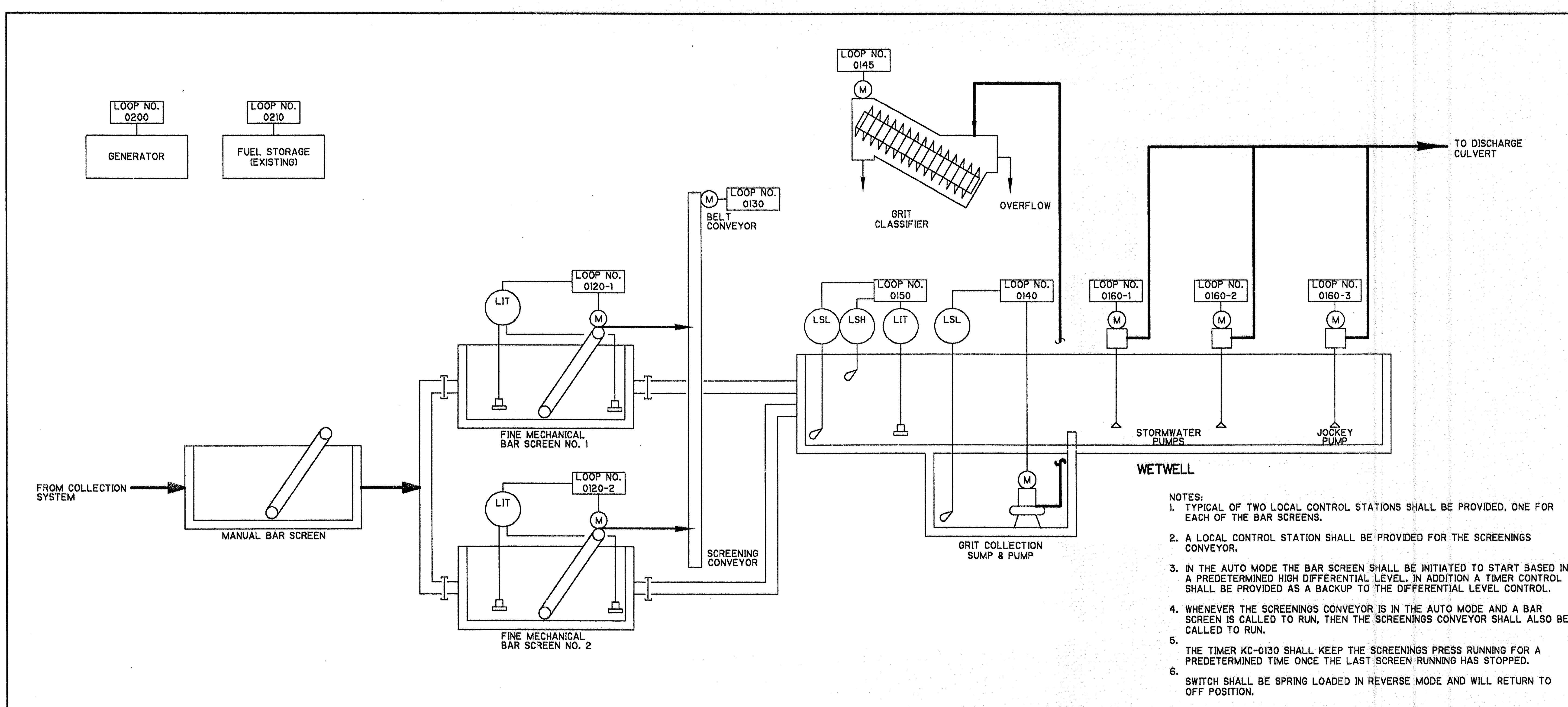
INSTRUMENTATION LEGEND SHEET

SCANNED JUL 2 2 2009 CITY OF NAPLES

PROJECT NO. 6680-619
FILE NAME: 6680-901

SHEET NO. I-1

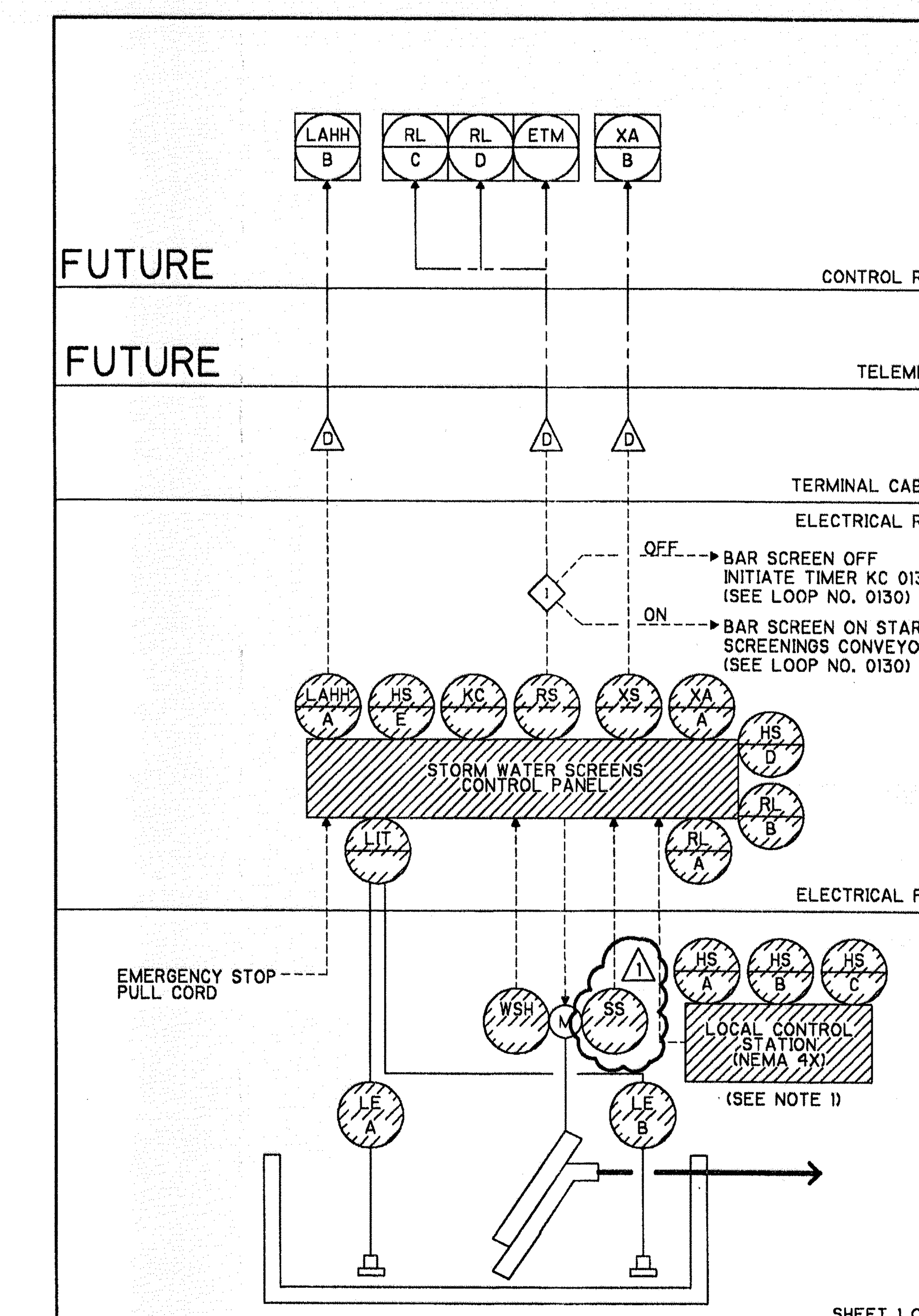
O:\6680_619\BV\inst\ 6680-901 07/29/99 13:59:43 1:56.08 Dan Besenye



NOTES:

1. TYPICAL OF TWO LOCAL CONTROL STATIONS SHALL BE PROVIDED, ONE FOR EACH OF THE BAR SCREENS.
2. A LOCAL CONTROL STATION SHALL BE PROVIDED FOR THE SCREENINGS CONVEYOR.
3. IN THE AUTO MODE THE BAR SCREEN SHALL BE INITIATED TO START BASED IN A PREDETERMINED HIGH DIFFERENTIAL LEVEL. IN ADDITION A TIMER CONTROL SHALL BE PROVIDED AS A BACKUP TO THE DIFFERENTIAL LEVEL CONTROL.
4. WHENEVER THE SCREENINGS CONVEYOR IS IN THE AUTO MODE AND A BAR SCREEN IS CALLED TO RUN, THEN THE SCREENINGS CONVEYOR SHALL ALSO BE CALLED TO RUN.
5. THE TIMER KC-0130 SHALL KEEP THE SCREENINGS PRESS RUNNING FOR A PREDETERMINED TIME ONCE THE LAST SCREEN RUNNING HAS STOPPED.
6. SWITCH SHALL BE SPRING LOADED IN REVERSE MODE AND WILL RETURN TO OFF POSITION.

PROCESS & INSTRUMENTATION DIAGRAM



SHEET 1 OF 3

MECHANICAL BAR/FILTER SCREEN	LOOP NO. 0120-*

ITEM	DESCRIPTION	TYPE	CRITERIA	NAME TAG/SERVICE	QTY
LIT/ LE A,B	LEVEL INDICATING TRANSMITTER W/ TWO SENSORS	HYDROSTATIC TYPE DIAPHRAGM ACTUATOR	PROVIDED UNDER DIVISION 11	INFLUENT MECHANICAL BAR SCREEN NO. * LEVEL	2
WSH	TORQUE SWITCH HIGH		PROVIDED UNDER DIVISION 11	INFLUENT MECHANICAL BAR SCREEN NO. * HIGH TORQUE	2
SS	SPEED SWITCH △1		PROVIDED UNDER DIVISION 11	INFLUENT MECHANICAL BAR SCREEN NO. * ZERO SPEED	2
HS A	HAND SWITCH	2-POSITION NEMA 4X	ON/OFF PROVIDED UNDER DIVISION 11	INFLUENT MECHANICAL BAR SCREEN NO. * CONTROL	2
HS B	HAND SWITCH	3-POSITION NEMA 4X	LOCAL/OFF/REMOTE PROVIDED UNDER DIVISION 11	INFLUENT MECHANICAL BAR SCREEN NO. * CONTROL	2
HS C	HAND SWITCH	PUSHBUTTON NEMA 4X	PROVIDED UNDER DIVISION 11	INFLUENT MECHANICAL BAR SCREEN NO. * RESET	2
RL A,B	RUNNING LIGHTS	INDICATING LIGHTS PROVIDED UNDER DIVISION 11	RED - ON GREEN - OFF NEMA 4X	INFLUENT MECHANICAL BAR SCREEN NO. * STATUS	4
HS D	HAND SWITCH	PUSHBUTTON NEMA 4X	RESET PROVIDED UNDER DIVISION 11	INFLUENT MECHANICAL BAR SCREEN NO. * ALARM RESET	2
XA A	TROUBLE ALARM	BEACON LIGHT/ HORN	PROVIDED UNDER DIVISION 11	INFLUENT MECHANICAL BAR SCREEN NO. * FAILURE	2
XS	TROUBLE SWITCH		PROVIDED UNDER DIVISION 11	INFLUENT MECHANICAL BAR SCREEN NO. * FAILURE	2
RS	RUNNING SWITCH		PROVIDED UNDER DIVISION 11	INFLUENT MECHANICAL BAR SCREEN NO. * STATUS	2
KC	TIME CONTROLLER	24 HOUR PROGRAMMING TIME CLOCK	PROVIDED UNDER DIVISION 11	INFLUENT MECHANICAL BAR SCREEN NO. * TIME CONTROL	2
HS E	HAND SWITCH	3-POSITION NEMA 4X (SEE NOTE NO. 3)	HAND/OFF/AUTO PROVIDED UNDER DIVISION 11	INFLUENT MECHANICAL BAR SCREEN NO. * CONTROL	2
LAHH A	LEVEL ALARM HIGH/HIGH	INDICATING LIGHT NEMA 4X	AMBER PROVIDED UNDER DIVISION 11	INFLUENT MECHANICAL BAR SCREEN NO. * HIGH/HIGH ALARM	2
LAHH B	LEVEL ALARM HIGH/HIGH	INITIATED THRU SOFTWARE	FUTURE	INFLUENT MECHANICAL BAR SCREEN NO. * HIGH/HIGH ALARM	--
RL C,D	RUNNING LIGHTS	INITIATED THRU SOFTWARE	RED - ON GREEN - OFF FUTURE	INFLUENT MECHANICAL BAR SCREEN NO. * STATUS	--

SHEET 2 OF 3

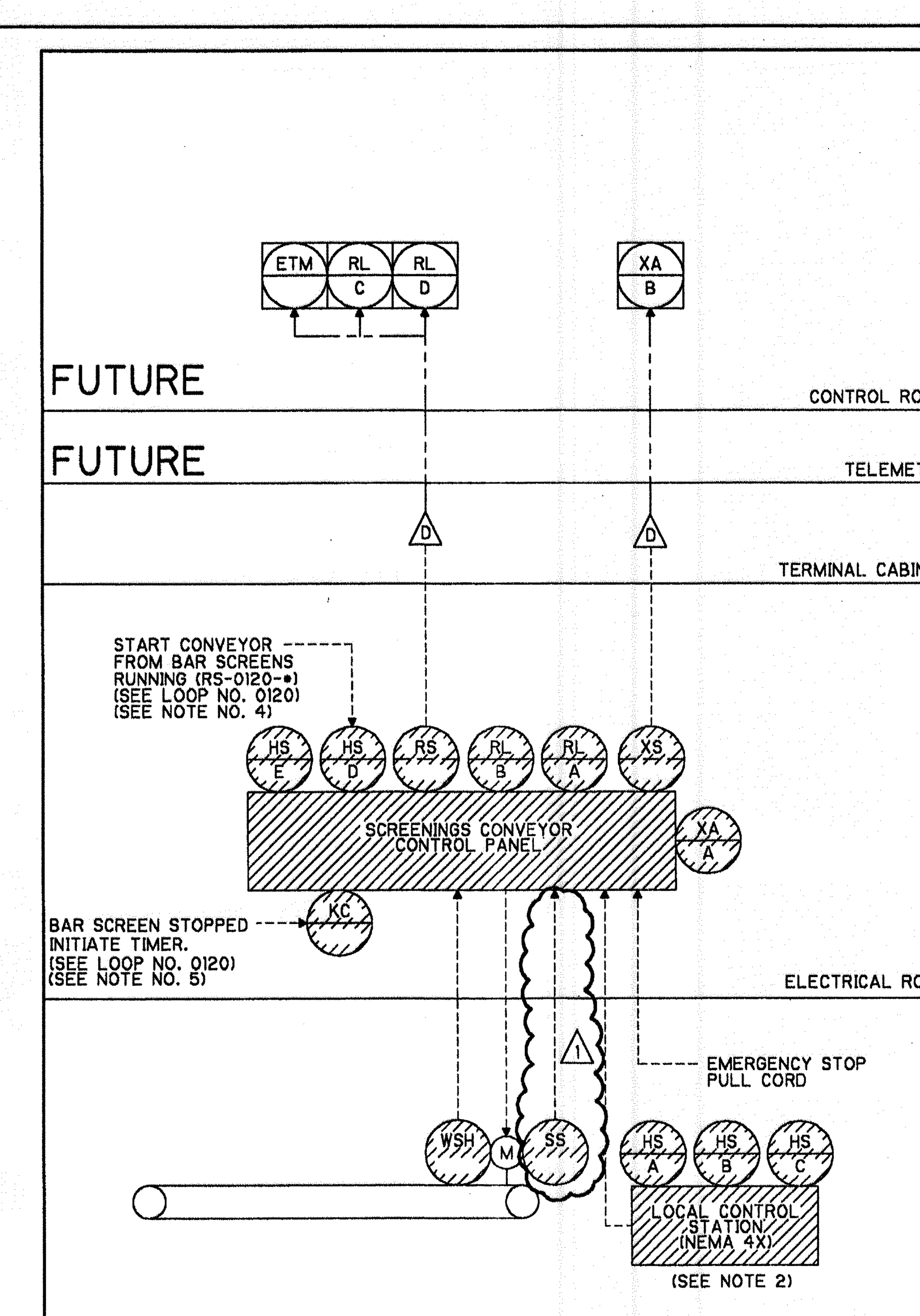
MECHANICAL BAR/FILTER SCREEN	LOOP NO. 0120-*

ITEM	DESCRIPTION	TYPE	CRITERIA	NAME TAG/SERVICE	QTY
ETM	ELAPSED TIME METER	INITIATED THRU SOFTWARE	FUTURE	INFLUENT MECHANICAL BAR SCREEN NO. * RUN TIME	--
XA B	TROUBLE ALARM	INITIATED THRU SOFTWARE	FUTURE	INFLUENT MECHANICAL BAR SCREEN NO. * FAILURE	--

* DENOTES
BAR SCREEN No. 1 LOOP No. 0120-1
BAR SCREEN No. 2 LOOP No. 0120-2

SHEET 3 OF 3

MECHANICAL BAR/FILTER SCREEN	LOOP NO. 0120-*



SHEET 1 OF 2

SCREENINGS CONVEYOR	LOOP NO. 0130

ITEM	DESCRIPTION	TYPE	CRITERIA	NAME TAG/SERVICE	QTY
WSH	TORQUE HIGH		PROVIDED UNDER SECTION 14550	SCREENING COMPACTOR HIGH TORQUE	1
SS	SPEED SWITCH		PROVIDED UNDER SECTION 14550	SCREENING COMPACTOR ZERO SPEED	1
HS A	HAND SWITCH	3-POSITION NEMA 4X	HAND/OFF/AUTO PROVIDED UNDER SECTION 14550	SCREENING COMPACTOR CONTROL	1
HS B	HAND SWITCH	3-POSITION NEMA 4X (SEE NOTE 6)	REVERSE/OFF/FWD PROVIDED UNDER SECTION 14550	SCREENING COMPACTOR CONTROL	1
HS C	HAND SWITCH	PUSHBUTTON NEMA 4X	JAM RESET PROVIDED UNDER SECTION 14550	SCREENING COMPACTOR JAM RESET	1
KC	TIMER CONTROLLER	PROVIDED UNDER SECTION 14550	ADJUSTABLE	SCREENING COMPACTOR CONTROL	2
XA A	TROUBLE ALARM	PROVIDED UNDER SECTION 14550		SCREENING COMPACTOR TROUBLE	1
XS	TROUBLE SWITCH	PROVIDED UNDER SECTION 14550		SCREENING COMPACTOR FAILURE	1
RL A,B	RUNNING LIGHTS	PROVIDED UNDER SECTION 14550	RED - ON GREEN - OFF	SCREENING COMPACTOR STATUS	2
RS	RUNNING SWITCH	PROVIDED UNDER SECTION 14550		SCREENING COMPACTOR STATUS	1
HS D	HAND SWITCH	3-POSITION NEMA 4X (SEE NOTE 4)	HAND/OFF/AUTO PROVIDED UNDER SECTION 14550	SCREENING COMPACTOR CONTROL	1
HS E	HAND SWITCH	PUSHBUTTON NEMA 4X	ALARM RESET PROVIDED UNDER SECTION 14550	SCREENING COMPACTOR ALARM RESET	1
ETM	ELAPSED TIME METER	INITIATED THRU SOFTWARE	FUTURE	SCREENING COMPACTOR RUN TIME	--
RL C,D	RUNNING LIGHTS	INITIATED THRU SOFTWARE	RED - ON GREEN - OFF FUTURE	SCREENING COMPACTOR STATUS	--
XA B	TROUBLE ALARM	INITIATED THRU SOFTWARE	FUTURE	SCREENING COMPACTOR FAILURE	--

△1

SHEET 2 OF 2

SCREENINGS CONVEYOR	LOOP NO. 0130

SCANNED
JUL 2 2 2009
CITY OF NAPLES

CONFORMED DRAWINGS
OCTOBER 1999

REV. NO.	DATE	DRWN	CHKD	REMARKS
	10/99	JHH	JEE	CONFORMED DRAWING
△1	8/99	JHH	JEE	REVISIONS PER ADDENDUM NO. 2

DESIGNED BY: J. ELIAS
DRAWN BY: J. ROSINO
SHEET CHK'D BY: D. WESTON
CROSS CHK'D BY: J. HAGERTY
APPROVED BY: W. NELSON
DATE: AUGUST 1999

CDM Camp Dresser & McKee Inc.
consulting engineering construction operations

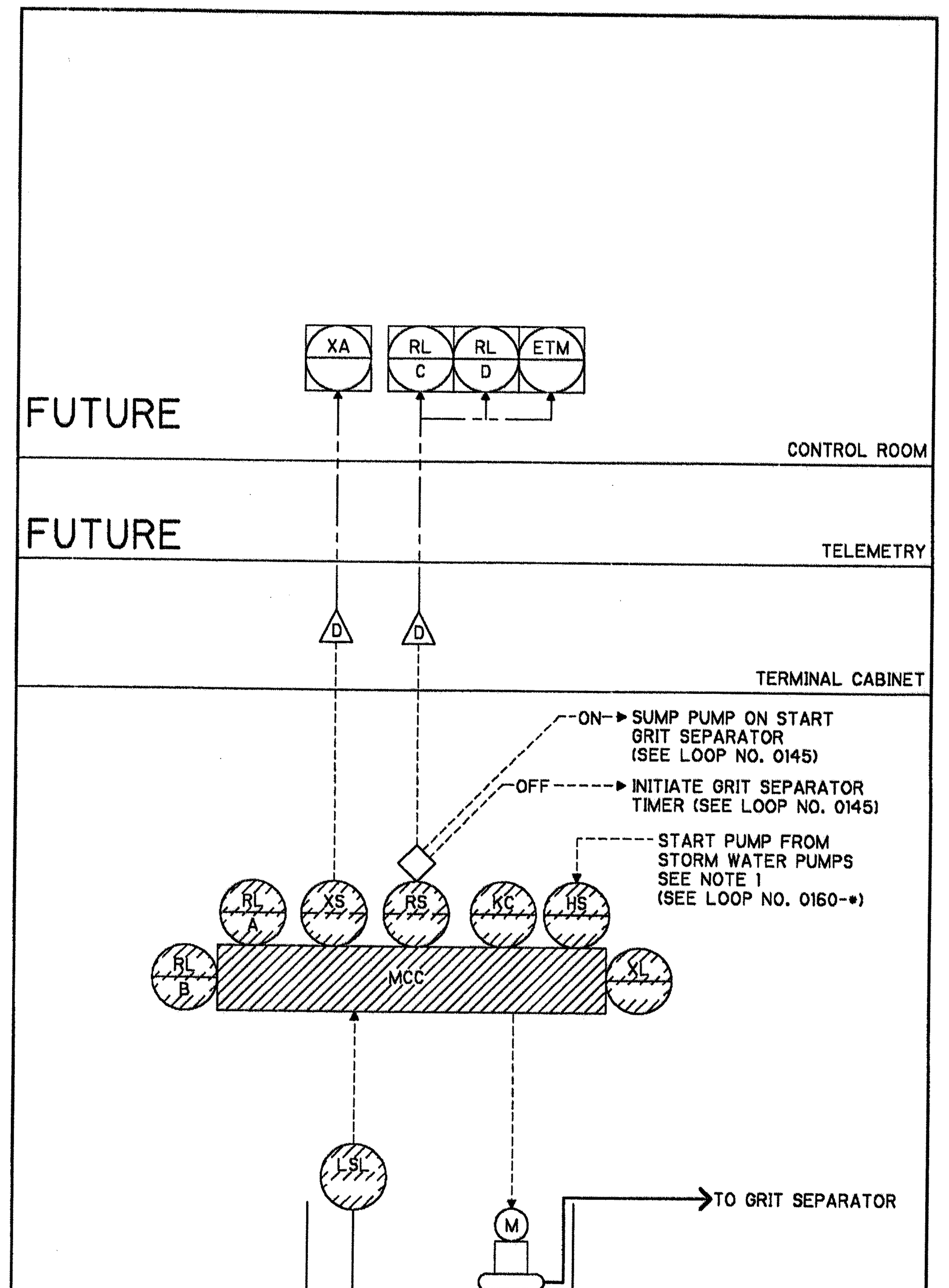
STORMWATER SYSTEM MAINTENANCE IMPROVEMENTS - PART I
CITY OF NAPLES, FLORIDA

DRAINAGE BASIN IV - PUMP STATION CONSTRUCTION

P&ID AND INSTRUMENTATION LOOP DIAGRAMS

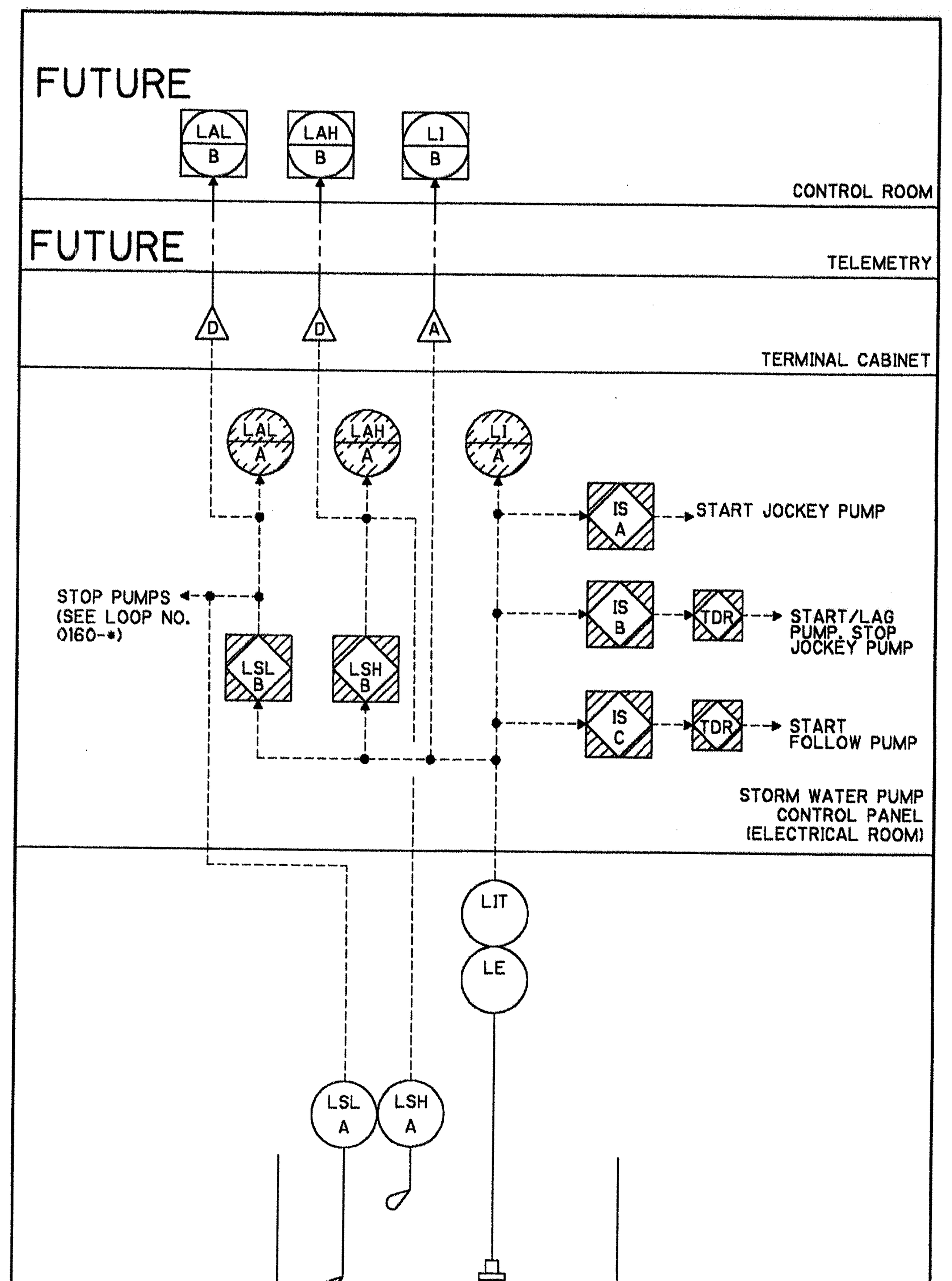
PROJECT NO. 6680-619
FILE NAME: 6680-902

SHEET NO.
I-2



SHEET 1 OF 2

GRIT COLLECTION SUMP PUMP CONTROL	LOOP NO. 0140



SHEET 1 OF 2

WETWELL LEVEL CONTROL	LOOP NO. 0150

ITEM	DESCRIPTION	TYPE	CRITERIA	NAME TAG/SERVICE	QTY
LSL	LEVEL SWITCH LOW	MERCURY FLOAT	PROVIDED UNDER DIVISION 11	GRTI COLLECTION SUMP PUMP LOW LEVEL	1
XL	TROUBLE LIGHT	INDICATING LIGHT	AMBER PROVIDED UNDER DIVISION 16	GRTI COLLECTION SUMP PUMP TROUBLE	1
XS	TROUBLE SWITCH	PROVIDED UNDER DIVISION 16		GRIT COLLECTION SUMP PUMP TROUBLE	1
RL A,B	RUNNING LIGHT	INDICATING LIGHTS	RED - ON GREEN - OFF PROVIDED UNDER DIVISION 16	GRIT COLLECTION SUMP PUMP STATUS	2
HS	HAND SWITCH	SELECTOR SWITCH SEE NOTE 1	HAND/OFF/AUTO PROVIDED UNDER DIVISION 16	GRIT COLLECTION SUMP PUMP CONTROL	1
RS	RUNNING SWITCH	PROVIDED UNDER DIVISION 16		GRIT COLLECTION SUMP PUMP STATUS	1
KC	TIMER CONTROL	CYCLE TIMER	PROVIDED UNDER DIVISION 16	GRIT COLLECTION SUMP PUMP TIMER CONTROL	1
XA	TROUBLE ALARM	INITIATED THRU SOFTWARE	FUTURE	GRIT COLLECTION SUMP PUMP TROUBLE	--
RL C,D	RUNNING LIGHT	INITIATED THRU SOFTWARE	FUTURE	GRIT COLLECTION SUMP PUMP STATUS	--
ETM	ELASPED TIME METER	INITIATED THRU SOFTWARE	FUTURE	GRIT COLLECTION SUMP PUMP RUN TIME	--

NOTES:

1. IN THE AUTO MODE THE PUMP SHALL BE CALLED TO RUN WHENEVER ANY OF THE STORM WATER PUMPS ARE CALLED TO RUN, AND ARE RUNNING. THE SUMP PUMP SHALL RUN BASED ON THE TIMER SETTINGS.

SHEET 2 OF 2

GRIT COLLECTION SUMP PUMP CONTROL	LOOP NO. 0140

ITEM	DESCRIPTION	TYPE	CRITERIA	NAME TAG/SERVICE	QTY
LE/ LIT	LEVEL ELEMENT/ LEVEL INDICATING TRANSMITTER	HYDROSTATIC TYPE DIAPHRAGM ACTUATED		WETWELL PUMPS LEVEL CONTROL	1
LSH A	LEVEL SWITCH HIGH	MERCURY FLOAT		WETWELL HIGH LEVEL	1
LSL A	LEVEL SWITCH LOW	MERCURY FLOAT		WETWELL LOW LEVEL	1
LSH B	LEVEL SWITCH HIGH	INITIATED THRU PLC SOFTWARE	PROVIDED UNDER DIVISION 11	WETWELL HIGH LEVEL	1
LSL B	LEVEL SWITCH LOW	INITIATED THRU PLC SOFTWARE	PROVIDED UNDER DIVISION 11	WETWELL LOW LEVEL	1
LI A	LEVEL INIDICATOR	ELECTRONIC		WETWELL LEVEL	1
IS A-C	CURRENT SWITCH	INITIATED THRU PLC SOFTWARE	PUMP COMMAND PROVIDED UNDER DIVISION 11	WETWELL PUMPS CONTROL	3
LAH A	LEVEL ALARM HIGH	ANNUNCIATOR	PROVIDED UNDER DIVISION 11	WETWELL HIGH LEVEL	1
LAL A	LEVEL ALARM LOW	ANNUNCIATOR	PROVIDED UNDER DIVISION 11	WETWELL LOW LEVEL ALARM	1
LAH B	LEVEL ALARM HIGH	INITIATED THRU SOFTWARE	FUTURE	WETWELL HIGH/HIGH LEVEL	--
LAL B	LEVEL ALARM LOW	INITIATED THRU SOFTWARE	FUTURE	WETWELL LOW LEVEL	--
LI B	LEVEL INIDICATOR	INITIATED THRU SOFTWARE	FUTURE	WETWELL LEVEL	--

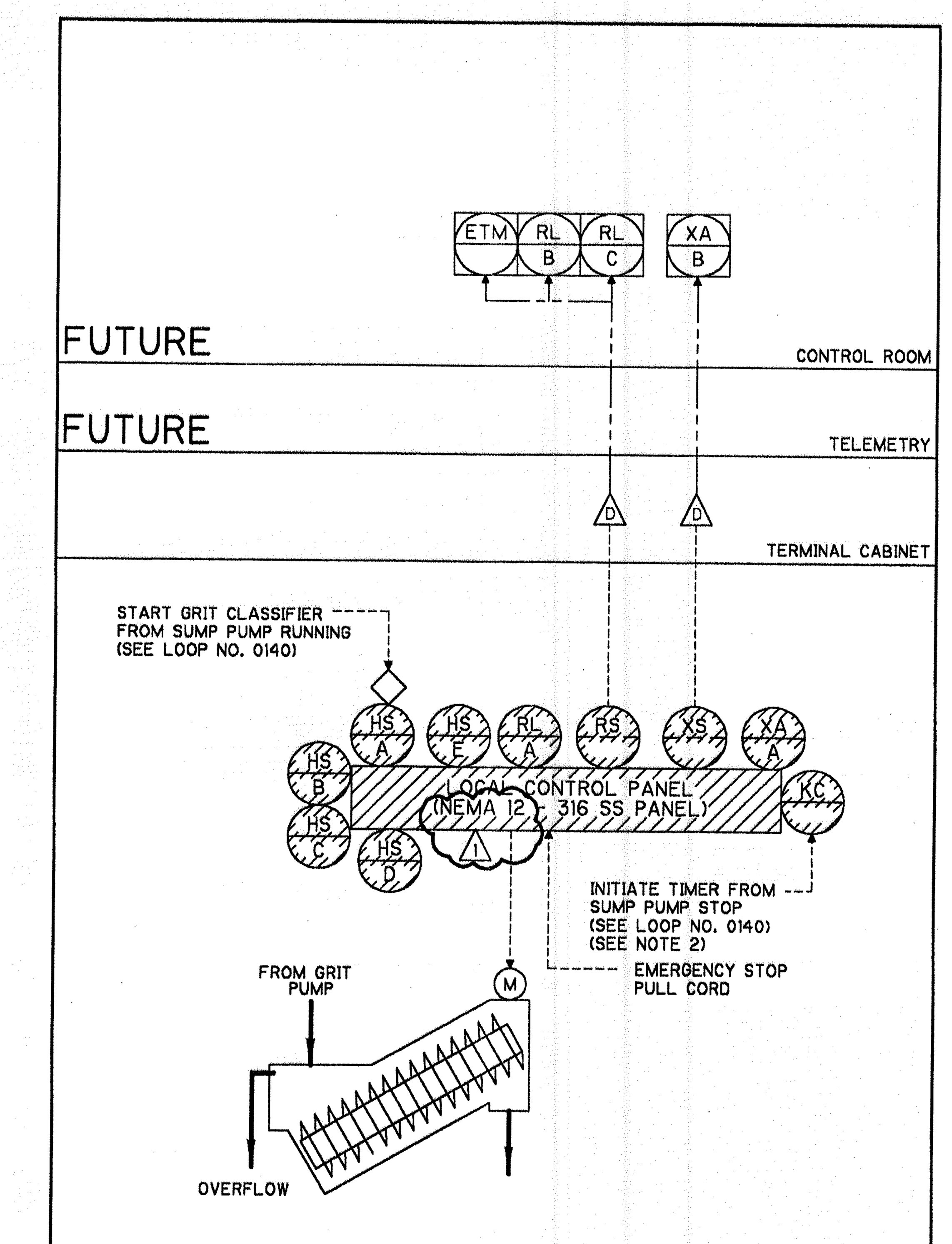
NOTE: SECONDARY VOLTAGE SHALL NOT EXCEDE 12 V.

RISING LEVEL
IS-A 1. - START JOCKEY PUMP. (EL. --.00)
IS-B 2. - START LAG PUMP/STOP JOCKEY PUMP. (EL. --.0)
IS-C 3. - START FOLLOW PUMP. (EL. --.00

FALLING LEVEL
IS-B 4. - STOP LAG PUMP/START JOCKEY PUMP. (EL. --.00)
IS-C 5. - STOP FOLLOW PUMP. (EL. --.00)

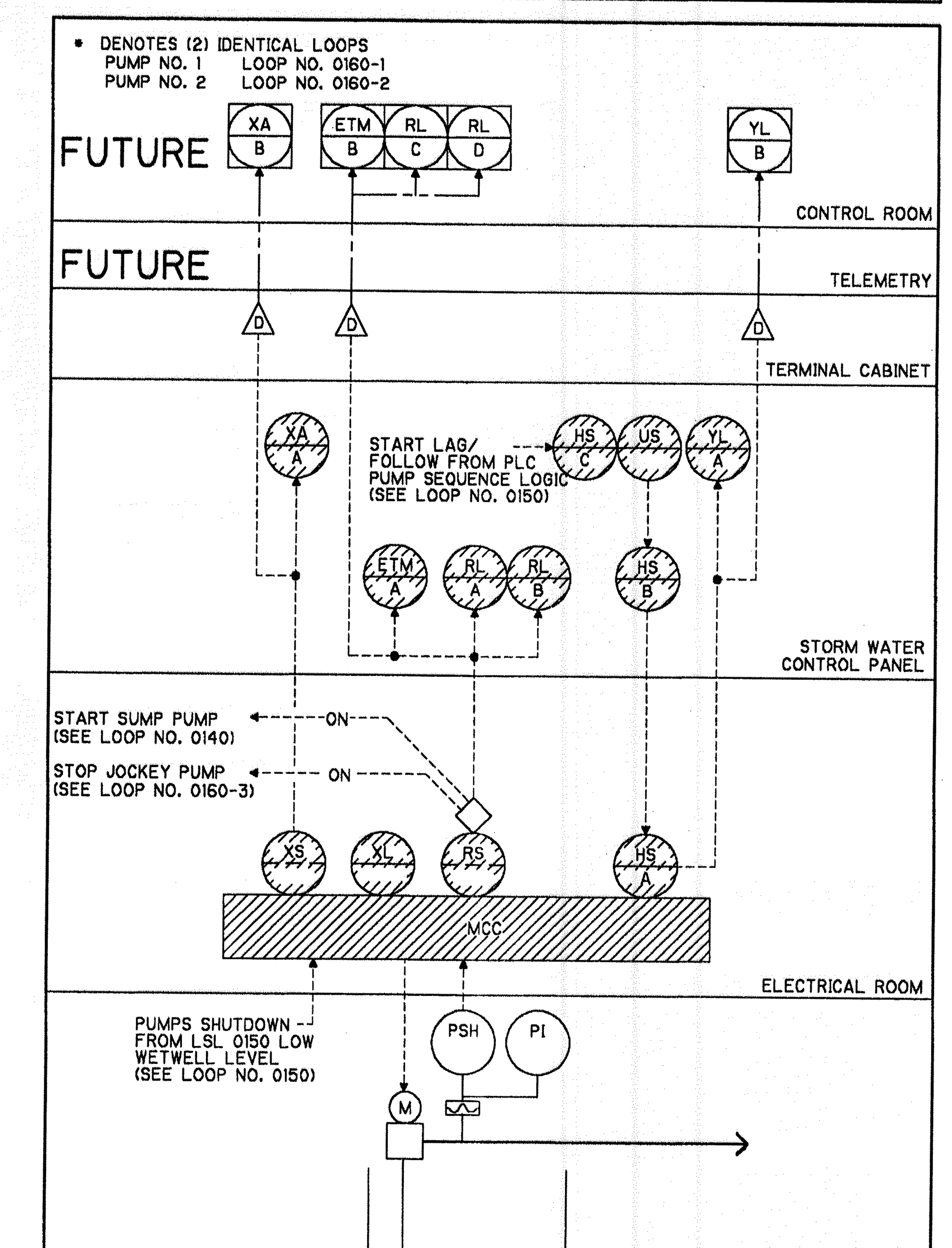
SHEET 2 OF 2

WETWELL LEVEL CONTROL	LOOP NO. 0150



SHEET 1 OF 2

GRIT CLASSIFIER CONTROL	LOOP NO. 0145



SHEET 1 OF 2

STORM WATER PUMPS CONTROL	LOOP NO. 0160-1,2

ITEM	DESCRIPTION	TYPE	CRITERIA	NAME TAG/SERVICE	QTY
XA B	TROUBLE ALARM	INITIATED THRU SOFTWARE	FUTURE	GRIT CLASSIFIER FAILURE	--
RL B,C	RUNNING LIGHTS	INITIATED THRU SOFTWARE	FUTURE RED - RUN GREEN - OFF	GRIT CLASSIFIER RUN/OFF	--
ETM	ELAPSED TIME METER	INITIATED THRU SOFTWARE	FUTURE	GRIT CLASSIFIER RUN TIME	--
XS	TROUBLE SWITCH	PROVIDED UNDER DIVISION 11		GRIT CLASSIFIER FAILURE	1
RS	RUNNING SWITCH	PROVIDED UNDER DIVISION 11		GRIT CLASSIFIER RUN STATUS	1
HS D	HAND SWITCH	PROVIDED UNDER DIVISION 11	EMERGENCY STOP	GRIT CLASSIFIER CONTROL	1
HS B,C	HAND SWITCH	PROVIDED UNDER DIVISION 11	PUSHBUTTON START/STOP	GRIT CLASSIFIER CONTROL	1
HS A	SELECTOR SWITCH	PROVIDED UNDER DIVISION 11	3 POSITION HAND/OFF/AUTO	GRIT CLASSIFIER CONTROL	1
HS E	HAND SWITCH	PROVIDED UNDER DIVISION 11	RESET	GRIT CLASSIFIER RESET	1
XA A	TROUBLE ALARM	BEACON LIGHT	PROVIDED UNDER DIVISION 11	GRIT CLASSIFIER FAILURE	1
RL A	RUNNING LIGHT	PROVIDED UNDER DIVISION 11	RUN - RED	GRIT CLASSIFIER RUNNING STATUS	1
KC	TIMER CONTROLLER	24 HOURS PROGRAMING TIME CLOCK	PROVIDED UNDER DIVISION 11	GRIT CLASSIFIER CONTROL	1

NOTES:

1. IN THE AUTO MODE THE GRIT CLASSIFIER SHALL BE CALLED TO START WHENEVER THE SUMP PUMP IS RUNNING.
2. THE TIMER KC 0145 SHALL BE INITIATED TO KEEP THE GRIT SEPARATOR RUNNING FOR A PREDETERMINED TIME AFTER THE SUMP PUMP IS CALLED TO STOP. SETTINGS.

SHEET 2 OF 2

GRIT CLASSIFIER CONTROL	LOOP NO. 0145

ITEM	DESCRIPTION	TYPE	CRITERIA	NAME TAG/SERVICE	QTY
PI	PRESSURE INDICATOR	PRESSURE GUAGE W/ DIAPHRAGM SEAL	RANGE:	STORM WATER PUMP NO. * PRESSURE	2
PSH	PRESSURE SWITCH HIGH	PRESSURE SWITCH W/ DIAPHRAGM SEAL	SET POINT:	STORM WATER PUMP NO. * PRESSURE	2
XS	TROUBLE SWITCH	PROVIDED UNDER DIVISION 16		STORM WATER PUMP NO. * FAIL	2
HS A	HAND SWITCH	PROVIDED UNDER DIVISION 16	HAND/OFF/ REMOTE	STORM WATER PUMP NO. * CONTROL	2
RS	RUNNING SWITCH	PROVIDED UNDER DIVISION 16		STORM WATER PUMP NO. * STATUS	2
ETM A	ELAPSED TIME METER	ELECTRO MECHNICAL		STORM WATER PUMP NO. * RUN TIME	2
RL A,B	RUNNING LIGHT	INDICATING LIGHTS PROVIDED UNDER DIVISION 11	RED - OFF GREEN - ON	STORM WATER PUMP NO. * STATUS	4
HS B	HAND SWITCH	3-POSITION SQUARE TYPE W/ ILLUMINATED DIVISION 11 QUADRANTS	HAND - BLUE ON - GREEN AUTO - AMBER OFF - RED	STORM WATER PUMP NO. * CONTROL	2
YL A	POSITION LIGHT	PROVIDED UNDER DIVISION 11	ALARM WHEN SWITCH IS NOT ON REMOTE	STORM WATER PUMP NO. * SWITCH STATUS	2
HS C	HAND SWITCH	3-POSITION ROTARY	LAG/FOLLOW/ALT PROVIDED UNDER DIVISION 11	STORM WATER PUMP NO. * SEQUENCE SELECT	1
XA	TROUBLE ALARM	ANNUNCIATOR	PROVIDED UNDER DIVISION 11	STORM WATER PUMP NO. * FAIL	2
XL	TROUBLE LIGHT	INDICATING LIGHT AMBER	PROVIDED UNDER DIVISION 16	STORM WATER PUMP NO. * FAIL	2
US	MULTIFUNCTION SWITCH	2-CIRCUIT ALTERNATOR	PROVIDED UNDER DIVISION 11	STORM WATER PUMPS ALTERNATOR	1
ETM B	ELASPED TIME METER	INITIATED THRU SOFTWARE	FUTURE	STORM WATER PUMP NO. * RUN TIME	--
RL C,D	RUNNING LIGHT	INITIATED THRU SOFTWARE	RED - ON GREEN - OFF FUTURE	STORM WATER PUMP NO. * STATUS	--
YL B	POSITION LIGHT	INITATED THRU SOFTWARE	ALARM WHEN SWITCH IS NOT ON REMOTE FUTURE	STORM WATER PUMP NO. * SWITCH STATUS	--
XA A	TROUBLE ALARM	INITIATED THRU SOFTWARE	FUTURE	STORM WATER PUMP NO. * COMMON ALARM	--

SHEET 2 OF 2

STORM WATER PUMPS CONTROL	LOOP NO. 0160-1,2

CONFORMED DRAWINGS
OCTOBER 1999

SCANNED
JUL 2 2 2009
CITY OF NAPLES

REV. NO.	DATE	DRWN	CHKD	REMARKS
	10/99	JHH	JEE	CONFORMED DRAWING
1	8/99	JHH	JEE	REVISIONS PER ADDENDUM NO. 2

DESIGNED BY: J. ELIAS
DRAWN BY: J. ROSINO
SHEET CHK'D BY: D. WESTON
CROSS CHK'D BY: J. HAGERTY
APPROVED BY: W. NELSON
DATE: AUGUST 1999

CDM Camp Dresser & McKee Inc.
consulting engineering construction operations

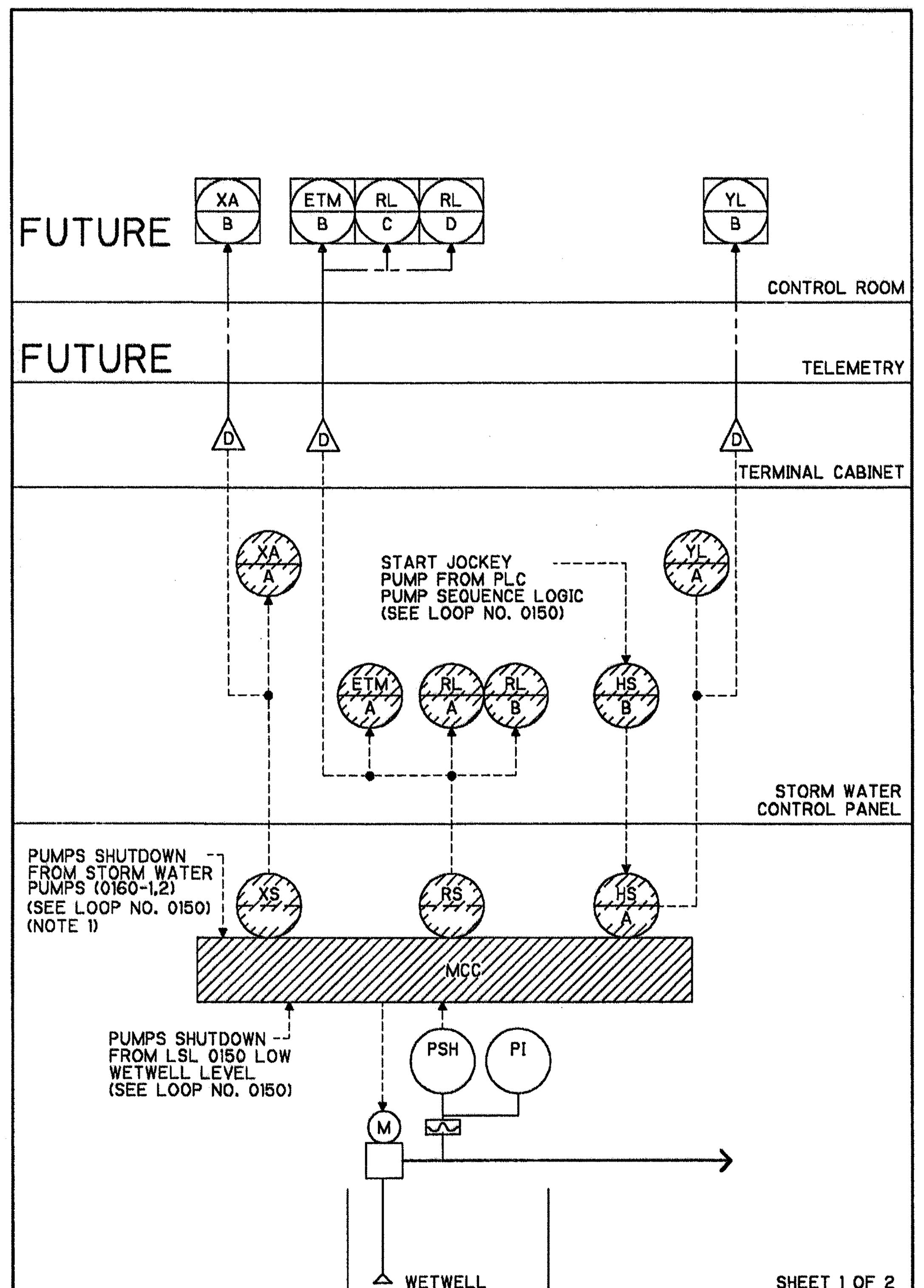
STORMWATER SYSTEM MAINTENANCE IMPROVEMENTS - PART I
CITY OF NAPLES, FLORIDA

DRAINAGE BASIN IV - PUMP STATION CONSTRUCTION

INSTRUMENTATION LOOP DIAGRAMS

PROJECT NO. 6680-619
FILE NAME: 6680-903

SHEET NO.
I-3



SHEET 1 OF 2

WETWELL JOCKEY PUMP CONTROL	LOOP NO. 0160-3

ITEM	DESCRIPTION	TYPE	CRITERIA	NAME TAG/SERVICE	QTY
PI	PRESSURE INIDICATOR	PRESSURE GUAGE W/ DIAPHRAGM SEAL	RANGE:	JOCKEY PUMP PRESSURE	1
PSH	PRESSURE SWITCH HIGH	PRESSURE SWITCH W/ DIAPHRAGM SEAL	SET POINT:	JOCKEY PUMP PRESSURE	1
XS	TROUBLE SWITCH	PROVIDED UNDER DIVISION 16		JOCKEY PUMP FAIL	1
HS A	HAND SWITCH	PROVIDED UNDER DIVISION 16	HAND/OFF/ REMOTE	JOCKEY PUMP CONTROL	1
RS	RUNNING SWITCH	PROVIDED UNDER DIVISION 16		JOCKEY PUMP STATUS	1
ETM A	ELAPSED TIME METER	ELECTRO MECHNICAL	PROVIDED UNDER DIVISION 11	JOCKEY PUMP RUN TIME	1
RL A,B	RUNNING LIGHT	PROVIDED UNDER DIVISION 11		JOCKEY PUMP STATUS	2
HS B	HAND SWITCH	3-POSITION SQUARE TYPE W/ILLUMINATED QUADRANTS DIVISION 11	HAND - BLUE ON - GREEN AUTO - AMBER OFF - RED	JOCKEY PUMP CONTROL	1
XA A	TROUBLE ALARM	ANNUNCIATOR	PROVIDED UNDER DIVISION 11	JOCKEY PUMP FAIL	1
YL A	POSITION LIGHT	PROVIDED UNDER DIVISION 11	ALARM WHEN SWITCH IS NOT ON REMOTE	JOCKEY PUMP SWITCH STATUS	1
ETM B	ELAPSED TIME METER	INITIATED THRU SOFTWARE	FUTURE	JOCKEY PUMP RUN TIME	--
RL C,D	RUNNING LIGHT	INITIATED THRU SOFTWARE	RED - ON GREEN - OFF FUTURE	JOCKEY PUMP STATUS	--
YL B	POSITION LIGHT	INITATED THRU SOFTWARE	ALARM WHEN SWITCH IS NOT ON REMOTE FUTURE	JOCKEY PUMP SWITCH STATUS	--
XA B	TROUBLE ALARM	INITIATED THRU SOFTWARE	FUTURE	JOCKEY PUMP COMMON ALARM	--

NOTES:

1. WHENEVER ANY OF THE STORM WATER PUMPS ARE CALLED TO RUN AND ARE RUNNING, THE JOCKEY PUMP SHALL BE STOPPED.

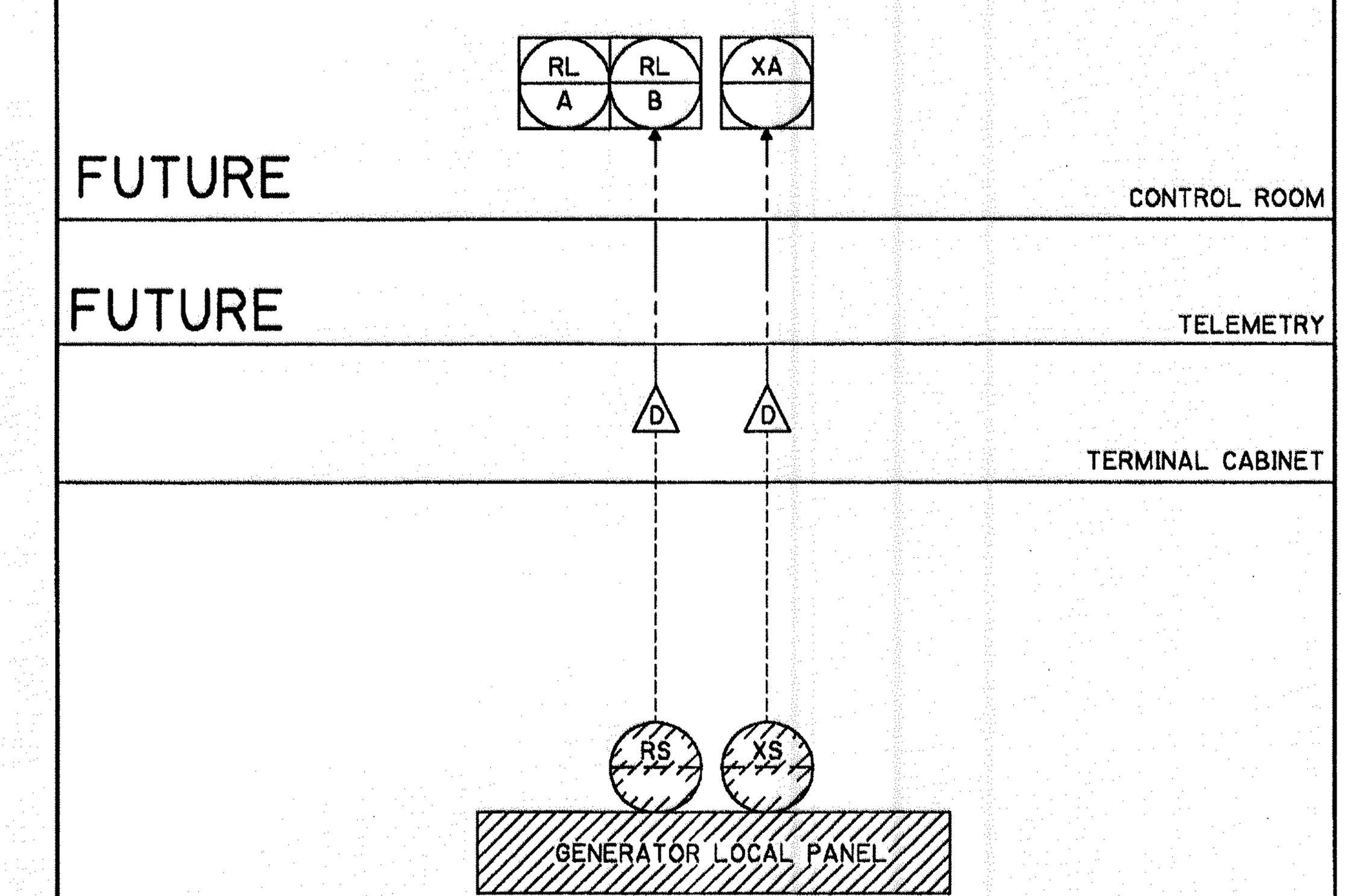
SHEET 2 OF 2

WETWELL JOCKEY PUMP CONTROL	LOOP NO. 0160-3

ITEM	DESCRIPTION	TYPE	CRITERIA	NAME TAG/SERVICE	QTY
RS	RUNNING SWITCH	PROVIDED UNDER DIVISION 16		GENERATOR STATUS	1
XS	TROUBLE SWITCH	PROVIDED UNDER DIVISION 16	ALARM	GENERATOR FAIL	1
RL A,B	RUNNING LIGHT	INITIATED THRU SOFTWARE	RED - ON GREEN - OFF FUTURE	GENERATOR STATUS	--
XA	TROUBLE ALARM	INITIATED THRU SOFTWARE	FUTURE	GENERATOR FAIL	--

NOTE:

1. REFER TO SPECIFICATIONS FOR DETAIL INSTRUMENTATION AND CONTROL REQUIREMENTS FOR THE GENERATOR PANEL

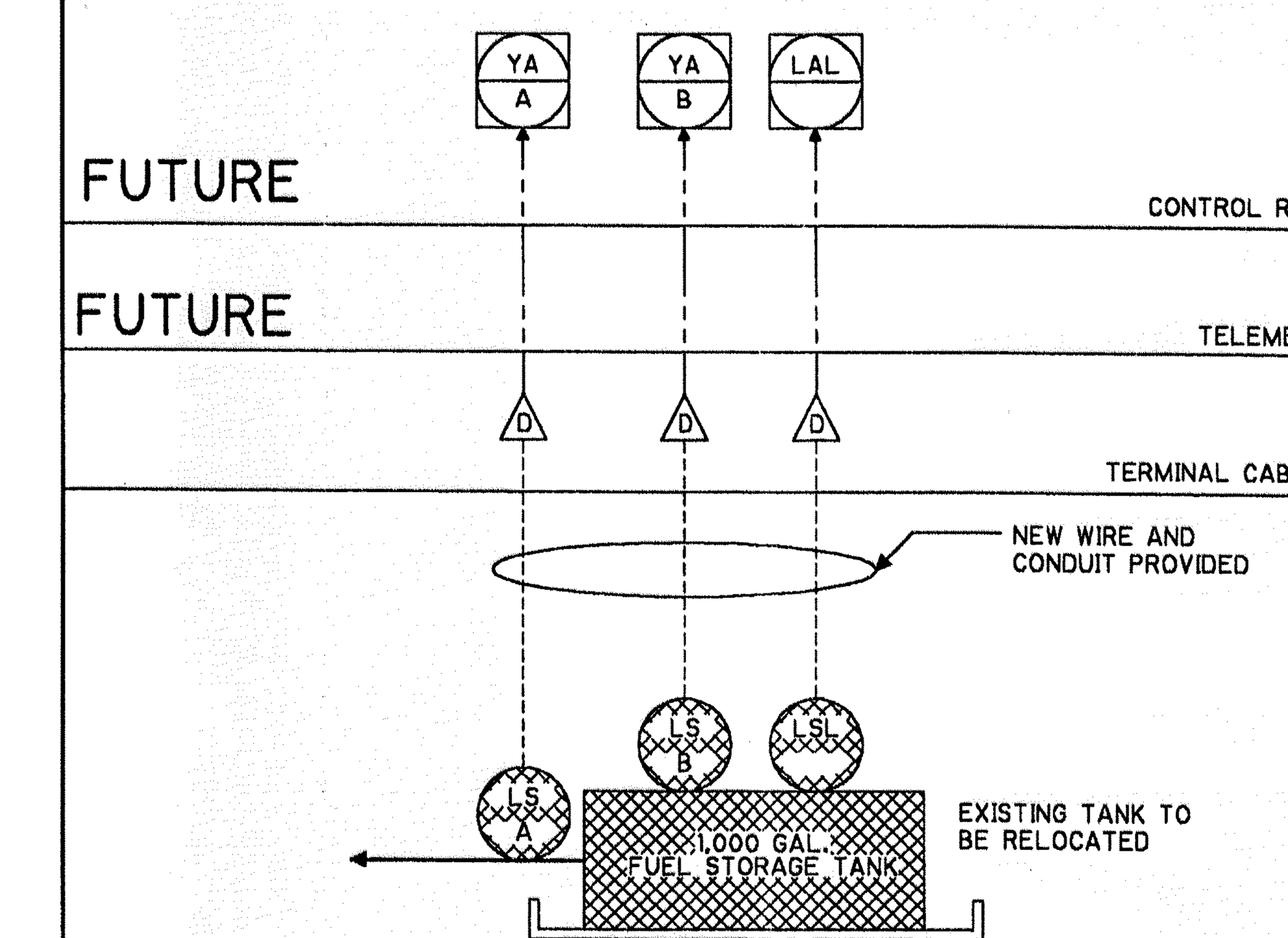


GENERATOR MONITORING	LOOP NO. 0200

ITEM	DESCRIPTION	TYPE	CRITERIA	NAME TAG/SERVICE	QTY
LS A	LEVEL SWITCH	EXISITNG		DOUBLE WALL FUEL PIPE LEAK	--
LS B	LEVEL SWITCH	EXISITING		DOUBLE WALL FUEL TANK LEAK	--
LSL	LEVEL SWITCH LOW	EXISITING		FUEL TANK LEVEL LOW REORDER	--
YA A,B	EVENT ALARM	INITIATED THRU SOFTWARE	FUTURE	DOUBLE WALL FUEL PIPE LEAK ALARM	--
LAL	LEVEL ALARM LOW	INITIATED THRU SOFTWARE	FUTURE	FUEL TANK LOW LEVEL REORDER ALARM	--

NOTE:

1. REFER TO SPECIFICATIONS FOR DETAIL INSTRUMENTATION AND CONTROL REQUIREMENTS



FUEL TANK MONITORING	LOOP NO. 0210

CONFORMED DRAWINGS
OCTOBER 1999

REV. NO.	DATE	DRWN	CHKD	REMARKS
	10/99	JHH	JEE	CONFORMED DRAWING

DESIGNED BY: J. ELIAS
DRAWN BY: J. ROSINO
SHEET CHK'D BY: D. WESTON
CROSS CHK'D BY: J. HAGERTY
APPROVED BY: W. NELSON
DATE: AUGUST 1999

CDM Camp Dresser & McKee Inc.
consulting engineering construction operations

STORMWATER SYSTEM MAINTENANCE IMPROVEMENTS - PART I
CITY OF NAPLES, FLORIDA

DRAINAGE BASIN IV - PUMP STATION CONSTRUCTION

INSTRUMENTATION LOOP DIAGRAMS

PROJECT NO. 6680-619
FILE NAME: 6680-904

SHEET NO.
I-4

6680-904 07/29/99 14:50:39 9:26:04 Don Besenye

Stormwater runoff flows enter the basin VI pump station from manhole No. 1 to the north of the pump station through a 60-inch RCP stormwater pipe that discharges into manhole No. 2 which is located between the basin VI pump station and Goodlette/Frank Road. Stormwater runoff flows also enter the basin VI pump station from manhole No. 3, located just west of manhole No. 2, at the corner of Goodlette/Frank Road and 3rd Avenue North which serves the area west of Goodlette/Frank Road. Upon entering manhole No. 2 the combined stormwater flows enter a 72-inch RCP stormwater pipeline which flows by gravity into the stormwater basin VI pump station from the west. Upon entering the stormwater basin VI pump station, the stormwater flows undergo the following water quality enhancements prior to being discharged to the Gordon River, both coarse and fine screenings removal and handling along with grit removal and processing. Both screenings and grit are discharged into the adjacent screenings sump where dewatering occurs prior to being disposed as solid waste at the landfill.

The stormwater pumping facilities include two 125-horsepower vertical turbine stormwater pumps with a capacity of 21,000 gallons per minute each and one 25-horsepower vertical turbine stormwater pump with a capacity of 5,000 gallons per minute, providing a total pumping capacity of approximately 60 MGD of stormwater pumped to the Gordon River.

The vertical turbine pumps are controlled by float balls and ultrasonic level controls, located inside the pump station's wetwell, with two 125-horsepower pumps operating in the lead and lag pump mode of operation. The bar screens are electrically interlocked to operate whenever a 125 horsepower pump is in operation, along with the grit pump and grit dewatering classifier. In addition, the screens also operate on a 24-hour duty cycle timer provided to operate each screen a minimum of 15 minutes per day.

The basin VI stormwater pump station is served by a 480-volt, 3-phase, 4-wire service from Florida Power & Light Company. A signal radial distribution system is provided with an 800-amp main circuit breaker and an 800-amp automatic transfer switch to distribute the incoming power to the motor control center located inside the electrical building.

The motor control center provides power feeds to all pump station related equipment, including the stormwater pumps, bar screen motors, grit pumps, and classifier, air conditioning system, and miscellaneous electrical equipment.

A dry type 480 - 120/208 volt step-down transformer is provided for miscellaneous lighting and 120-volt loads.

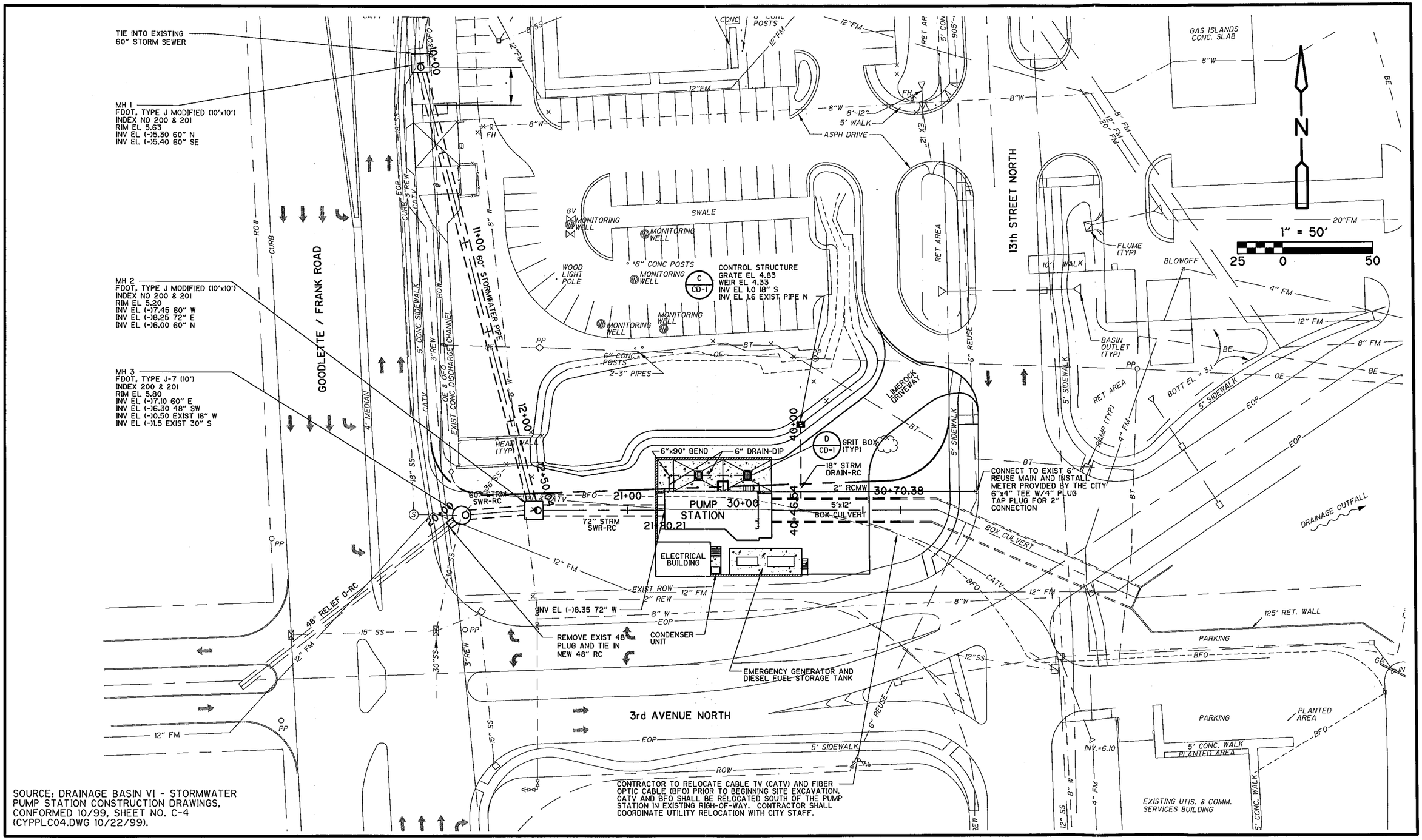
A diesel engine driven generator 400 KW/500 KVA, 480-volt is provided for emergency power. Generator controls are installed to allow the automatic transfer to generator power during a normal power interruption. The generator and generator controls are located outdoors and provided with a weather proof enclosure. An

existing 1,000-gallon bulk diesel fuel storage tank is used to supply fuel for the stormwater pump station emergency generator.

All electrical equipment for the stormwater pump station are located in a climate-controlled building. The approximate interior size of the electrical building is 26 feet in length and 15 feet in width. The electrical equipment located in the building includes:

- Main circuit breaker
- Automatic transfer switch
- 480 volt motor control center
- Bar screen control panel
- Grit pump control panel
- Stormwater pump control panel
- Dry type transformer
- Lighting panel
- HVAC units
- Miscellaneous terminal cabinets and City installed remote telemetry unit

Instrumentation requirements include starting and stopping the mechanically cleaned screens and pumps. The City has decided to install any necessary modification to the telemetry system.



SOURCE: DRAINAGE BASIN VI - STORMWATER PUMP STATION CONSTRUCTION DRAWINGS, CONFORMED 10/99, SHEET NO. C-4 (CYPPLC04.DWG 10/22/99).

Figure 1-1
Drainage Basin VI
Stormwater Pump Station
Site Plan

Section 2
Stormwater Basin VI Collection Pipeline and Screening

2.1 Functional Description and Design Criteria

The screening removal process begins when the stormwater flow enters the Basin VI stormwater pump station's common inlet channel from the 72-inch storm sewer pipeline and is conveyed through the manually cleaned bar rack, located at the entrance of the two mechanical bar screen channels and the emergency overflow weir gate channel. The bar rack is intended to remove large debris such as logs, palm fronds and alligators. The bar rack is designed to be manually cleaned using a special rake manufactured with a steel head, 18 inches wide with prongs on 5.5-inch centers and a 20-foot long aircraft aluminum handle for the specific service of removing trash from the bar rack.

The stormwater, after undergoing trash removal at the bar racks, is directed and/or isolated by the positioning of stop logs to the mechanically cleaned catenary bar screen channels. The stop logs may be positioned in channels SL-1 and SL-2 for removing or isolating catenary bar screen No. 1 from service, or in channels SL-3 and SL-4 for removing catenary bar screen No. 2 from service (see **Figure 2-1**).

Screenings removal is necessary to protect the downstream equipment (pumps, pipelines, etc.) from clogging and potential damage, and to improve the water quality of the stormwater discharged into the Gordon River.

The mechanically cleaned catenary bar screens are intended to provide a significant water quality benefit. The screens are designed to remove material in the stormwater flow, larger than one inch in diameter, and discharge the screenings onto a reversible horizontal belt conveyor that discharges into the screenings sump located on the north side of the pump station. The screening and grit sump is a concrete area with a sloped bottom and drain for screenings dewatering. Pushwalls are provided in the screenings sump area to facilitate the use of a front-end loader to transfer the screenings and grit into a truck for disposal as solid waste.

Design Criteria

Catenary Bar Screen No. 1 (South Unit)

Manufacturer:	E&I Corporation
Type:	Catenary
Serial No.:	9908035
Channel Width:	4-Feet, 6 -Inches
Channel Depth:	19-Feet, 6-Inches
Channel Water Depth	2 Feet to 13-Feet, 6-Inches
Bar Rack Angle of Incline	75-Degrees
Bar Rack Height	14-Feet

Bar Spacing:	1-Inch

Motor

Manufacturer:	Baldor
Serial No.:	AH557861
Catalog No.::	VM7037T
Frame:	145TC
Horsepower:	2
Volts:	460
Phase:	3
Amps:	3.1
Hertz:	60

Gear Reducer

Manufacturer:	Sew-Eurodrive
Serial No.:	850200744.00.00.001
Type:	R87R62lP145TEXP-KS
Ratio:	273 : 1
Torque:	13,700 Lbs/Inch
Mounting Position:	B-3
Lubricant Type:	Mobilgear 630
Lubricant Amount:	0.61 US Gallons

Catenary Bar Screen No. 1 (North Unit)

Manufacturer:	E&I Corporation
Type:	Catenary
Serial No.:	9908036
Channel Width:	4-Feet, 6 -Inches
Channel Depth:	19-Feet, 6-Inches
Channel Water Depth	2 Feet to 13-Feet, 6-Inches
Bar Rack Angle of Incline	75 Degrees
Bar Rack Height	14-Feet
Bar Spacing:	1-Inch

Motor

Manufacturer:	Baldor
Serial No.:	AH557862
Catalog No.::	VM7037T
Frame:	145TC
Horsepower:	2
Volts:	460
Phase:	3
Amps:	3.1
Hertz:	60

Gear Reducer

Manufacturer:	Sew-Eurodrive
Serial No.:	850200744.00.00.002
Type:	R87R62LP145TEXP-KS
Ratio:	273 : 1
Torque:	13,700 Lbs/Inch
Mounting Position:	B-3
Lubricant Type:	Mobilgear 630
Lubricant Amount:	0.61 US Gallons

Horizontal Belt Conveyor

Manufacturer:	Custom Conveyor Corp
Serial No.:	191899
Design Capacity:	525 Cubic Feet per Hour
Material Conveyed:	Screening at 60 CFPH
Conveyor Speed:	80 Feet/Minute
RPM at Drive Shaft:	18

Motor

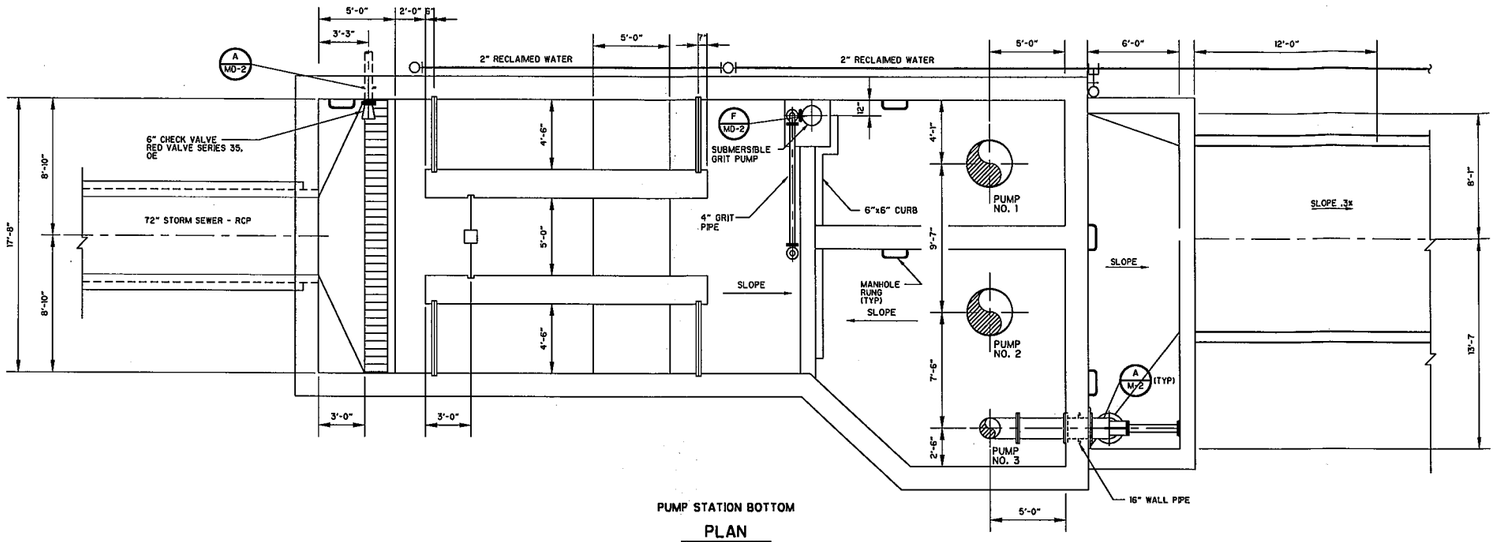
Manufacturer:	US Motors
Serial No.:	C07-7964 B-H
Model No.::	T7964B
Frame:	182T
Horsepower:	3
RPM:	1,760
Volts:	460
Phase:	3
Amps:	4.05
Hertz:	60

Gear Reducer

Manufacturer:	Dodge
Serial No.:	243514AC
Size:	TXT325AS
Class Rating:	14.01 Hp at 2,100 RPM
Ratio:	24.71 : 1
Lubricant Type:	Texaco Regal R+O 68
Lubricant Amount:	1.5 US Quarts

V-Belt

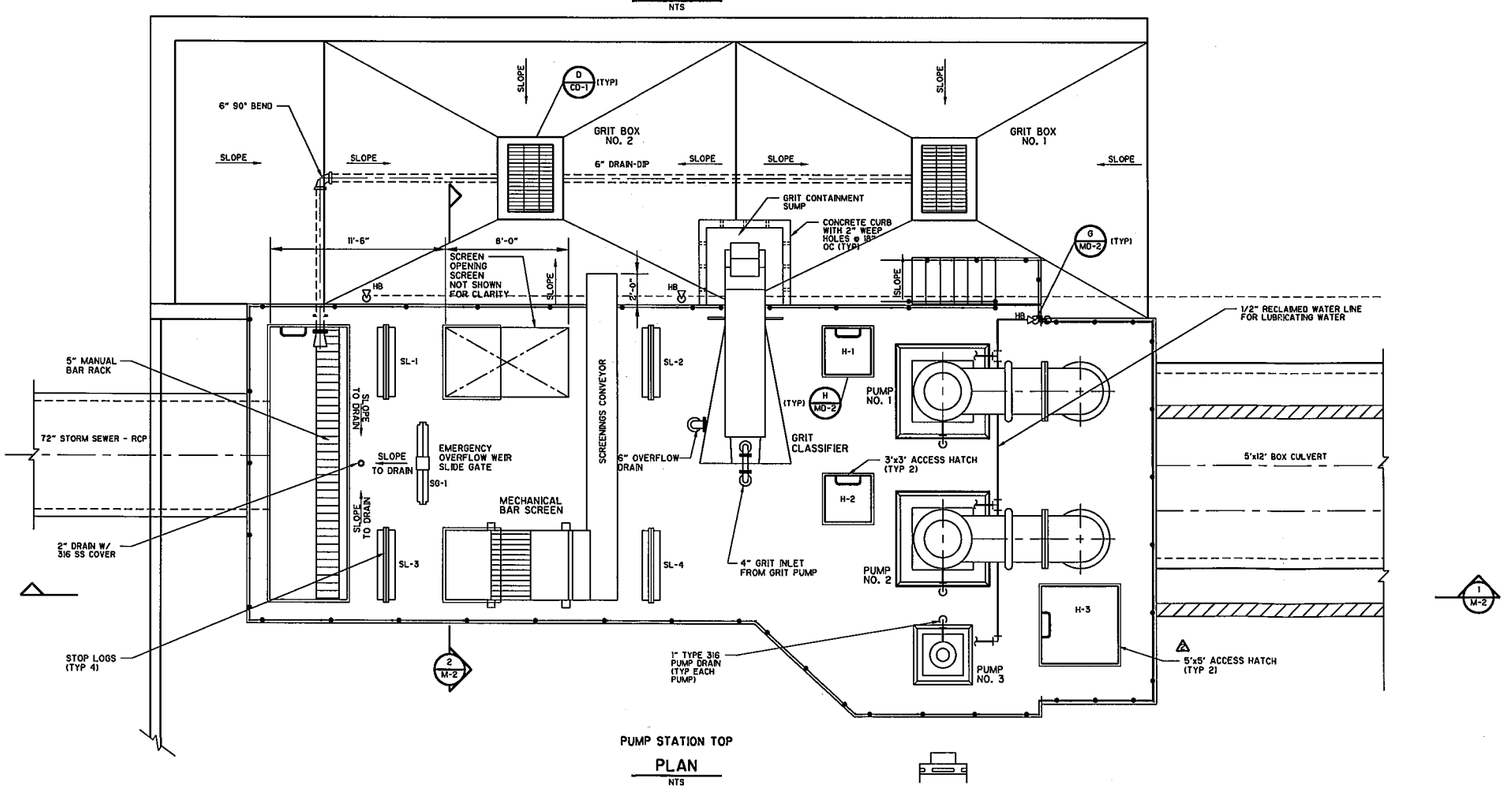
Manufacturer	Woods
Size	B 75



PUMP STATION BOTTOM

PLAN

NTS



PUMP STATION TOP

PLAN

NTS

SOURCE: DRAINAGE BASIN VI - STORMWATER PUMP STATION CONSTRUCTION DRAWINGS, CONFORMED 10/99, REVISED 03/00, SHEET NO. M-1 (MPSPLM01.DWG 3/20/00).

Figure 2-1
Drainage Basin VI
Stormwater Pump Station
Pump Station Plan

Section 3
Stormwater Basin VI Stormwater Pump Station

3.1 Functional Description and Design Criteria

After screenings removal, the influent stormwater flow enters the Basin VI stormwater pump station main wetwell where the stormwater is pumped into an adjacent box culvert through which it eventually flows into the Gordon River (see **Figure 3-1**).

The Basin VI stormwater pumping system consists of three vertical turbine pumps, one Jockey pump, and two stormwater pumps. The Jockey pump is designed to pump 5,000 gallons per minute or 7.2 MGD at a discharge head of 10.4 feet and is intended to handle low stormwater flow conditions and ground infiltration into the stormwater collection system.

The two stormwater pumps are designed to pump 21,000 gallons per minute or approximately 30.2 MGD each at a discharge head of 16 feet for a total stormwater pumping capacity of approximately 60.4 MGD with both stormwater pumps in operation.

The Jockey pump does not operate when either stormwater pump No. 1 or No. 2 is in operation.

The three pumps are controlled by a hydrostatic liquid level transmitter located inside the wetwell that indicates the water depth inside the wetwell and controls the pumps based on wetwell levels as follows in the automatic mode of operation (see **Table 3-1**).

Wetwell Elevation	Control Action	Actual Wetwell Level
5.0 feet	High Level Alarm	14.83 feet
4.0 feet	Lag Pump On	13.83 feet
0.0 feet	Lead Pump On	9.83 feet
- 2.0 feet	Jockey Pump On	7.83 feet
- 3.0 feet	Lag Pump Off	6.83 feet
- 4.1 feet	All Pumps Off	5.73 feet
- 4.6 feet	Low Level Alarm	5.23 feet
- 9.83 feet	Bottom of Wetwell	0.00 feet

Table 3-1
Wetwell Elevations and Control Actions

Design Criteria

Jockey Pump

Motor

Manufacturer:	US Motors
Serial No.:	D0899055081-001R-01
Frame:	365TP
Type:	TUCS
ENCL	TE
Horsepower:	25
Volts:	460
Amps:	38
Phase:	3
Hertz:	60
RPM:	712
Weight:	975 Lbs
Lubricant:	Shell, Dolium-R, EP-2
Lower End Bearing:	7314-BEP
Upper End Bearing:	6213-JC3

Pump

Manufacturer:	Fairbanks Morse
Serial No.:	150802
Model No.:	8312VWF
Size:	16- Inch
Stage:	1
Head:	10.4 Ft
Capacity:	5,000 GPM
RPM:	705

Stormwater Pump No. 1 (North Pump)

Motor

Manufacturer:	US Motors
Serial No.:	D0899056839-001R-01-NRR
Frame:	5807P
Type:	JUCE
ENCL:	TE
Horsepower:	125
Volts:	460
Amps:	188
Phase:	3
Hertz:	60
Weight:	5,800 Lbs.

Lower End Bearing:	6226-JC3
Upper End Bearing:	7228-BCB
Lubricant:	Mobil SHC 626
Oil Capacity, Lower Bearing	4 Quarts
Oil Capacity, Upper Bearing	37 Quarts

Pump

Manufacturer:	Fairbanks Morse
Serial No.:	150865-01
Model No.:	8211AWF
Size:	36- Inch
Stage:	1
Head:	16 Feet
Capacity:	21,000 GPM
RPM:	505

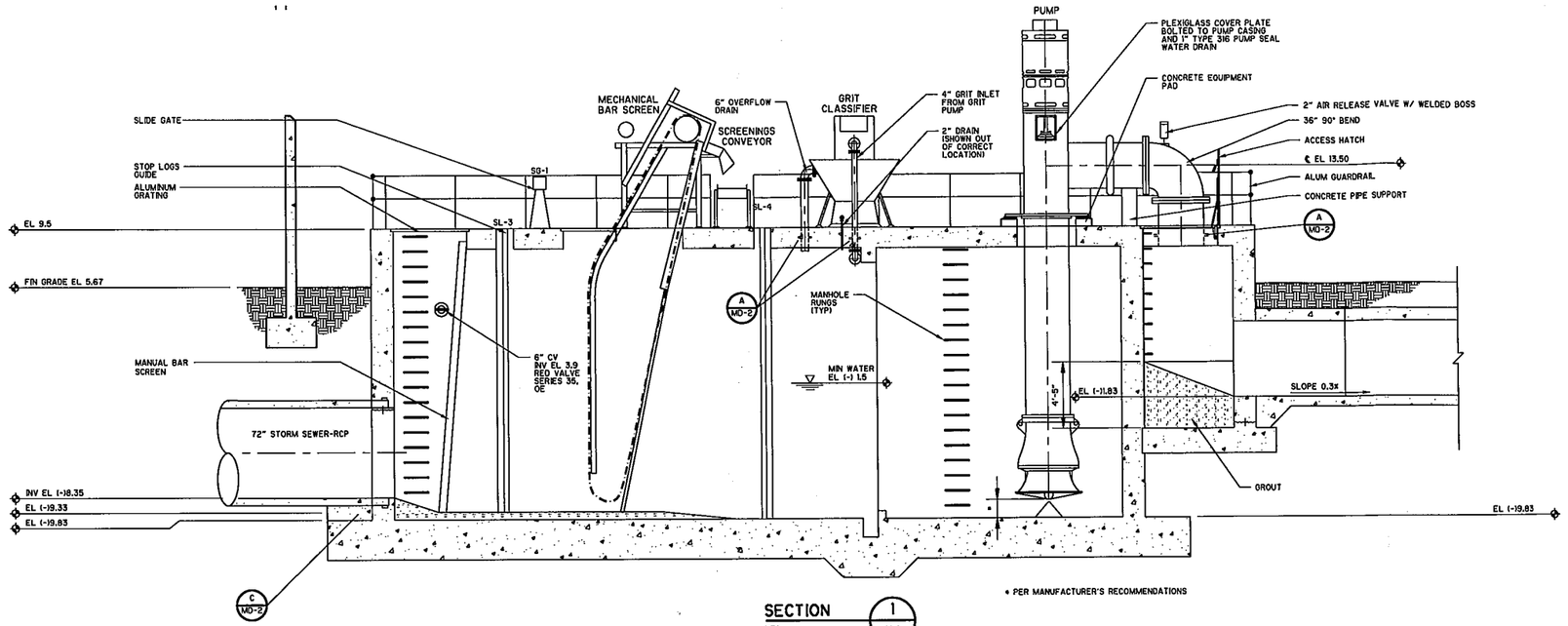
Stormwater Pump No. 2 (South Pump)

Motor

Manufacturer:	US Motors
Serial No.:	D0899056839-001R-02-NRR
Frame:	5807P
Type:	JUCE
ENCL:	TE
Horsepower:	125
Volts:	460
Amps:	188
Phase:	3
Hertz:	60
Weight:	5,800 Lbs.
Lower End Bearing:	6226-JC3
Upper End Bearing:	7228-BCB
Lubricant:	Mobil SHC 626
Oil Capacity, Lower Bearing	4 Quarts
Oil Capacity, Upper Bearing	37 Quarts

Pump

Manufacturer:	Fairbanks Morse
Serial No.:	150865-02
Model No.:	8211AWF
Size:	36- Inch
Stage:	1
Head:	16 Ft
Capacity:	21,000 GPM
RPM:	505



SECTION 1 / M-1
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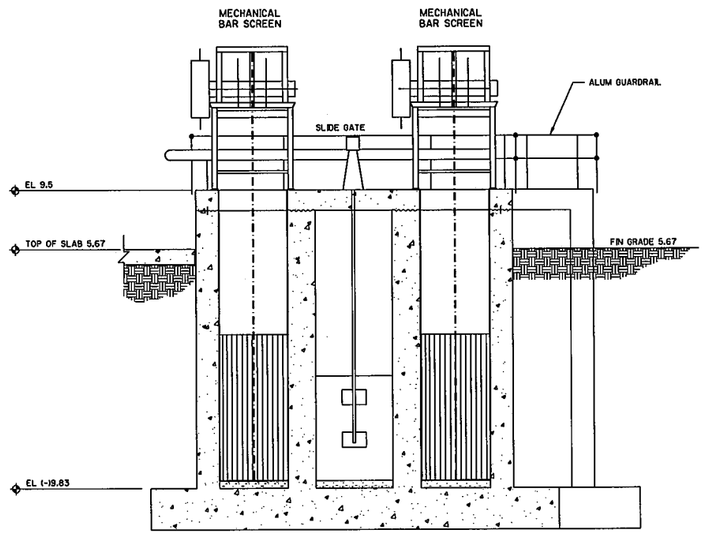

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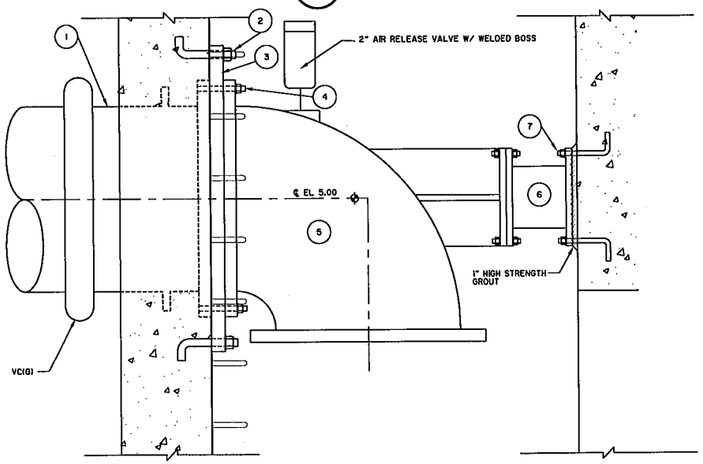


NUMBER	DESCRIPTION	PUMP NO. 3	REMARKS
1	WALL PIPE	16"	SEE DETAIL A/MD-2
2	J-BOLT	1"	10" EMBEDMENT
3	REDUCING FLANGE	24"x16"	
4	STUD	1"x6-3/8"	
5	BASE BEND	16"	
6	FLANGED SPOOL PIECE	6"	LENGTH AS REQUIRED
7	J-BOLT	3/4"	10" EMBEDMENT

DETAIL A / M-2
NTS

OPERATING ELEVATIONS TABLE

HIGH LEVEL ALARM	5.0
LAG PUMP ON	2.0
LEAD PUMP ON	0.0
LAG PUMP OFF	(-)10.5
JOCKY PUMP ON	(-)10.8
ALL PUMPS OFF	(-)11.5
LOW LEVEL ALARM	(-)11.7

SOURCE: DRAINAGE BASIN VI - STORMWATER PUMP STATION CONSTRUCTION DRAWINGS, CONFORMED 10/99, REVISED 02/00 & 03/00, SHEET NO. M-2 (MPSSCM01.DWG 3/24/00).

Figure 3-1
Drainage Basin VI
Stormwater Pump Station
Pump Station Sections and Details

Section 4
Stormwater Basin VI Grit Removal System

4.1 Functional Description and Design Criteria

After screenings removal, the influent stormwater enters the pump station's wetwell which is designed to reduce the velocity of the stormwater flow to less than two feet per second. This will allow solids and grit to settle in the wetwell. The wetwell bottom is sloped toward the grit collection channel which slopes to the grit sump, located on the north side of the wetwell. Inside the grit sump is a submersible sump pump designed for 40-gallons per minute at 25-ft TDH. The grit and sand, accumulated within the grit sump, will be automatically pumped (when stormwater pump No. 1 or No. 2 is in operation) by the submersible sump pump into a solids separator, located at ground level. The solids separator is a shaftless screw type classifier used to dewater grit; the solids in the classifier are directed downward by means of the sloping sides of the grit classifier and settles to the bottom of the stainless steel trough. The screw then directs the grit up the incline until it is discharged into the grit containment sump through the opening at the upper end of the classifier. The degritted stormwater flows over the fixed weir and is discharged into the wetwell (see **Figure 4-1**).

Push walls are provided in the screenings and grit discharge area to facilitate the use of a front-end loader to transfer the screenings and grit into a truck for disposal as solid waste.

Design Criteria

Submersible Grit Pump

Manufacturer:	Flygt
Serial No.:	090-0020152
Model No.:	CP3102
Impeller:	432
Capacity:	40 Gpm
TDH:	25 ft.
Size:	4-inch
Horsepower:	5.0
Volts:	460
RPM:	1,130
Phase:	3
Amps:	6.6
Hertz:	60

Grit Classifier

Manufacturer:	WesTech
Serial No.:	18430A
Size:	2000
Part No.:	A120A
Item No.:	210
Size:	2000

Motor

Manufacturer:	US Motors
Serial No.:	006-A030-M
Model No.:	A030
Frame:	56C
Horsepower:	0.75
RPM:	1,800
Volts:	460
Phase:	3
Amps:	1.4
Hertz:	60

Gear Reducer

Manufacturer:	S.P. ECO
Model No.:	FRA85/FL35B5bi
Gear Ratio:	300 : 1
Output Speed:	6 RPM
Motor Mount:	NEMA 56C

4.2 Process Considerations

The grit removal system is an integrated system consisting of two complex individual equipment components, with each component operating in a predetermined sequence in order to properly remove the grit and sand from the stormwater stream of flow. The two indivisual equipment components are described below:

- Grit Pumping System
- Grit Separator and Classifier

This section of the manual is intended to describe the system's operations and process control of each individual equipment component of the grit removal system, and how they operate together to remove the grit and sand from the stormwater, resulting in improved water quality of the pump station discharge into the Gordon River.

4.2.1 Grit Pumping System

The grit is removed from the lower reservoir or sump, located inside the pump station wetwell, by one submersible grit pump. The grit slurry is then pumped upward to the grit classifier where it is dewatered for disposal.

4.2.2 Grit Separator and Classifier

The grit separator and classifier is a compound grit separating, dewatering, and removal process which is accomplished through the operation of a helical conveyor type grit classifier. The operation of the process is explained below:

The incline of the classifier's trough provides a quiet settling pool at the lower and where the classifier's underflow undergoes its final separation and washing. In the settling pool, the heavier inorganics, as well as some organics, are floated over the weir bars at the lower end of the classifier to discharge back into the wetwell. As the rotating helical screw moves the settled solids up the incline, dewatering takes place prior to discharge at the upper end of the classifier.

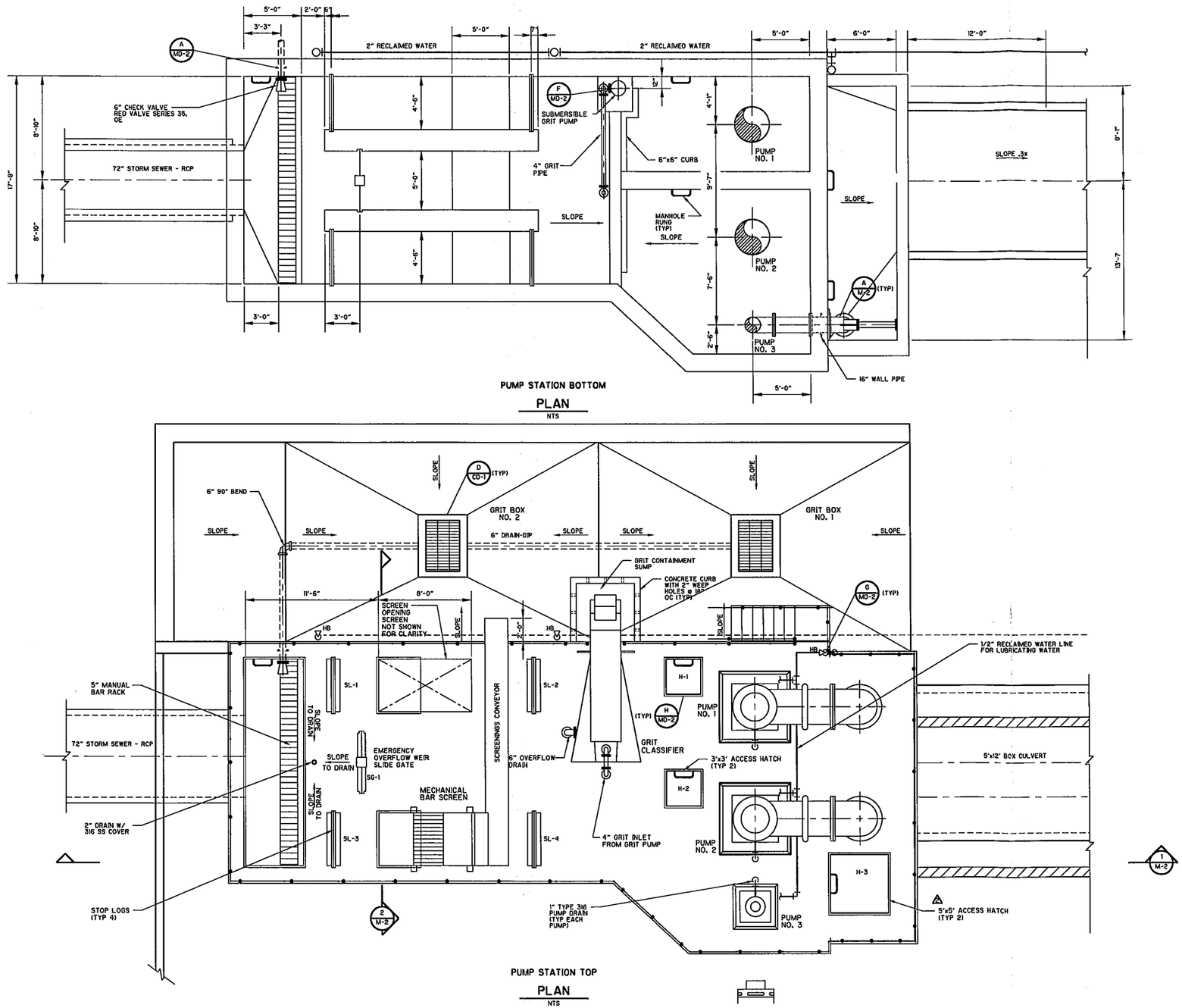
4.3 Modes of Operation

The grit pump and classifier can run in either a manual independent mode or in a completely automatic mode of operation in conjunction with stormwater pumps No. 1 and No. 2. The HAND-OFF-AUTOMATIC selector switches, located at both the grit pump control panel and the grit classifier's control, indicates in which mode the grit collection and removal system is.

HAND Position – With the grit pump or the grit classifier selector switch in this position, electrical power immediately energizes the respective grit pump or grit classifier.

OFF Position – With one or both of the HAND-OFF-AUTOMATIC selector switches in this position, the grit pump or grit classifier will not activate. This position is considered to be a "stopped" position for the selected piece of equipment.

AUTO Position – With both the grit pump's and the grit classifier's selector switches in the automatic position, electrical power will be supplied through auxiliary contacts on the motor starters of stormwater pumps No. 1 and No. 2 in the motor control center. When the stormwater pump station's wetwell level reaches a predetermined elevation and calls for the lead stormwater pump to start in the automatic mode, both the grit pump and the grit classifier will be called to start. In the automatic mode of operation, the grit pump and the grit classifier will remain in operation as long as stormwater pump No. 1 or No. 2 is in operation. When the wetwell level drops to a pre-determined level, all stormwater pumps will be called to stop in the automatic mode. At this time the grit pump will time out and stop along with the stormwater pumps, while the grit classifier will continue to operate in the automatic, clean-out mode for approximately five minutes before automatically shutting down.



SOURCE: DRAINAGE BASIN VI - STORMWATER PUMP STATION CONSTRUCTION DRAWINGS, CONFORMED 10/99, REVISED 03/00, SHEET NO. M-1 (MPSPLM01.DWG 3/20/00).

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Figure 4-1
Drainage Basin VI
Stormwater Pump Station
Pump Station Plan

Section 5
Stormwater Basin VI Electrical System

5.1 Functional Description and Design Criteria

The main power is supplied to the City of Naples, Stormwater Basin VI Pump Station by Florida Power and Light Company (FPL). The incoming power supplied by FPL is brought from a pad-mounted transformer to the FPL power meter located on the south side of the electrical building. From the electric meter the electrical power is extended to the station's main breaker located inside the electrical building. The main breaker feeds 480 volt electrical power through the normal side of the automatic transfer switch (ATS) to motor control center (MCC) No. 1 (see **Figure 5-1**, single Line Power Diagram).

Upon a power failure from FPL, the generator will start up automatically. When the generator comes up to the proper voltage and frequency, the ATS will transfer from the normal "Line Side Voltage" to its "Emergency Side Voltage" and feed MCC No. 1. By accomplishing this task automatically, all of the electrical load at the station can be picked up to the 400 Kilowatt (KW) rating of the emergency standby generator. All of the major motors at the pump station are fed out of MCC No. 1. This includes both 125-horsepower stormwater pumps, the 25-horsepower jockey pump, the catenary bar screens, conveyor, grit classifier, and grit pump.

The 30 KVA, 480-120/208 volt, 3-phase, 4-wire step-down transformer, located inside the electrical building, provides 120-volt power for station lighting and control voltage, along with 208-volt power for the operation of the HVAC system.

Located at the southwest corner (the west entrance doors) is an emergency shutdown switch (red mushroom head in a glass protective enclosure) which trips the service entrance main breaker and the automatic transfer switch, thereby shutting down all electrical power to the pump station, upon breaking the glass housing and depressing the pushbutton switch. The pushbutton switch must be reset and the glass housing replaced before power can be restored to the station.

Design Criteria

Main Breaker

Manufacturer	General Electric
Series	Spectra Series Switchboard
Reg. No.	35595209-A
Job No.	1786488-1
Cust. Mark	Southeast switch
Supply Amps	850
Section Amps	800
Neutral Amps	800
Phase	3

Volts	480Y/277
Wire	4
Hertz	60
Type	1

Automatic Transfer Switch

Manufacturer	Lake Shore Electric Corporation
Serial No.	001-0077
Model No.	A17330600C6B
Volts	277/480
Amps	600
Hertz	60
Phase	3
Wire	4

Motor Control Center No. 1

Manufacturer	General Electric
Series	GE 8000 Line Motor Control
Catalog No.	0673X0690L01
Diagram No.	33634770
Supply Amps	800
Volts	480
Phase	3
Hertz	60
Wire	3

The components of an electrical distribution system are designed to provide flexibility to the O&M personnel while, at the same time, protecting personnel and equipment. Electricity must be handled properly to be safe and efficient.

While being designed and constructed to withstand extreme conditions, the switchgear and MCC provide overload protection at several stages throughout the distribution and share the burden of distributing up to 800 amps of current to the major pieces of equipment.

While the electrical distribution system offers versatility in distributing electricity to the various process equipment, its operation is almost totally manual. The one exception is the automatic transfer feature incorporated into the auxiliary power system. This allows the power from the emergency generator to be routed to the MCC in the event of a power failure. Also, normal power will be returned to the MCC as soon as it becomes available. The entire operation of switching from normal power to emergency power back to normal power is an automatic function over which the operator has limited control.

5.2 480-Volt Switchgear

The 480-volt switchgear houses a 48-volt battery powered control console which controls the incoming electrical main lines and feeder breakers. The switchgear supplies main power through various protective devices (breakers and fuses) to downstream equipment. A feature of the 480-volt switchgear is its ability to automatically switch to the emergency power supply (generator), if the main power supply fails. This automatic switching procedure also enables the switchgear to shift back to main power when the failure is corrected. Safety interlocks in the switchgear prevent main power and emergency power from being supplied at the same time to the same location.

The switchgear consists of an air-insulated, 3-pole, gang-operated, quick-make, quick-break, load interrupter switch in a floor-mounted enclosure. It can be applied in combination with power fuses and many other protective devices to provide safe, low-cost switching and circuit protection where infrequent disconnecting means are required.

5.2.1 Main Bus

All switchgear use bus bars to carry the main voltage to the contacts which, when closed, continue to carry the main voltage to the bus bars. Depending upon the load rating of the switchgear, the type, gauge, and length of the main bus may vary. The main bus is mounted and braced with non-conducting hardware which ensures that movement will not occur whether unloaded or loaded.

5.2.2 Automatic Interlock

This is a system that protects operating personnel from personal injury, yet provides flexibility with the routing of main power from the switchgear to the MCC to the equipment being controlled.

Interlocks are provided between the main power source, auxiliary power source, and the switchgear, as well as between the MCC. The interlock between the main power supply, auxiliary power supply and the switchgear is operated automatically. The interlock system provides protection against the switchgear being energized by the main power source and the auxiliary power source at the same time.

5.2.3 Protective Devices

The main power supply is equipped with overload, over-current, and under-current protection at the main breakers. Each incoming voltage carrying line is fused with current limiting type dry fuses that are designed to blow out, if the current draw exceeds the rated capacity of the fuse. If the supply voltage fluctuates, too high or too low, over-current and under-current protective devices immediately disconnect the power supply.

5.3 Motor Control Center (MCC)

There is one MCC, and it is rated for 480-volt, 3-phase, 3-wire, 60 Hertz service with a minimum short-circuit rating of not less that 65,000 amperes.

The MCC comes complete with an assortment of components depending on the required function of the individual MCC. These components include:

1. Motor starters with 120-volt coils
2. Circuit breakers
3. Timing relays
4. Overload relays
5. Control power transformers
6. Control stations
7. Indicating lights
8. Running time meters
9. Volt meters
10. Instrument transformers
11. Surge protection
12. Control relays
13. Name plates
14. Power factor correction capacitors, and
15. Current limiting fuses.

5.3.1 Control Circuits and Auxiliary Contacts

Some of the dedicated circuits with the MCC are equipped with motor starters, auxiliary contact, timers, selector switches, and indicator lights. These components are provided to perform specific functions with respect to controlling other pieces of equipment. Their functions are as follows:

Motor starters – Various size and voltage rated motor starters are provided to start motors throughout the facility. Motor starters provide heat limiting type overload protection to the circuits and equipment they control. The contact closure in a motor starter is caused by control voltage being applied to a magnetic coil that pulls the contacts together.

Auxiliary contacts – The contacts what provide control voltage to the magnetic coil in a motor starter. Auxiliary contacts are usually mounted on the motor starter.

Timers - Various timers are provided that are there for protection of the equipment. In most cases, the timers provide a delay function to the startup of a piece of equipment. This feature is provided so that, if a power failure occurs, equipment throughout the facility may be restarted at different times as opposed to being started all at the same time. This option is especially important if equipment restart occurs while operating on auxiliary power.

Selector switches - Give O&M personnel the option of starting and stopping equipment from the MCC. Other functions that selector switches serve are mode of operation selection and motor speed selection.

Note: It is not recommended that equipment be started and stopped from the MCC. If it is necessary to do so, precautions must be taken to avoid personal injury at the equipment location.

Indicator lights - Generally labeled as to the function they serve. In most instances, indicator lights indicate power on, power off, equipment running, or equipment mode of operation.

The MCC receives main or emergency power from the 480-volt switchgear and distribute it to various locations throughout the pump station. Depending on the equipment to which power is being supplied, various combinations of the components mentioned above may be utilized to control, protect, and monitor that equipment.

The MCC supplies power to different equipment and different parts of the pump station. The following is a listing of equipment to which MCC No. 1 provides power and the service rating of each (see **Table 5-1**).

Equipment Name	Amperes	Horsepower
Stormwater Pump No. 1	300	125
Stormwater Pump No. 2	300	125
Jockey Pump	100	25
Grit Conveyor	120	3
Bar Screen No. 1	20	2
Bar Screen No. 2	20	2
Grit Classifier	20	2
Grit Pump	20	5
Jacket Water Heater	20	0
Lighting Panel LP-1	50	0

Table 5-1
Equipment Listing and Service Rating

5.4 Power Monitor

The General Electric Power Quality Meters (PQM) are located at both the main station breaker and MCC No. 1. The digital micro-processor based metering devices are capable of monitoring and displaying the functions listed below:

- Volts on each phase plus average of all three phases
- Current on each phase plus average of all three phases
- Neutral or ground current
- Frequency
- Power factor
- KVA
- KVAR
- KW
- Total KWH as an accumulating total, providing bi-directional (import/export) indication
- Total KVARH as an accumulating total, providing bi-directional (import/export) indication
- Amps demand

5.5 MCC Operation and Startup Procedures

5.5.1 Pre-Startup Checks

1. Be sure that all panels are securely closed and that all safety considerations have been followed prior to energizing the switchgear or MCC.
2. Verify that the emergency generator is operational.
3. Inspect any and all equipment to be energized for operational condition.

5.5.2 Startup from Complete Shutdown

1. Check the switchgear and MCC to verify correct electrical flow path.
2. Prior to energizing the switchgear, place the 800-amp main breaker for Main I in the "OFF" position.
3. Prior to energizing the MCC, place all equipment breakers in the "OFF" position.
4. Energize switchgear with either main power from FPL or with auxiliary power from the emergency generator.

5. Place the 800-amp main breaker in the "ON" position. To accomplish this task, cycle the handle one time to charge. Push "ON" button to close the main breaker. Check the indicator flag:
Red - main breaker is "ON"
Black - main breaker is "OFF".

Note: At this point, 480 volts are being supplied to the MCC main breaker.

6. If needed, place the MCC main breaker in the "ON" position.

Note: At this point, 480 volts are being supplied to each equipment main breaker in the MCC.

Note: If a piece of equipment is not being used or is out-of-service for maintenance purposes, its main breaker should be locked out and tagged as to the status of that piece of equipment.

7. From this point on, follow individual equipment startup and shutdown procedures.

5.5.3 Startup from Standby

1. To energize the MCC, place its main breaker in the "ON" position.

2. From this point on, follow individual equipment startup and shutdown procedures.

5.6 MCC Shutdown Procedures and Routine Operating Checklist

5.6.1 Complete Shutdown

1. For the MCC to be shut down, follow the individual equipment shutdown procedures for each piece of equipment in the MCC.

2. Turn off the MCC main breaker.

3. Turn off the 800-amp main feeder breaker.

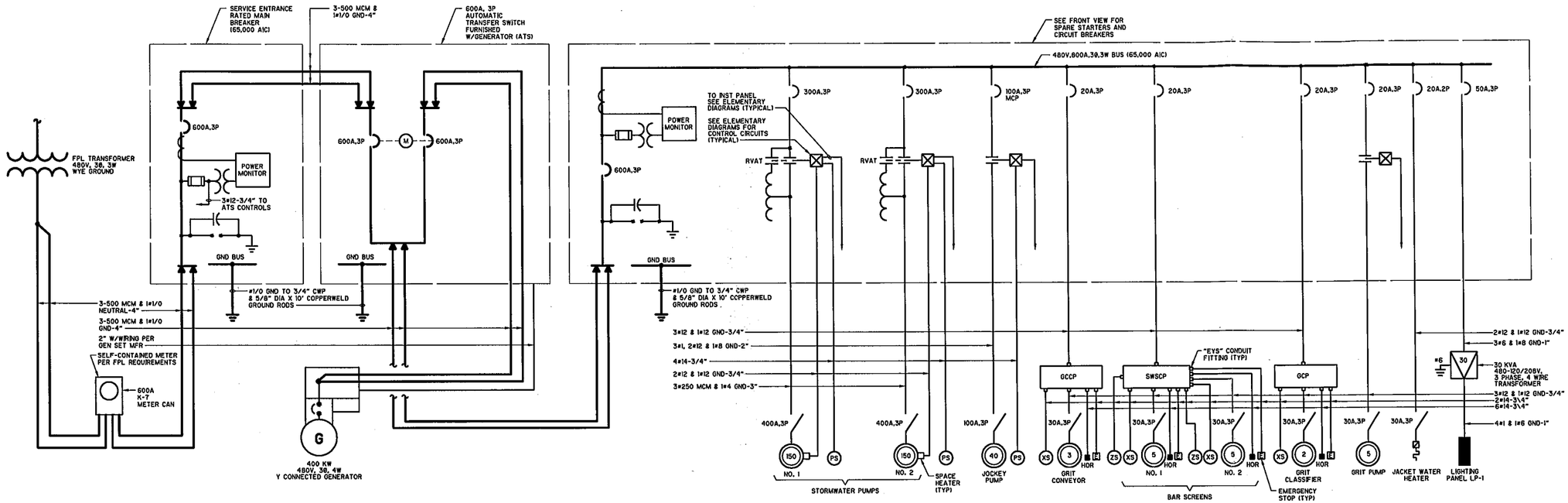
4. Terminate FPL or auxiliary power.

5.6.2 Shutdown to Standby

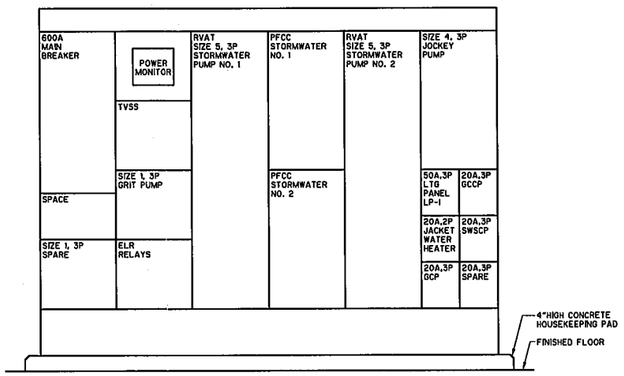
1. Follow shutdown procedures for each piece of equipment in the MCC to be shut down to standby.

2. Turn off MCC main breaker.

3. If further shutdown is required, refer to "complete shutdown" procedures.



MCC-1



MCC-1 FRONT VIEW
NTS

NOTE:
1. SERVICE ENTRANCE MAIN BREAKER AND THE AUTOMATIC TRANSFER SWITCH SHALL HAVE SHUNT TRIP CAPABILITIES. PROVIDE PUSHBUTTON SWITCH IN 'BREAK GLASS' HOUSING.

SOURCE: DRAINAGE BASIN VI - STORMWATER PUMP STATION CONSTRUCTION DRAWINGS, CONFORMED 10/99, REVISED 2/00, SHEET NO. E-3 (EGESL003.DWG 02/03/00).

Figure 5-1
Drainage Basin VI
Stormwater Pump Station
Electrical Single Line Power Diagram and Front View

Section 6
Stormwater Basin VI
Emergency Standby Generator

6.1 Functional Description and Design Criteria

The emergency standby generator consists of a 3-phase, 400-kilowatt, 480-volt AC generator, driven by a 600-horsepower, 6-cylinder diesel engine, which is rated for standby service. An internal governor maintains the speed of the engine at 1,800 RPM, and thereby provides a stabilized output frequency of 60 hertz under varying load conditions.

The generator unit is designed for automatic starting and stopping, and load transfer upon failure of the normal FPL source of power.

This section presents a detailed description of the emergency power system, its design criteria, operational procedures, and the routine maintenance activities required to maintain the system in standby readiness.

6.1.1 Generator System

The major components of the generator system are the

- 400 KW generator set
- 1,000-gallon No. 2 diesel fuel storage tank
- Battery bank
- Battery charger
- Alarm annunciator panel
- Automatic transfer switch.

Generator Set

The diesel engine driven generator set is capable of producing a continuous standby power rating of 500 KVA, 400 KW at 80 percent lagging power factor with 3-phase, 60-hertz, 277/480 volt, 4-wire alternating current (AC) complete with an excitation system, engine controls, steel subbase, diesel fuel system, automatic transfer switch, and all essential appurtenances. The engine is provided with full compression ignition, four cycle, single acting, solid injection vertical engine, in which the engine speed does not exceed 1,800 revolutions per minute at normal full load operation, and the engine's governor is a ± 3 percent accuracy hydra-mechanical type governor capable of operating at light loads for extended periods of time. The engine is also capable of satisfactory performance on No. 2 diesel fuel oil. The generator set is equipped with an operator's control panel, located at the engine, with surface-

mounted instrumentation which comprise the man/machine interface. From the operator's control panel the operator may perform start and stop operations and observe the generator set's operating parameters. The operator's control panel also contains logic circuiting that will cause the generator to shut down if, during operation, the engine speed, temperature, or oil pressure limits are exceeded. The following details the function of each switch and indicator, mounted on the generator's man/machine interface control panel:

- *AC Voltmeter*: Dual scale instrument indicates AC voltage. Measurement scale in use is shown on the upper scale as 0-600 AC volts.

- *AC Ammeter*: Indicates current output in percent of maximum rated current - 0-125%.

- *Kilowatt Meter*: Indicates 3-phase AC power output as percent of rated load - 0-125%.

- *Frequency Meter*: Indicates generator output frequency in hertz - 45-65 hertz.

- Upper and Lower Scale Indicator Lamps: Indicate AC voltmeter scale.

- *Digital Display*: This two-line, 16-character per line alphanumeric display is used in the menu-driven operating system, in conjunction with the display menu selection switches and the menu switch. The display is also used to show warning and shutdown messages.

- *Display Menu Selection Switches*: Four momentary switches - two on each side of the digital display window - are used to step through the various menu options and to adjust generator set parameters. The green arrow adjacent to the switch is lit when the switch can be used (switch is "active").

- *Menu Switch*: Press this switch to return the digital display to the MAIN MENU. Refer to the menu trees later in this section.

- *Reset Switch*: Press this switch to reset warning and shutdown messages after the condition has been corrected. To reset a shutdown message with the reset switch, the Run/Off/Auto switch must be in the OFF position.

- *Self Test Switch*: Press and hold this switch to light all front panel LEDs and cycle through all shutdown and warning messages.

- *Panel Lights Switch*: Press this switch to turn control panel illumination on and off. The illumination will shut off after about eight minutes.

- *Phase Selector Switch and Indicators*: Press this momentary switch to select phases of generator output to be measured by AC voltmeter and ammeter. LEDs indicate the selected phase.

- *Run-Off-Auto Switch*: This switch starts and stops the set locally, or enables start/stop control of the engine from a remote location.

- *Emergency Stop Button*: Push the switch in for emergency shutdown of the engine.
  To reset:
  Turn the switch clockwise and allow it to pop out
  Move the Run/Off/Auto switch to "OFF"
  Press the front panel reset switch
  Select Run or Auto, as required

- *Non-Automatic Status Indicator*: This red lamp flashes continuously when the Run-Off-Auto switch is not in the "AUTO" position.

- *Warning status Indicator*: This yellow lamp is lit whenever the control detects a warning condition. After the condition is corrected, warning indicators can be reset by pressing the "RESET" switch. (It is **not** necessary to stop the generator set).

- *Shutdown Status Indicator*: This red lamp is lit whenever the control detects a shutdown condition. After the condition is corrected, shutdown indicators can be reset by turning the Run-Off-Auto switch to the "OFF" position and pressing the reset switch.

Diesel Fuel Storage Tank

The generator's diesel fuel storage tank is located directly behind the enclosed generator set itself. The diesel fuel storage tank is an existing tank relocated from the old Basin VI stormwater pump station and has a 1,000 gallon storage capacity. It is recommended that the diesel fuel storage tank be refilled when the level inside the tank reaches 50 percent or approximately 500 gallons of No. 2 diesel fuel oil. It is also a requirement of the Collier County Government that, each time the generator set is placed into operation, the operator check both the fuel and return fuel lines for leaks at each ball valve located at the top of the fuel tank. This information must be recorded on the Emergency Generator Operations Checklist for inspection purposes. (See **Figure 6-1**).

Battery Bank

The battery bank provides starting power for the station generator. As installed, the bank consists of two series connected 12 volt batteries that supply 24 volt to the generator started and control circuits of the generator set. The battery pack is maintained in continuous state of charge supplied by a wall-mounted battery charger.