



SAN LUIS OBISPO COUNTY
DEPARTMENT OF PUBLIC WORKS

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May 3, 2012

**FAX ONLY &
ATTACH TO CONTRACT**

**ADDENDUM NO. 2 TO
LOS OSOS WASTEWATER PROJECT
COLLECTION SYSTEM AREAS A & D
LOS OSOS, CA
CONTRACT NO. 300448.08.01.AD**

**The final day, time and location for submittal of Bid remain unchanged:
Date / Time: Thursday, May 10, 2012 at 3:00 p.m.**

At: Office of the County Clerk
1055 Monterey Street, Room D-120
San Luis Obispo, California 93408

Certain revisions are hereby incorporated into the Bidding Documents for the subject project. These revisions are as follows:

The Table of Contents is hereby amended as follows:

- 1) On page ii immediately after the words "01101 Safety, Health and Emergency Response" insert the following:
01110 Disputes Review Board
- 2) On page iv, under Division 15 – Mechanical, delete the words "05140 Pipe Hangers and Supports" in their entirety and insert the following in their place:
15140 Pipe Hangers and Supports
15400 Plumbing – General Provisions
15410 Plumbing – Piping Systems

Division 1, General Requirements, is hereby amended as follows:

- 1) On page 01050-2 (Section 01050, Project Controls (Surveying)) delete the text of Paragraph 3.01.E.2 in its entirety and replace with the following:

Copy of all AutoCAD files of documents specified in Article 1.02.B above on a CD or DVD. If requested by the CONTRACTOR, the OWNER will provide an informational electronic copy of AutoCad design drawings for the CONTRACTOR's convenience for preparation of certified survey drawings.

- 2) On page 01060-2 (Section 01060, Regulatory Agency and Utility Requirements) insert the following new paragraph immediately following Paragraph 1.02.B.6:
 7. Easement Deed and Agreement Affecting Real Property APN: 074-263-038, Document Number 2004017916, and Quit Claim Deed, Document Number 2011060986, granting the OWNER permanent and temporary construction easements within the Knighton Property between Mountain View Avenue and South Bay Boulevard and south of Nipomo Street, as defined in the Easement Agreement.
- 3) Insert new Section 01110, Disputes Review Board. (page 01110-1 through 01110-10 attached to this Addendum No. 2)
- 4) On page 01313-2 (Section 01313, Construction and Schedule Constraints) delete the word "payment" in the last sentence of Paragraph 1.02.I.1 and insert the word "pavement" in its place.

Division 2, Site Construction, is hereby amended as follows:

- 1) On page 02605-5 delete Paragraph 2.02.A.8 in its entirety and insert the following in its place:
 8. Exposed interior manhole concrete (not plastic-lined), including manhole shelves, shall be lined with an airless-spray applied elastomeric or aromatic polyurethane (minimum 125 mils DFT) in accordance with manufacturer's recommendations. Polyurethane liner shall be applied by qualified applicators certified by the manufacturer. Polyurethane liner shall be Polybrid 705 by Polybrid Coatings, Brownsville, TX; Utilithane 1600 by Prime Coatings Inc., Tustin, CA; or approved equal.
- 2) On page 02616-9 delete the first sentence of Paragraph 2.05.B in its entirety and insert the following in its place:

Division 11, Equipment, Section 11257, Activated Carbon Odor Control System, is hereby amended as follows:

- 1) On page 11257-2 delete the words "1 year" in the last sentence of Paragraph 1.05.A and insert the words "5 years" in its place:

Division 15, Mechanical, is hereby amended as follows:

- 1) Add new Section 15400, Plumbing – General Provisions, pages 15400-1 through 15400-8 attached to this Addendum No. 2.

- 2) Add new Section 15410, Plumbing – Piping Systems, pages 15410-1 through 15410-15 attached to this Addendum No. 2.

Volume 2, Area A Drawings, is hereby amended as follows:

- 1) Replace sheets A-G-006, A-C-102, A-C-103, A-GC-061, A-S-001, A-S-002, A-S-003, A-S-004, A-S-011, A-S-012, A-S-013, A-M-003, A-M-004, A-M-005, A-E-101, and A-E-102 with the revised A-G-006, A-C-102, A-C-103, A-GC-061, A-S-001, A-S-002, A-S-003, A-S-004, A-S-011, A-S-012, A-S-013, A-M-003, A-M-004, A-M-005, A-E-101, and A-E-102 sheets attached to this Addendum No. 2.

Volume 3, Area D Drawings, is hereby amended as follows:

- 1) Replace sheets D-GC-061, D-S-001, D-S-002, D-S-003, D-S-004, D-S-011, D-S-012, D-S-013, D-M-003, D-M-004, and D-E-401 with the revised D-GC-061, D-S-001, D-S-002, D-S-003, D-S-004, D-S-011, D-S-012, D-S-013, D-M-003, D-M-004, and D-E-401 sheets attached to this Addendum No. 2.

All bidders shall acknowledge acceptance of this correction notice. **PLEASE FAX TO US, TODAY, A SIGNED COPY OF THIS SHEET INDICATING CONFIRMATION OF RECEIPT OF THIS ADDENDUM (FAX (805) 781-1229).** If you are unable to read the fax, please call Jeff Werst in the Public Works Department at (805) 781-5252.

JBW 
PAAVO OGREN
Director of Public Works

Enclosure

File: Contract No. 300448.08.01.AD

ACKNOWLEDGMENT

Company Name

Printed Name

Signature

Date

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SECTION 01110

DISPUTES REVIEW BOARD

PART 1 GENERAL

1.01 SUMMARY

- A. This Section describes the purpose, procedure, function, and key features of the Disputes Review Board (DRB). Appended to this specification is a Three Party Agreement to be used for formalizing the creation of the DRB.
- B. The DRB will assist and facilitate the timely and equitable resolution of Claims that have been properly referred to the DRB under this Section.
- C. In order for a Claim to be properly referred to the DRB, both the OWNER and the CONTRACTOR must mutually agree in writing to refer that specific Claim to the DRB. Such writing must be signed by both parties. Either the OWNER or the CONTRACTOR can request in writing that the other party mutually agree to refer a Claim to the DRB. If the other party does not respond in writing within 10 days thereafter, the request shall be deemed denied.
- D. Under no circumstances shall the referral of a Claim to the DRB relieve CONTRACTOR from complying with any of the requirements of Paragraph 10.05 of Section 700. In order for such referral to have any effect on CONTRACTORS obligations under Paragraph 10.05, the parties must agree in a separate writing approved as to form by the Office of County Counsel that the referral of the specifically identified Claim referenced therein affects the prospective application of said Paragraph 10.05 to said Claim in a particular manner. Said writing must be expressly approved as to form by the Office of County Counsel on the face of the writing in order for it to be effective.
- E. The DRB shall impartially and promptly consider any Claim referred to it, and shall provide written recommendations to the OWNER and the CONTRACTOR, to assist in the resolution of these disputes.
- F. Although the recommendations of the DRB should carry great weight for both the OWNER and the CONTRACTOR, the recommendations are not binding on either party.

1.02 CONTINUANCE OF WORK DURING DISPUTES

- A. At all times during the course of the dispute resolution process, diligently continue with the Work as directed, without delay, conforming to the OWNER's decision or order, and all applicable provisions of the Contract.

1.03 MEMBERSHIP

- A. General: The DRB will consist of one member selected by the OWNER and approved by the CONTRACTOR, one member selected by the CONTRACTOR and approved by the OWNER, and a third member selected by the first two members and approved by both the OWNER and the CONTRACTOR. The third member shall act as Chairman.

- B. Experience: It is desirable that all Board members be experienced with pipeline construction, interpretation of Contract Documents, and resolution of construction disputes. The goal in selecting the third member is to complement the experience of the first two and to provide leadership for the DRB's activities.
- C. Neutral and Impartial: DRB members shall be neutral, act impartially, and not have any conflict of interest.
- D. Criteria for Membership: For purposes of this Section, the term "member" also includes the member's current primary or full-time employer, and "involved" means having a contractual relationship with the OWNER or CONTRACTOR at any tier. The criteria and limitations for membership are:
 - 1. No member shall have an Ownership interest in any Party involved in the Construction Contract, or a financial interest in the Contract, except for payment for services on the DRB.
 - 2. Except for fee-based consulting services on other projects, no member shall have been previously employed by, or have had financial ties to, any Party involved in the Construction Contract within a period of 30 years prior to award of the Contract. The nature and extent of such fee-based consulting services shall be fully disclosed.
 - 3. No member shall have had a close professional or personal relationship with any key member of any party involved in the Construction Contract which, in the judgment of either party, could suggest partiality.
 - 4. No member shall have had prior involvement in the project, of a nature which could compromise his ability to participate impartially in the DRB's activities.
 - 5. During his tenure on the DRB, no member shall be employed, including fee-based consulting services, by any party involved in the Construction Contract except with the express approval of both parties.
 - 6. During his tenure on the DRB, no member shall engage in a discussion or make an agreement with any party involved in the Construction Contract, regarding employment after the Contract is completed.
 - 7. All members shall be fluent in English, and be able to prepare their recommendations in English.
- E. Availability: Prompt resolution of disputes is a priority. DRB members shall be able to complete their review of information, deliberations, and preparation of recommendations within the timeframes indicated herein. DRB members shall be prepared to comply with these requirements as a condition of their assignment to the DRB.
- F. Disclosure Statement: Before their appointments are final, the first two prospective members shall submit complete disclosure statements for the approval of both the OWNER and the CONTRACTOR. Each statement shall include a resume of experience, together with a declaration describing all past, present and anticipated or planned future relationships, including indirect relationships through the prospective member's primary or full-time employer, to this project and with all parties involved in the Construction Contract. Disclosure of close

professional or personal relationships with all key members of all parties to the Contract shall be included. The third DRB member shall supply such a statement to the first two DRB members and to the OWNER and CONTRACTOR before his or her appointment is final.

- G. Nomination and Approval of First Two Members: The OWNER and the CONTRACTOR shall each nominate a proposed DRB member and convey the nominee's name and reference information to the other party within three weeks after Award of the Contract. If the nominee is not rejected within two weeks after receipt of the name and information, he shall be deemed approved.
- H. Nomination and Approval of Third Member:
 - 1. Immediately after approval, the OWNER and CONTRACTOR will notify their members to begin selection of the third member. The first two members shall ensure that the third member meets all of the criteria listed above. The third member shall be selected within three weeks after the first two members are notified to proceed with his selection.
 - 2. In the event of an impasse in selection of the third member, that member shall be selected by mutual agreement of the OWNER and the CONTRACTOR. In so doing, they may, but are not required to, consider nominees offered by the first two members.
- I. Execution of the Three Party Agreement: The OWNER, the CONTRACTOR, and all three members of the DRB shall execute the Three Party Agreement within four weeks after the selection and approval of the third member.

1.04 OPERATION

- A. General:
 - 1. If OWNER and CONTRACTOR do not provide the DRB with a copy of operating procedures mutually agreed upon, the DRB shall formulate its own operating procedures. It is not desirable to adopt hard and fast rules for the functioning of the DRB. The entire procedure shall be kept flexible to adapt to changing situations. The DRB shall initiate, with the OWNER's and CONTRACTOR's concurrence, new procedures or modifications to old ones, whenever this is deemed appropriate.
 - 2. Neither party shall solicit any DRB member's advice or consultation on matters concerning the conduct of the work.
- B. Visits by DRB: DRB site visits will be scheduled only if the OWNER and the CONTRACTOR mutually agree on the need for visits and then will be scheduled as agreed among the OWNER, the CONTRACTOR, and the DRB.

1.05 PROCEDURE AND SCHEDULE FOR DISPUTE RESOLUTION

- A. Disputes shall be considered as quickly as possible, taking into consideration the particular circumstances and the time required to prepare appropriate documentation. Steps may be omitted, as agreed by both parties, and the time periods stated below may be shortened in order to hasten resolution.

1. When a Claim is submitted to the DRB it shall be heard at a special meeting, as agreed by both Parties. For an urgent matter, the DRB shall meet within two weeks of notification.
 2. During the hearing the CONTRACTOR and the OWNER shall each have ample opportunity to be heard and to offer evidence. Detailed procedures are given in Article 1.6. The DRB's recommendations for resolution of the dispute will be given in writing, to both the OWNER and the CONTRACTOR, within two weeks of completion of the hearings. In difficult or complex cases, and in consideration of the DRB's schedule, this time may be extended by mutual agreement of all parties.
 3. If requested by either party, the DRB shall provide oral or written clarification of its recommendation.
 4. Within two weeks of receiving the DRB's recommendations, or such other time specified by the DRB, both the OWNER and the CONTRACTOR shall respond to the other and to the DRB in writing, signifying either acceptance or rejection of the DRB's recommendations. The failure of either party to respond within the specified period shall be deemed a rejection of the DRB's recommendations. If, with the aid of the DRB's recommendations, the OWNER and the CONTRACTOR are able to resolve their dispute, the OWNER will promptly process any required Contract changes.
 5. Should the Claim remain unresolved, either party may request that the DRB clarify its recommendation or, if new evidence has become available, reconsider its recommendation.
- B. Although both the OWNER and the CONTRACTOR should place great weight on the DRB's recommendations, they are not binding. If the DRB's recommendations do not resolve the Claim, the written recommendations, including any minority report, will be admissible as evidence in any subsequent dispute resolution proceeding.

1.06 CONDUCT OF HEARING

- A. Prehearing Submittals: Written position statements shall be submitted to the other party and each DRB member at least five business days before the hearing begins. The DRB may also request a presentation of factual documentation, prepared jointly by the parties.
- B. Location: Normally the hearing will be conducted at the job site. However, any location that would be more convenient and still provide all required facilities and access to necessary documentation is satisfactory. Private sessions of the DRB may be held at any convenient location.
- C. Proceedings: The third member of the DRB will act as Chairman of the hearing, or he may appoint one of the other members. A formal transcript will not be prepared. In special cases, when requested by either party, the DRB may allow preparation of a transcript by a Court Reporter. Audio or video recordings will not be permitted.
- D. Participants:
 1. The OWNER and the CONTRACTOR shall have representatives at all hearings. The Party requesting DRB review will first present its position, followed by the other party. Each party will then be allowed successive rebuttals until all aspects are fully covered. The DRB members may ask questions, request clarification, or ask for additional data. In difficult or

complex cases, additional hearings may be necessary in order to consider and fully understand all the evidence presented by both parties. Both the OWNER and CONTRACTOR shall be provided full and adequate opportunity to present all of their evidence, documentation and testimony regarding all issues before the DRB.

2. Attendance by, or participation of, lawyers is prohibited.
3. During the hearing, no DRB member shall express any opinion concerning the merit of any facet of the case.

E. DRB Deliberations:

1. After the hearing is concluded, the DRB shall meet to formulate its recommendations. All DRB deliberations shall be conducted in private, with all individual views kept strictly confidential. The DRB's recommendations, together with explanations of its reasoning, shall be submitted as a written report to both parties. The recommendations shall be based on the pertinent provisions of the Contract, applicable laws and regulations, and the facts and circumstances involved in the dispute. It is important for the DRB to clearly and completely express the logic and reasoning leading to the recommendations, so that both parties fully understand it.
2. The DRB shall be permitted to consult with independent legal counsel when deliberating and drafting their decision.
3. The DRB shall make every effort to reach a unanimous recommendation. If this proves impossible, the dissenting member may prepare a minority report.

1.07 COMPENSATION AND LOGISTIC SUPPORT

- A. Fees and expenses of all three members of the DRB shall be shared equally by the OWNER and the CONTRACTOR. The OWNER will provide administrative services, such as conference facilities and secretarial services, and will bear the cost of these services. If the DRB desires special services, such as legal or other consultation, accounting, data research, and the like, both parties must agree, and the costs will be shared by them as mutually agreed.
- B. The CONTRACTOR shall pay the invoices of all DRB members after approval by both parties. The CONTRACTOR will then bill the OWNER for 50 percent of such invoices.

DISPUTE REVIEW BOARD THREE PARTY AGREEMENT
(To Be Executed After the Award of the Construction Contract)

HIS THREE PARTY AGREEMENT (Agreement), made and entered into this _____ day of _____ 20____, between:(OWNER) _____, hereinafter called the "OWNER," and (CONTRACTOR) _____, hereinafter called the "CONTRACTOR", and the Dispute Review Board, hereinafter called the "Board", and consisting of three members, _____.

WITNESSETH, that

WHEREAS, the OWNER is now engaged in the construction of the Los Osos Wastewater Project; and

WHEREAS, the Los Osos Wastewater Project Contract (CONTRACT) provides for the establishment and operation of a Board to assist in resolving disputes, claims and other controversies relating to the Work; and

WHEREAS, the Board is composed of three members, one selected by the OWNER, one selected by the CONTRACTOR, and the third member selected by these two;

NOW THEREFORE, in consideration of the terms, conditions, covenants and agreements contained herein, or attached and incorporated and made a part hereof, the parties hereto agree as follows:

DESCRIPTION OF WORK

In order to assist in the resolution of Claims between the OWNER and the CONTRACTOR, the OWNER has provided, in the Contract, for the establishment of a Dispute Review Board. The intent of the Board is to fairly and impartially consider the disputes referred to it, and to provide written recommendations to the OWNER and CONTRACTOR for resolution of these disputes. The members of this Board shall perform the services necessary to participate on this Board in accordance with the Scope of Work.

The Board is organized to recommend resolution of Claims between the OWNER and the CONTRACTOR that are properly referred to the Board under the Contract Documents, arising from or related to the Construction Contract.

SCOPE OF WORK

The Scope of Work of the Board includes, but is not limited to, the following:

A. Project Site Visits:

The frequency, time, and duration of Project site visits shall be mutually agreed upon among the Board, the OWNER and the CONTRACTOR. In case of failure to agree, the Board shall schedule the visits.

In the case of an actual or potential dispute involving an alleged differing site condition or specific construction problem, it may be advantageous for the Board to personally view any

relevant conditions. If viewing by the Board would cause delay to the project, videos, photographs, and descriptions of these conditions, collected by either or both parties will be utilized.

B. Establish Procedures

The Board shall, with the agreement of all parties, establish procedures for the conduct of its hearings of disputes. The conduct of its business shall, in general, be based on the specification provisions.

C. Recommend Resolution of Disputes

Upon receipt by the Board of a written Request for Review of a Claim signed by both the OWNER and the CONTRACTOR, the Board shall convene a hearing to review and consider the Claim.

It is expressly understood that all Board members are to act impartially and independently in the consideration of facts and conditions surrounding any Claim, and that the recommendations concerning any such Claim are advisory and not binding, unless agreed otherwise by the OWNER and the CONTRACTOR.

The Board recommendations shall be based on the applicable provisions of the Contract Documents, and the facts and circumstances involved in the dispute as conveyed by the testimony and evidence presented by the parties. The recommendations shall be furnished in writing to the OWNER and the CONTRACTOR.

D. Member Replacement

Should the need arise to appoint a replacement Board member, the replacement member shall be appointed in the same manner as the original member was appointed. The selection of a replacement Board member shall begin promptly upon notification of the necessity for a replacement and shall be completed within four weeks. This Agreement will be amended to indicate changes in Board membership.

BOARD RESPONSIBILITIES

The Board members shall become familiar with the Contract Documents necessary to address the Claim before it.

Except for providing the services required in the Agreement, the Board and its individual members shall refrain from giving any advice to either party concerning conduct of the Work or the resolution of problems, which might compromise the Board's integrity.

CONTRACTOR RESPONSIBILITIES

Except for its participation in the Board's activities as provided in the Contract Documents and in this Agreement, the CONTRACTOR shall not solicit advice or consultation from the Board or its members on matters dealing with the conduct of the Work or resolution of problems, which might compromise the Board's integrity.

The CONTRACTOR shall furnish to each Board member one copy of all documents it has, other than those furnished by the OWNER, which are pertinent to the performance of the Board. CONTRACTOR shall concurrently provide the OWNER with any documents provided to the Board.

OWNER RESPONSIBILITIES

Except for its participation in the Board's activities as provided in the Contract Documents and in this Agreement, the OWNER shall not solicit advice or consultation from the Board or its members on matters dealing with the conduct of the Work or resolution of problems, which might compromise the Board's integrity.

The OWNER shall furnish the following:

A. Contract Related Documents

The OWNER shall furnish each Board member one copy of all Contract Documents, including, but not limited to, the Specifications, Drawings, Geotechnical Report, addenda, progress schedule and updates, weekly progress reports, minutes of progress meetings, change orders, and other documents pertinent to the performance of the Contract, and necessary to the Board's work.

B. Coordination

The OWNER will, in cooperation with the CONTRACTOR, coordinate the operations of the Board.

C. Services

The OWNER will arrange for or provide conference facilities at or near the site, and provide secretarial and copying services.

TIME FOR BEGINNING AND COMPLETION

Except for choosing a third member by the first two members, the Board members shall not begin any work under the terms of this Agreement until authorized in writing by the OWNER.

PAYMENT

Invoices of the Board members shall be paid by the CONTRACTOR. Payments shall constitute full compensation for work performed and services rendered, and for all materials, supplies and incidentals necessary to serve on the Board.

A. Payment for Services and Expenses

Payment for services of the OWNER-appointed and CONTRACTOR-appointed members of the Board will be at the rates agreed to between the OWNER and the CONTRACTOR and each respective appointed Board member. Changes in the billing rates are subject to agreement between the OWNER and the CONTRACTOR and their respective appointed members.

Payment for services rendered by the third member of the Board will be paid at the rate agreed to between the OWNER, the CONTRACTOR and the third member. Changes in the billing rate are subject to agreement between the OWNER, the CONTRACTOR and the third member.

The first two members will be reimbursed for the time and expense associated with choosing the third member.

Direct, non-salary expenses will be reimbursed at the actual cost to the Board member. These expenses may include, but are not limited to, automobile mileage, parking, travel expenses from the Board member's point-of-departure to the initial point-of-arrival, automobile rental, food and lodging, printing, long distance telephone, postage and courier delivery. Air travel will be reimbursed for Coach class. Billing for these expenses shall include an itemized listing supported by copies of the original bills, invoices and expense accounts.

B. Payments

Each Board member may submit invoices for payment for work completed not more often than once per month during the progress of Work. Such invoices shall be in a format approved by the OWNER and CONTRACTOR, and accompanied by a general description of activities performed during that period. The value of work accomplished for payment shall be established from the billing rate and hours expended by the Board member together with direct, non-salary expenses. Satisfactorily submitted invoices shall be paid within 30 days.

The CONTRACTOR shall pay the invoices of all Board members after approval of both Parties. The CONTRACTOR will then bill the OWNER for 50 percent of such invoices.

C. Inspection of Cost Records

The cost records and accounts pertaining to this Agreement shall be kept available for inspection by representatives of the OWNER or CONTRACTOR for three years after final payment.

ASSIGNMENT

Board members shall not assign any of the Work of this Agreement.

TERMINATION OF AGREEMENT

This Agreement may be terminated by mutual agreement of the OWNER and the CONTRACTOR at any time upon not less than four weeks written notice to the other parties.

Board members may withdraw from the Board by providing four weeks written notice. Board members may be terminated with or without cause only by their original appointer; the OWNER may only terminate the OWNER-appointed member, the CONTRACTOR may only terminate the CONTRACTOR-appointed member, and the first two members or the OWNER and CONTRACTOR must agree to terminate the third member.

LEGAL RELATIONS

The parties hereto mutually understand and agree that each Board member, in the performance of his duties on the Board, is acting in the capacity of an independent agent and not as an employee of either the OWNER or the CONTRACTOR.

The OWNER and CONTRACTOR expressly acknowledge that each Board member is acting in a capacity intended to facilitate resolution of Claims. Accordingly, it is agreed and acknowledged that to

the fullest extent permitted by law each Board member shall be accorded quasi-judicial immunity for any actions or decisions associated with the consideration, hearing, and recommendation of resolution for disputes rightfully referred to the Board.

Each Board member shall be held harmless for any personal or professional liability arising from or related to Board activities. To the fullest extent permitted by law, the OWNER and CONTRACTOR shall indemnify all Board members for claims, losses, demands, costs and damages (including reasonable attorney fees) for bodily injury, property damage, or economic loss arising out of or related to Board members carrying out Board functions. The foregoing indemnity is a joint and several obligation.

DISPUTES REGARDING THIS THREE PARTY AGREEMENT

Any dispute among the parties hereto, arising out of the Work or other items of this Agreement, which cannot be resolved by negotiation and mutual concurrence between the parties, shall be referred to the Superior Court of the State of California.

VENUE, APPLICABLE LAW, AND PERSONAL JURISDICTION

In the event that any party deems it necessary to institute legal action or proceedings to enforce any right or obligation under this Agreement, the parties hereto agree that any such action shall be initiated in the Superior Court of the State of California. The parties hereby agree that all questions shall be resolved by application of (jurisdiction) California law and that the parties to such action shall have the right to appeal from such decisions of the Superior Court in accordance with the laws of the State of California. The Board member hereby consents to the personal jurisdiction of the Superior Court of the State of California.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement as of the day and year first above written.

Board MEMBER Board MEMBER Board MEMBER

CONTRACTOR OWNER

By: _____ By: _____

Title: _____ Title: _____

END OF SECTION

SECTION 15400

PLUMBING - GENERAL PROVISIONS

PART 1 GENERAL

1.01 SCOPE OF WORK

- A. Furnish all labor, materials, equipment, services and incidentals required and install and test a complete plumbing system as specified and shown on the Drawings and Specifications:
 - 1. 15410 - Plumbing - Piping Systems
- B. More specifically the work shall include, but shall not be limited to the following:
 - 1. All items included under the Scope of Work of other Plumbing Sections.
 - 2. Cutting, coring and rough patching in accordance with Section 01045.
 - 3. All parts necessary to make a complete Plumbing System ready for continuous operation.
 - 4. The absence of pipe supports and details on the Drawings shall not relieve the CONTRACTOR of the responsibility for providing them.

1.02 RELATED WORK

- A. The following work related to, but not covered under the plumbing work will be done under other related Sections.
 - 1. All piping systems in the building other than the plumbing work specified in the Plumbing Sections.
 - 2. Yard piping for sanitary and storm drains beyond 10-ft-0-in outside the building unless otherwise indicated.
 - 3. Source for potable and protected water and gas services shall terminate as hereinafter specified.
 - 4. Valve tags are furnished under Section 01170, but installed on Plumbing items under this Section.
 - 5. Excavating and backfilling is included under Division 2.
 - 6. Manholes, catch basins, gasoline trap and buried pipe encasement are included under Division 2.
 - 7. Concrete is included under Division 3.
 - 8. Painting is included under Division 9.

9. Ductwork is included elsewhere in Division 15.
10. Electrical work is included under Division 16.

1.03 SUBMITTALS

- A. Inspection by the ENGINEER's representative or failure to inspect shall not relieve the CONTRACTOR of responsibility to provide materials and perform the work in accordance with the documents.
- B. Submit, in accordance with Section 01300, shop drawings and product data to establish compliance with this Section. Submittals shall include the following:
 1. Shop drawings and technical literature covering details of all equipment, fixtures and accessories being furnished under this Section prior to fabrication, assembly or shipment.
 2. Provide a list of recommended spare parts as well as spare parts being provided.
 3. Furnish no less than 15 days before start-up, a schedule of all exposed valves installed under this Section. The schedule shall include for each valve the location, type, a number, words to identify the valve function, and the normal operating position.
 4. Detailed layout drawings of piping in mechanical rooms and other congested areas shall be provided. Drawings shall show the locations of piping appurtenances, specialties, and all valve banks.
 5. For units that will be shipped exposed, provide a description of the protective packaging that will be used during transit.
 6. All submittals shall contain a statement that Section 15400 and all other referenced Sections have been read and complied with. The certification statement shall be made by all of the following that are applicable; the CONTRACTOR, sub-contractor and the vendor. The statement shall be an individual statement for each party involved, and shall be included with every submittal and resubmittal.
- C. Operation and Maintenance Data
 1. Operating and maintenance manuals shall be furnished to the ENGINEER as provided in 01730. The manuals shall be prepared specifically for this installation and shall include all required cuts, drawings, equipment lists, descriptions, etc, that are required to assist operation and maintenance personnel unfamiliar with such equipment. The following information shall be considered a minimum. Where applicable, provide information required for specific pieces of equipment.
 - a. Personnel familiar with the operation and maintenance of the specific information shall prepare manuals.
 - b. Equipment shall be identified with the ENGINEER's Equipment Numbers and Identification as shown in the Schedules and on the Drawings.

- c. Provide information in three ring binders. All sheets shall have reinforced punches. Tabbed dividers shall separate all sections. Drawings will be bound in the manual, or contained in envelopes bound into the manual.
2. Contents - Each volume shall contain the following minimum contents:
 - a. Installation including instructions for unpacking, installing, aligning, checking and testing. Foundation data, allowable piping loads, and electrical design shall be included.
 - b. Operating Instructions to provide pre-operational checks, start up and shut down, and description of all control modes. Include emergency procedures for all fault conditions and actions to be taken for all alarms. Procedures for long term storage shall be included.
 - c. Maintenance shall include preventive, and corrective. Schedules for test of other functions are to be included. Provide a list of tools required to service the equipment. Trouble shooting instructions to include a trouble-shooting guide shall be included.
- D. In general, corrections or comments or lack thereof, made relative to submittals during review shall not relieve the CONTRACTOR from compliance with the requirements of the drawings and specifications. Submittals are for review of general conformance with the design concepts of the project and general compliance with the contract documents. The CONTRACTOR is responsible for the final design conforming and correlating all quantities and dimensions, selecting fabrication processes and techniques of construction, coordinating the work of all trades, and performing the work in a safe and satisfactory manner.

1.04 MANUFACTURERS SERVICES

- A. A representative of the manufacturer who has complete knowledge of proper operation and maintenance shall be provided for the number of 8 hour days as listed below to instruct representatives of the OWNER and the ENGINEER on proper operation and maintenance. With the ENGINEER's permission, this work may be conducted in conjunction with the inspection and the installation and test run as provided under PART 3. If there are difficulties in operation of the equipment due to the manufacturer's design or fabrication, additional service shall be provided at no additional cost to the OWNER.
- B. Provide manufacturer's services for testing and start-up of the following equipment:
 1. Reduced Pressure Backflow Preventers (1-Day).

1.05 REFERENCE STANDARDS

- A. American Society for Testing and Materials (ASTM)
- B. American National Standards Institute (ANSI)
- C. American Water Works Association (AWWA)
- D. National Fire Protection Association (NFPA)

- E. National Electrical Manufacturers Association (NEMA)
- F. Plumbing and Drainage Institute (PDI)
- G. Cast Iron Soil Pipe Institute (CISP)
- H. Underwriters Laboratories (UL)
- I. Factory Mutual (FM)
- J. American Society of Plumbing Engineers Data Book (May be used as a design guide.)
- K. Where reference is made to one of the above standards, the revision in effect at the time of bid opening shall apply.

1.06 QUALITY ASSURANCE

- A. The CONTRACTOR shall be fully responsible for the proper execution and performance of the work described herein. It shall be their responsibility to inspect all installation conditions and bring to the attention of the ENGINEER any conditions which may affect their work adversely. They shall report to the ENGINEER, prior to commencing any portion of this work, any conditions unsuitable for the installation of their portion of the work.
- B. Mention herein or indication on the Drawings of equipment, materials, operation or methods shall require that each item mentioned or indicated be provided to make a complete system of plumbing ready for continuous operation.
- C. The location of all equipment, fixtures and piping shall be considered as approximate only and the right is reserved by the ENGINEER to change at any time, before the work is installed, the position of such equipment and piping to meet structural conditions and to provide proper headroom clearance or for other sufficient causes and such changes shall be made without additional expense to the OWNER.
- D. Attention is called to the necessity for elimination of transmission of vibration from mechanical equipment to building structures. All equipment, therefore, shall be carefully selected and installed to meet this condition and isolators and water hammer arrestors shall be provided where required.
- E. Instruct such persons as designated by the OWNER in the care and use of all plumbing equipment and piping systems installed.
- F. Comply with all the laws, ordinances, codes, rules and regulations of the State, local or other authorities having jurisdiction over any of the work specified herein.
- G. Obtain all required permits and pay all legal fees for the same and in general take complete charge and responsibility for all legal requirements pertaining to this Section of the work.
- H. Requirements set forth in this Section and indicated on the Drawings shall be followed when in excess of the required or minimum regulations.

- I. If any work is performed and subsequent changes are necessary to conform to the regulations, such change shall be made as part of this work at no additional cost to the OWNER.
- J. All work shown on the Drawings is intended to be approximately correct to scale, but figured dimensions and detailed drawings shall be followed in every case. The Drawings shall be taken in a sense as diagrammatic. Size of pipes and general method of running them are shown, but it is not intended to show every offset and fitting nor every structural difficulty that may be encountered. To carry out the true intent and purpose of the Drawings all necessary parts to make complete working systems ready for use shall be furnished without extra charge.
- K. Refer to the Structural and Architectural Drawings which indicate the type of construction in which the work shall be installed. Locations shown on the Plumbing Drawings shall be checked against the general and detailed drawings of the construction proper. All measurements must be taken at the building.
- L. All equipment of a given type included in this Section shall be furnished by or through a single manufacturer or as specified on the schedules
- M. Inspection by the ENGINEER's representative or failure to inspect shall not relieve the CONTRACTOR of responsibility to provide materials and perform the work in accordance with the documents.
- N. The piping manufacturer shall furnish an affidavit of compliance certifying that all materials used and work performed complies with the specified requirements. The CONTRACTOR shall provide copies of mill test confirming the type of material used in the various components.
- O. The OWNER and ENGINEER reserve the right to sample and test any materials after delivery and to reject all components represented by a sample that fails to comply with the specified requirements.
- P. An authorized representative of the manufacturer shall perform the initial startup of the equipment. The OWNER and ENGINEER shall witness startup. The use of local sales representatives to perform this work is not acceptable, unless the manufacturer provides documented evidence that the sales representative has been specifically trained for this work.
- Q. All rotating parts of equipment shall be statically and dynamically balanced at the factory.

1.07 ENGINEERING SERVICES

- A. When engineering services are specified to be provided by the CONTRACTOR, the CONTRACTOR shall retain a licensed professional engineer to perform the work. The engineer shall be licensed at the time the work is done and in the state in which the project is located. If the state issues discipline specific licenses, the engineer shall be licensed in the applicable discipline. In addition, the ENGINEER shall be experienced in the type of work being provided.
- B. All work is to be done according to the applicable regulations for professional engineers, to include signing, sealing and dating documents. When submittals are required by a professional engineer, in addition to state required signing and sealing, a copy of the current wallet card or wall certificate indicating the date of expiration shall be included with the submittal.

1.08 SERVICE AND UTILITY CONNECTIONS

A. Sanitary Water

1. The sanitary waste and drainage systems shall terminate at the sump pits or at points 10-ft-0-in outside the building or as otherwise shown on the Drawings.

B. Water Service

1. The source of water for potable and protected use in the building will be brought to the building under another Division of the work and left as a flanged connection 8-in to 12-in outside of the foundation wall or above the finish floor, except where noted otherwise.
2. The water meter and backflow preventer units shall be furnished and installed complete with all components as shown on Water Piping Diagrams. The water connections shall be made to these units as shown and from these points furnish and install all water to the equipment as shown on the Drawings.

C. Natural Gas Services

1. Will be brought to exterior locations adjacent to building where shown on the Drawings, complete with meters and pressure regulators.
2. Make the final connection to each meter and regulator outlet and extend each service into the building. From each point, extend the service and make all final valved connections to each demand as shown on the Drawings.

1.09 DELIVERY, STORAGE AND HANDLING

A. Refer to requirements of Section 01600.

B. All materials shall be inspected for size, quality and quantity against approved shop drawings upon delivery.

C. Delivery schedule of all equipment shall be coordinated with the CONTRACTOR. Equipment ready for shipment prior to the agreed on shipping date shall be stored without cost to the OWNER by the manufacturer.

D. All materials shall be suitably packed for shipment and long term storage. Each package shall be labeled to indicate the project and the contents of each package. Where applicable, equipment numbers shall be marked on the container.

E. All equipment shipped that is exposed such as on a flat bed truck shall be protected during transit. The equipment shall be protected from moisture, road salt, dirt and stones or other materials thrown up from other vehicles. Electrical components shall be protected as above, but with special attention to moisture. The method of shipment protection shall be defined in the submittals.

F. Instructions for the servicing and startup of equipment in long term or prolonged storage shall accompany each item.

- G. All materials shall be stored in a covered dry location off of the ground. When required to protect the materials they shall be stored in a temperature-controlled location.

1.10 COORDINATION

- A. The Drawings indicate the extent and general arrangement of the systems. If any departures from the drawings or specifications are deemed necessary, details of such departures and the reasons therefore shall be submitted as soon as practical for review. No such departures shall be made without the prior written concurrence of the ENGINEER.
- B. The CONTRACTOR shall coordinate the location and placement of all concrete inserts and welding attachments with the structural engineer.
- C. The CONTRACTOR shall assume full responsibility for coordination of the Plumbing systems, including; scheduling, and verification that all structures, piping and the mounting of equipment are compatible.
- D. The CONTRACTOR shall start up each piece of equipment and system and shall make all adjustments so that the system is placed in proper operating condition.

1.11 SUPPORTS

- A. All components shall be provided with lugs, brackets or field supplied devices to allow the components to be firmly attached to the structure. The lugs, brackets or field supplied devices shall be sized to withstand the seismic loads for the area and type of application.

1.12 SEISMIC RESTRAINTS

- A. Seismic restraints shall be provided for all piping and equipment as required by applicable codes. All seismic criteria and design shall comply with Seismic Design Category D.
- B. Materials of construction for seismic supports shall be the same as those specified for equipment supports and hangers, and pipe hangers. All bolts shall be stainless steel regardless of the specified support material.
- C. Where the seismic criteria and size of piping are within the limits of the latest edition of the SMACNA Seismic Restraint Manual, the restraints as defined in the manual can be used. Restraints shall meet the seismic design criteria in Section 01615.
- D. The CONTRACTOR shall retain a professional structural engineer registered in the State of California to provide seismic loadings and designs of seismic restraints. This will include but not be limited to the following:
 - 1. Provide seismic loadings to the vibration isolation supplier based on actual equipment being used to allow the proper selection of vibration isolators.
 - 2. Provide sizing of bolts for attachment of non-vibrating equipment to the structure based on the actual equipment being used.
 - 3. Provide design of required additional bracing for equipment when vibration isolators or bolts are not adequate to withstand seismic forces.

- 4. Provide design of bracing for all suspending equipment.
- E. Provide design of bracing for all piping that exceeds the limitations of the SMACNA Seismic Restraint Manual.
- F. Signed and sealed calculations and details shall be submitted for record purposes.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.01 INSTALLATION

- A. All the items specified in Section 15410 under PART 2 shall be installed according to the applicable manufacturer's recommendations, the details shown on the Drawings and as specified herein and in other related Sections.
- B. The CONTRACTOR shall start up each piece of equipment and system and shall make all adjustments so that the system is placed in proper operating condition.
- C. The CONTRACTOR shall not install any equipment or materials until the OWNER and ENGINEER have approved all submittals. If any equipment or materials are installed prior to approval of the submittals, it shall be at the CONTRACTOR's risk.
- D. All work shall be installed in accordance with the manufacturer's printed instructions and shall be rigid, plumb and true to line, with all parts in perfect working order. Maintain protective covers on all units until final cleanup time and at that time remove covers and clean and polish all surfaces.

3.02 VALVE TAGS

- A. The work of this Section shall also include the installation of valve tags furnished by the CONTRACTOR. All valves provided under this Section shall be tagged.

3.03 PROTECTION

- A. Materials, fixtures and equipment shall be properly protected at all times and all pipe openings shall be temporarily closed so as to prevent obstruction and damage.

3.04 COORDINATION SKETCHES

- A. It shall be the responsibility of the subcontractor to have employed a competent coordinator of mechanical systems and as such to provide all coordination of drawings or sketches as may be required or deemed necessary by the ENGINEER to obtain the required ceiling heights and eliminate conflicts with all piping, ducts and electrical installation.

END OF SECTION

SECTION 15410

PLUMBING - PIPING SYSTEMS

PART 1 GENERAL

1.01 SCOPE OF WORK

- A. The areas where work is to be accomplished is described in Section 15400.
- B. This Section specifies the basic Plumbing Systems of Piping and the materials of each system, including valves and associated appurtenances.
- C. Furnish all labor, materials, equipment, services and incidentals required and install complete Plumbing Piping Systems as shown on the Drawings and as specified herein.
 - 1. Sanitary - Waste and Vent Systems
 - 2. Potable Cold Water Systems
 - 3. Service Water Systems (Non Potable)
 - 4. Natural Gas System
 - 5. Furnishing and installing all piping, valves, dielectric fittings, floor drains, cleanouts, sleeves, hangers and insulation in conjunction with the above listed piping systems.
 - 6. All piping, and equipment shown on the Drawings is intended to be approximately correct to scale, but figured dimensions and detailed drawings of the actual equipment furnished shall be followed in every case. The Drawings shall be taken in a sense as diagrammatic. Size of piping is shown, but it is not the intent to show every offset or fitting, nor every hanger or support, or structural difficulty that may be encountered. To carry out the intent and purpose of the Drawings all necessary parts to make a complete working system ready for use shall be furnished without extra charge. The CONTRACTOR shall be responsible to coordinate the system installation and routing with the work of all trades.

1.02 RELATED WORK

- A. Refer to Section 15400.

1.03 SUBMITTALS

- A. Submit, in accordance with Sections 15400 and 01300, shop drawings and technical literature covering details of all plumbing-piping systems being furnished under this Section prior to fabrication, assembly or shipment.
- B. For units that will be shipped exposed, provide a description of the protective packaging that will be used during transit.

- C. All submittals shall contain a statement that Sections 15400, 15410 and all other referenced Sections have been read and complied with. The certification statement shall be made by all of the following that are applicable; the CONTRACTOR, sub-contractor and the vendor. The statement shall be an individual statement for each party involved, and shall be included with every submittal and resubmittal.
- D. Detailed layout drawings of piping in mechanical rooms and other congested areas shall be provided. Drawings shall show the locations of piping appurtenances, specialties, and all valve banks.
- E. Provide manufacturers catalogs, literature, and engineering data on all hangers and supports. Load ratings, materials, and installation shall be in accordance with the recommendations of MSS SP-58 and MSS SP-69.

1.04 REFERENCE STANDARDS

- A. Refer to Section 15400.

1.05 SERVICE AND UTILITY CONNECTIONS

- A. Refer to Section 15400.

1.06 QUALITY ASSURANCE

- A. Refer to Section 15400.

1.07 DELIVERY, STORAGE AND HANDLING

- A. Refer to Section 15400.

1.08 COORDINATION

- A. Refer to Section 15400.

1.09 SEISMIC RESTRAINTS

- A. Refer to Section 15400.

PART 2 PRODUCTS

2.01 PIPING SYSTEM MATERIALS

- A. Sanitary Waste Water Systems
 - 1. The pipe and fittings shall be SV (Service) hub and spigot cast iron soil pipe and fittings conforming to ASTM A74 and ANSI A112.5.1 tarred inside and out at the foundry.
 - 2. Joints for below grade piping shall be installed with compression gaskets conforming to ASTM C564 or shall be installed with lead and oakum.

3. Piping above grade shall be of the above mentioned hub and spigot type or of the No-Hub type conforming to the Cast Iron Soil Pipe Institute Standards 301. Pipe shall be marked with the collective trademark of the Cast Iron Soil Pipe Institute.
4. The No-Hub coupling shall be Anaheim Foundry Co. Husky SD4000, Clamp-All 125 or by MG Coupling Co.
5. Copper piping may be used for sanitary waste and vent in sizes 2-in and smaller. Pipe shall be Type "L" used with either cast or wrought DWV fittings. Solder Alloy 95TA (95 percent Tin, 5 percent Antimony), ASTM B32. No solder containing lead shall be utilized on the project.

B. Water Systems (Potable)

1. Piping shall be Type "L" copper with cast bronze or wrought copper, solder type fittings for above grade and Type "K" for where buried or shall be flanged end, ductile iron. Solder Alloy 95TA (95 percent Tin, 5 percent Antimony), ASTM B32. No solder containing lead shall be utilized on the project.
2. All copper piping 2-1/2-in and larger and all buried copper piping shall be Type S-2 brazed. Brazing filler metal classified as BCu4 or BCu5, with minimum melting point of 1300 degrees F. Use wrought fittings for brazing.

C. Natural Gas Systems

1. Aboveground Piping Materials

a. Piping and Fittings

- (1) Elbows and tees shall be of the same type and class of material as the pipe.
- (2) Type BCS: Black carbon steel piping shall conform to ASTM A 53/A 53M, Type S seamless. Pipe shall have Schedule 40 wall.

- b. Fittings shall be long-radius butt weld carbon steel conforming to ASTM A 234/A 234M and ASME B16.1 to match pipe wall thickness. Bending of pipe is not permitted. Aboveground terminal fittings shall be 150-pound working steam pressure (wsp) forged steel, weld neck flanges to match wall thickness, conforming to ASTM A 694/A 694M, ASME B16.5, and ASTM A 181/A 181M, Class 60.

2. Underground Piping Materials

a. Piping and Fittings

- (1) Elbows and tees shall be of the same type and class of material as the pipe. All piping and fittings shall be from the same manufacturer.
- (2) High density polyethylene (HDPE) piping meeting the requirements of ASTM D2513. Piping shall be labeled "Gas" and "ASTM D2513". Pipe and Tubing furnished under this specification shall be manufactured using compounds

complying with the requirements of Part 192 of the Minimum Federal Safety Standards. Dimensional characteristics (including outside diameter, wall thickness, toe-in, ovality and length) and performance characteristics (including chemical resistance, sustained pressure, elevated temperature service, burst pressure/apparent tensile strength, joining, squeeze-off and outdoor storage stability) shall conform to the requirements of ASTM D2513 including applicable annexes. Pipe and Tubing may be supplied in either coils or straight lengths.

- b. Fittings shall be HDPE, butt fusion, meeting the requirements of ASTM D2513. Polyethylene fittings furnished under this specification shall be manufactured using compounds complying with the requirements of Section II, above and all appropriate requirements of Part 192 of the Minimum Federal Safety Standards. Socket type fittings shall comply with ASTM D2683. Butt fusion fittings shall comply with ASTM D3261. Electrofusion fittings shall comply with ASTM F1055. Plastic mechanical fittings shall comply with ASTM F1924. Mechanical fittings produced from metallic or materials other than plastics listed in Section II shall be approved only after submission of appropriate test data and service histories indicating their acceptability for the intended service. In addition, all mechanical fittings shall be categorized for pullout resistance as stated in ASTM D2513 and identified as to the appropriate category. Plastic valves shall meet the requirements of ANSI Standard B16.40. In all cases, the specifications and requirements for the fittings supplied shall comply with the appropriate sections of Part 192 of the Minimum Federal Safety Standards or NFPA 58 LP Gas Code. Fittings shall be joined per the manufacturer's instructions.

3. Gas train vent piping shall be of the same material as that specified for low pressure piping systems.

D. Dielectric Fittings

1. On all water piping systems, provide dielectric fittings at all locations between piping and components of dissimilar metals.

E. Piping Specialties

1. Equipment Connections

- a. Connectors shall be corrugated bronze metal with brazed inverted flare-type brass fittings complete with transition for ips connection. Maximum length shall be six feet. Connectors shall be AGA-approved type.

2. Pressure Regulator

- a. Pressure regulator shall be service-type, complete with automatic low-pressure cutoff and automatic pressure relief. Shop drawing shall be submitted and shall include performance curves. Body shall be cast iron. Valve shall be capable of shutting off under supply pressures to 100 psi. Valve spring range shall be 7 to 10 inches water gage (wg), and set point shall be 8 inches. Outlet pressure shall vary by not more than ½-in wg from the set point over the capacity range of the regulator. Pressure relief shall be diaphragm-operated, spring-loaded type with vent for relief of excess pressure. Release set point shall be 12 inches wg.

- b. Low-pressure cutoff regulator shall be adjustable to shut off gas supply entirely if pressure drops below set point. Supply shall remain shut off until manual reset of regulator takes place.
 - c. Pressure regulator diaphragm vent and pressure relief vent shall be run as separate, jointless, full size vent lines connected to the vent tapping and terminating at an approved outside location with weatherproof, bugproof, screened vent cap.
3. Pressure Gages
- a. Pressure gages shall conform to ASME B40.100, Type I, Class 1. Pressure gage size shall be 3-1/2-inch nominal diameter. Case shall be corrosion-resistant steel conforming to any of the AISI 300 series of ASTM A 666, with a No. 4 standard commercial polish or better. All gages shall be equipped with adjustable red marking pointer and damper screen adjustment in inlet connection.
4. Line Strainers
- a. Strainers shall be Y-type with removable basket. Strainers in sizes 2-inch ips and smaller shall have screwed ends; sizes 2-1/2-inch ips and larger shall have flanged ends. Body working pressure rating shall exceed maximum service pressure of system in which installed by at least 50 percent. Body shall have cast-in arrows to indicate direction of flow. All strainer bodies fitted with screwed screen retainer shall have straight threads and shall be gasketed with nonferrous metal. Strainer bodies fitted with bolted-on screen retainers shall have offset blowdown holes. Body material shall be cast bronze conforming to ASTM B 62 or cast iron conforming to Class 30 ASTM A 278/A 278M. Where system material is nonferrous, strainer body material shall be nonferrous.
 - b. Minimum free hole area of strainer element shall be equal to not less than 3 times the internal area of connecting piping. Strainer screens for natural gas service shall have mesh cloth not to exceed 0.006 inch. Strainer screens shall have finished ends fitted to machined screen chamber surfaces to preclude bypass flow. Strainer element material shall be AISI Type 304 corrosion-resistant steel.

2.02 VALVES

A. General

1. It is the intention of the Plumbing Drawings and this Section to require control valves at the bottom of all water service risers and as shown on the Drawings.
2. Install drawoff valves on the house side of main control valves, at the bottom of all risers, at all low points and where shown on the Drawings. Drawoffs shall consist of a hose end valve as hereinafter described.
3. Group and locate control valves in all locations so they may be easily operated, through access panels, doors, or adjacent to equipment.

4. Valves, in general, shall be of the same manufacture throughout unless noted otherwise. All valves, except as noted otherwise, shall be made for 125 lb steam working pressure and shall have round iron wheel handles.

B. Water Valves

1. All water valves 2-in and smaller shall be full port ball type similar to Watts FBV/FBVS; Apollo 77-200, Nibco T/S 585-70 or Hammond 8301/8311.
2. All check valves 3-in and smaller shall be Hammond IB-912; Stockham B-309 or Nibco Inc. S-413.
3. Hose end valves (HEV) shall be a ball valve with hose end adapter. Units on potable water systems shall be equipped with a hose connection vacuum breaker similar to Watts No. 8A or equal.

C. Gas Valves

1. Gas valves 2-in and smaller shall be three-piece bronze ball valve with threaded ends equal to Hammond 8604; Watts B-6800 (YRPV) or Apollo 82-100, modified with tee handles.
2. Gas valves larger than 2-in shall be lubricated plug valves equal to valves manufactured by Powell; Homestead and Rockwell.
3. Gas valves shall be listed suitable for natural gas service.

2.03 DRAINS

- A. For the purpose of explanation and description only, the following drain catalog numbers are taken from the catalogs of Zurn Industries, Inc. unless otherwise noted. Those drains as manufactured by J.R. Smith Mfg. Co. or Josam Mfg. Co. and determined by the ENGINEER to be equal in every respect to those specified will be acceptable for installation. All drains shall be of sizes, shown on the Drawings.

B. Floor Drains (FD) / Trench Drains (TD)

1. All floor drains and open ended drains shall be fitted with a deep seal cast iron "P" type or "running" type trap to suit drain outlet. Traps shall be acid resisting material where noted.
2. Floor drains shown on the Drawings as (AW) and installed in corrosive resistant piping systems shall be of same material as the acid resisting pipe and fittings described above.
3. All floor drains shall have cast iron or acid resisting drainage flange, seepage control, ½-in trap primer connection where required, clamping collar and inside caulk outlet or resilient gasket pipe connection, unless noted otherwise to be IPS outlet.

4. Schedule of Floor Drains

<u>Type</u>	<u>Cat. No.</u>	<u>Remarks</u>
AW	Fuseal 7750	Polypropylene drain and strainer for acid resisting installation

2.04 CLEANOUTS

- A. For the purpose of explanation and description only, the following cleanout catalog numbers are taken from the catalogs of Zurn Industries, Inc. unless otherwise noted. Those drains manufactured by J.R. Smith Mfg. Co. or Josam Mfg. Co. as and determined by the ENGINEER to be equal in every respect to those specified will be acceptable for installation. All cleanouts shall be of size shown on the Drawings.
- B. In cast iron bell and spigot pipe, cleanouts shall consist of a cast iron ferrule and extra heavy brass tapered screw cleanout plug with square or hexagonal nuts.
- C. In threaded pipe, (galvanized steel with recessed drainage pattern fittings) cleanouts shall consist of standard iron pipe size (IPS) brass plugs screwed into drainage fittings.
- D. In copper tubing they shall consist of copper to IPS adapters with IPS brass plugs screwed into female threaded portion of the adapter.
- E. Acid resisting pipe terminal cleanouts shall be of acid resisting material and of the type recommended by the manufacturer of the pipe and fittings.
- F. Flush Floor Cleanouts
 - 1. Flush floor cleanouts (FCO) shall be Zurn Z-1400 or equal.
- G. Exterior Cleanouts
 - 1. Exterior cleanouts shown as Exterior FCO shall consist of cast iron floor cleanout with serrated cutoff sections and brass screwed raised head plug, Zurn Z-1449, with heavy cast iron access box and gasketed cover, Zurn Z-1474, or equal. Set flush with concrete slab.

2.05 SLEEVES AND CASTINGS

- A. Sleeves
 - 1. Sleeve all piping through walls, beams and partitions. All wall sleeves shall finish flush with the finish line.
 - 2. Sleeve all piping passing through floor slabs. All sleeves shall extend 2-in above the finish floor slab.
 - 3. All sleeves for exterior emergency shower eye wash units shall be packed with insulation.

4. Materials and installation conforming to the requirements of Section 01172 shall be furnished under this Section.
5. Refer to "Typical Detail Sheets" for additional information.

B. Castings

1. Provide waterproof castings on each plumbing pipe penetrating walls of wet wells, tanks or pits. Castings shall be of size and length to suit pipe and wall thickness.
2. Materials and installation conforming to the requirements of Section 01172 shall be furnished under this Section.

2.06 HANGERS, SUPPORTS AND ANCHORS

- A. Piping support systems shall include restraints as required by the applicable building codes to withstand seismic loading. Design shall be provided by a professional engineer hired by the CONTRACTOR as specified in Section 15400.
- B. The absence of pipe supports and details on the drawings shall not relieve the CONTRACTOR of the responsibility for providing them.
- C. In certain locations, pipe supports, anchors, guides, and expansion joints may be indicated on the drawings. The CONTRACTOR shall be responsible to provide a complete system of supports, expansion joints, and anchors. Additional supports may be required adjacent to expansion joints, couplings, and valves.
- D. Hangers supporting horizontal piping at ceilings shall be of the clevis type and spaced 8-ft apart for supply and service pipe 1-1/2-in diameter and larger; and 6-ft apart for pipe smaller than 1-1/2-in diameter.
- E. Horizontal piping buried in earth under lowest floor slabs shall be supported with the hanger types shown on the Drawings except where otherwise required to be encased in concrete.
- F. All hangers shall be of a type to permit vertical adjustment after installation.
- G. Supports and hangers for cast iron soil piping shall be installed in accordance with the latest addition of the cast iron soil pipe handbook unless noted otherwise.

2.07 INSULATION

- A. All water piping of every description specified herein including rainwater, drinking fountain waste and pressure waste piping shall be completely insulated throughout with 1-in thick Heavy Density Pipe Insulation.
- B. All fittings, flanges, roof drain bodies and valves shall be covered with permanently non-combustible, one-piece, factory premolded, insulated fitting covers.
- C. Provide at each hanger location a rigid insulation insert with a galvanized metal covering protector shield, equal to items as manufactured by Pipe Shields Inc. or equal. Protector shields

shall be of length as recommended by the manufacturer and shall be the same thickness and jacket material as the adjoining insulation.

- D. Insulation material shall be of molded rigid fiberglass sectional pipe insulation rated to 500 degrees F. The insulation shall have a minimum density of 3.5 lbs/cu ft and a maximum "K" factor of 0.24 at 75 degrees F mean temperature. Jacket shall be kraft paper bonded to aluminum foil reinforced with fiberglass yarn and self sealing lap with maximum permeability of 0.02 perms.
- E. Supplies, drain and trap on handicapped lavatories shall be insulated with fully molded, white, closed cell vinyl insulation kit, Truebro, Model 120W-105 or equal.

2.08 PIPE MARKING AND COLOR CODING

- A. Pipe marking is included in Division 9, but it shall be part of the work of this Section to assist as required by the ENGINEER to identify the pipe contents, direction of flow and all pertinent data required for proper marking of pipe.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Install all piping, valves, hangers and appurtenances as specified herein and in the referenced Sections above.
- B. The CONTRACTOR shall not install any equipment or materials until the OWNER and ENGINEER have approved all submittals. If any equipment or materials are installed prior to approval of the submittals, it shall be at the CONTRACTOR's risk.
- C. In general, corrections or comments or lack thereof, made relative to submittals during review shall not relieve the CONTRACTOR from compliance with the requirements of the drawings and specifications. Submittals are for review of general conformance with the design concepts of the project and general compliance with the contract documents. The CONTRACTOR is responsible for the final design conforming and correlating all quantities and dimensions, selecting fabrication processes and techniques of construction, coordinating the work of all trades, and performing the work in a safe and satisfactory manner.
- D. Underground Piping Systems Installation
 - 1. Installation
 - a. Installation of underground natural gas systems shall be in accordance with NFPA 54, NFPA 58, ASME B31.8. OWNER shall be notified by the CONTRACTOR 48 hours in advance of start of installation.
 - b. All excavations shall be dry and clear of extraneous materials when pipe is being laid. Piping shall be laid beginning at the low point of a system; when in final position it shall be true to the grades and alignment indicated, with unbroken continuity of invert.

- c. Piping passing through and ground floor slab shall pass through pipe sleeves larger than conduit and shall be made watertight. In fill areas, piping passing under or through building grade beams shall have a minimum clearance of 4 inches in all directions to prevent damage.
- d. On excavations occurring near and below building footing, the backfilling material shall consist of Class 2000A concrete poured or pressure grouted up to the level of the footing.
- e. Where pipe penetrates earth or concrete grade, not less than 6 inches of Type BCS pipe shall be exposed to view.
- f. Type BCS materials shall be installed for underground piping in accordance with the manufacturer's instructions. Pipe shall be palletized in padded pallets at the factory and shall be handled from pallet to final position with padded gear.

2. Marking

- a. Polyethylene pipe and tubing shall be marked in accordance with ASTM D2513. Marking shall be legible and shall remain legible under normal handling and installation practices. Indent marking may be utilized provided (1) the marking does not reduce the wall thickness to less than the minimum value for the pipe or tubing, (2) it has been demonstrated that these marks have no effect on the long term strength of the pipe or tubing and (3) the marking will not provide leakage channels when approved elastomeric gasket compression fittings are used to make joints.
- b. PE pipe fusion fittings shall be marked on the body or hub. Marking shall be in accordance with ASTM D2513 or the standard to which the fitting is manufactured. Mechanical fittings shall be marked in accordance with the fitting standard to which it is manufactured or Part 192 of the Minimum Federal Safety Standard Section 192.63.

E. Aboveground Piping Systems Installation

1. Installation

- a. Installation of aboveground natural gas systems shall be in accordance with NFPA 54, NFPA 58, ASME B31.8. OWNER shall be notified by the CONTRACTOR 48 hours in advance of start of installation.
- b. Pipe shall be fabricated to measurements established on the job and shall be carefully worked into place without springing or forcing. Adequate provision shall be made for absorbing all expansion and contraction without stress in any part of the system.
- c. Pipe, tubing, fittings, valves, equipment, and accessories shall be visibly clean and free of foreign material before being installed into the respective systems. Pipe shall be cleaned by hammering, shaking, or swabbing, or by a combination of methods. Lines shall be purged with dry, oil-free compressed air after erection, but purging out shall not be relied upon for removing all foreign matter.

- d. During the process of construction, open ends of pipe, fittings, and valves shall be properly protected at all times to prevent the admission of foreign matter. Plugs or caps shall be placed in the ends of installed work at all times when connecting work is not actually under way. Plugs shall be commercially manufactured products approved by the OWNER.
- e. Outlets, including valve outlets, shall be securely closed gastight with a threaded plug or cap immediately after installation and shall be left closed until the gas equipment is connected thereto.
- f. Piping shall be installed straight and true with approved offsets around obstructions and with expansion bends or fitting offsets essential to a satisfactory installation, and as may be necessary to increase headroom or to avoid interference with the building construction, electric conduit, or facilities equipment.
- g. Standard pipe fittings shall be used for changes in direction; no mitered joints or unapproved pipe bends will be permitted.
- h. Horizontal piping shall have a slope of 1 inch per 100 feet.
- i. Reducers shall be concentric or eccentric. Eccentric reducers shall be used where required to permit proper drainage of pipe lines. Bushings as reducers are not permitted. Drain valves shall be provided in all piping systems at low points.

F. Joints

- 1. Pipe ends shall be reamed before joint connections are made. Screwed joints shall be made up with joint compound. Joint compounds shall be applied to the male thread only, and care shall be exercised to prevent compound from reaching the interior of the pipe.
- 2. Unions shall be provided wherever required to permit convenient removal of equipment, valves, and piping accessories from the piping system.
- 3. HDPE piping for butt fusion joints shall be cut square, and burrs shall be removed with approved cutting and reaming tools. Inside surfaces of fittings and outside surfaces of tubes in joint area shall be cleaned before assembly of joint. Heat source shall be applied with the manufacturer's instructions to provide proper joining action to achieve 100 percent shear-line strength. Joints that fail pressure tests shall be remade with new materials, including pipe or fittings.
- 4. Fusion Qualifications
 - a. The manufacturer of pipe, tubing and/or fittings supplied under this specification shall establish and certify heat fusion procedures for the joining of the materials supplied in accordance with the applicable section of (CFR) Title 49, Part 192 "Transportation of Natural and/or Other Gases by Pipeline: Minimum Federal Safety Standards" paragraph 192.283. Qualified fusion procedures, with appropriate supporting data, shall be furnished to the purchaser upon request. Suitable generic fusion procedures are included in PPI TR-33, Generic Butt Fusion Joining Procedure for Polyethylene (PE) Gas Pipe.

G. Valves

1. Install control valves to all locations grouped and located to be easily operated, through access panels, doors, or adjacent to equipment.
2. Install all final Water connections to Process equipment. Each connection shall be preceded by a ball valve directly adjacent to the unit.
3. Install all valves in a horizontal to upright position. Valves shall not be installed in down position from the horizontal.

H. Screwed Connections

1. All screwed connections shall have full thread of true taper, accurate to gauge and conform to ANSI.
2. Reduction in size shall be made using reducing fittings.
3. The use of bushings or close nipples is prohibited. Nipples shorter than 4-in in length shall be Schedule 80.
4. Plugs shall be steel or brass with square head.
5. Screwed joints shall be made with an approved joint compound applied to the male thread only. Caulking of screwed joints will not be allowed.

I. Soldering (Copper Tubing)

1. Tubing shall be cut with square ends and reamed to prevent burrs, out-of-round or improperly sized ends.
2. After cutting, all surfaces to be soldered shall be thoroughly cleaned to a metal-bright finish, free from dirt, grease or other material before fluxing and soldering. This cleaning shall be performed by using emery cloth, sandpaper or steel wool. Clean the outside end of the tubing for a length of 1/2-in greater than the depth of the fitting. The inside of the fittings shall be cleaned in a similar manner. Apply non-corrosive flux and assemble the joint. Acid solder or acid flux will not be allowed.
3. The surfaces to be joined shall be heated up slowly and uniformly to the melting point of the solder. The surface being soldered shall be maintained above the melting point of the solder for sufficient time to draw the solder completely into the joint. When the solder congeals to a plastic state the excess metal shall be removed with a cloth brush, leaving a fillet around the end of the fitting. Full penetration of the solder uniformly throughout the entire socket is required. The soldered joints shall be allowed to cool in still air until only warm to the hand after which the work may be quenched.
4. Any type of crack, pinhole, area of incomplete penetration, or similar defect will not be accepted. Peening for closing up defects shall not be permitted.
5. Heating torches of sufficient size shall be used for heating of large fittings prior to soldering. Multiple tips or ring burners for use on combination torches may be used.

6. Remove all external and internal loose solder and flux after joint cools.

J. Brazing

1. Cutting and cleaning of tubing shall be as specified for soldering operations.
2. Apply flux in accordance with recommendations of manufacturer of brazing filler material being used. Apply to outside of fitting and heat affected area of tubing. Avoid getting flux inside tube. Flux may be omitted when joining copper tubes to wrought copper fittings but is required for joining to cast (bronze) fittings.
3. Assemble joint by inserting tube into socket hard against stop and turning.
4. Heat parts to be joined beginning 1-in from edge of fitting, continuously moving the flame. When flux has become transparent, begin to heat the fitting at the base of the cup, still continuously moving the flame. When flux at fitting is quiet and transparent, maintain heat along joint by moving flame along axis between fitting and tubing.
5. Apply brazing material at point where tubing enters socket of fitting. Avoid putting flame on brazing material. Heated joint should melt brazing material and capillary action will draw material into the joint. When joint is properly made, a fillet of filler metal will be visible completely around the joint. Stop adding filler metal when fillet is formed.
6. After brazing material has solidified, clean off flux residue. Fittings must cool naturally. Quenching will not be allowed.
7. Any type of crack, pinhole, area of incomplete penetration, or similar defect will not be accepted. Penning for closing up defects will not be permitted.

K. Insulation

1. Do not apply insulation until pipes and tanks have been tested and accepted by all parties making inspection. All insulated covering shall be guaranteed for a period of one year.
 - a. Insulate piping to hose bibs and hose outlets to a point six feet above the floor.

L. Cleanouts

1. Install cleanouts as directed by applicable code, at end of each branch soil and waste line where waste and soil lines change direction, at the bottom of every riser either as a cleanout tee above floor or end cleanout in the horizontal below the floor.

3.02 FIELD TESTING

- A. Provide all air and water necessary for testing the piping systems as specified under this Section of the work. Provide all connections for testing under this Section. Remove all debris resulting from testing. Use the water in an efficient and economical manner.
- B. Provide all apparatus and all other supplies or materials which may be necessary for testing the systems and operating the apparatus during the period while tests of any kind are being made, or for carrying out the work of the Contract.

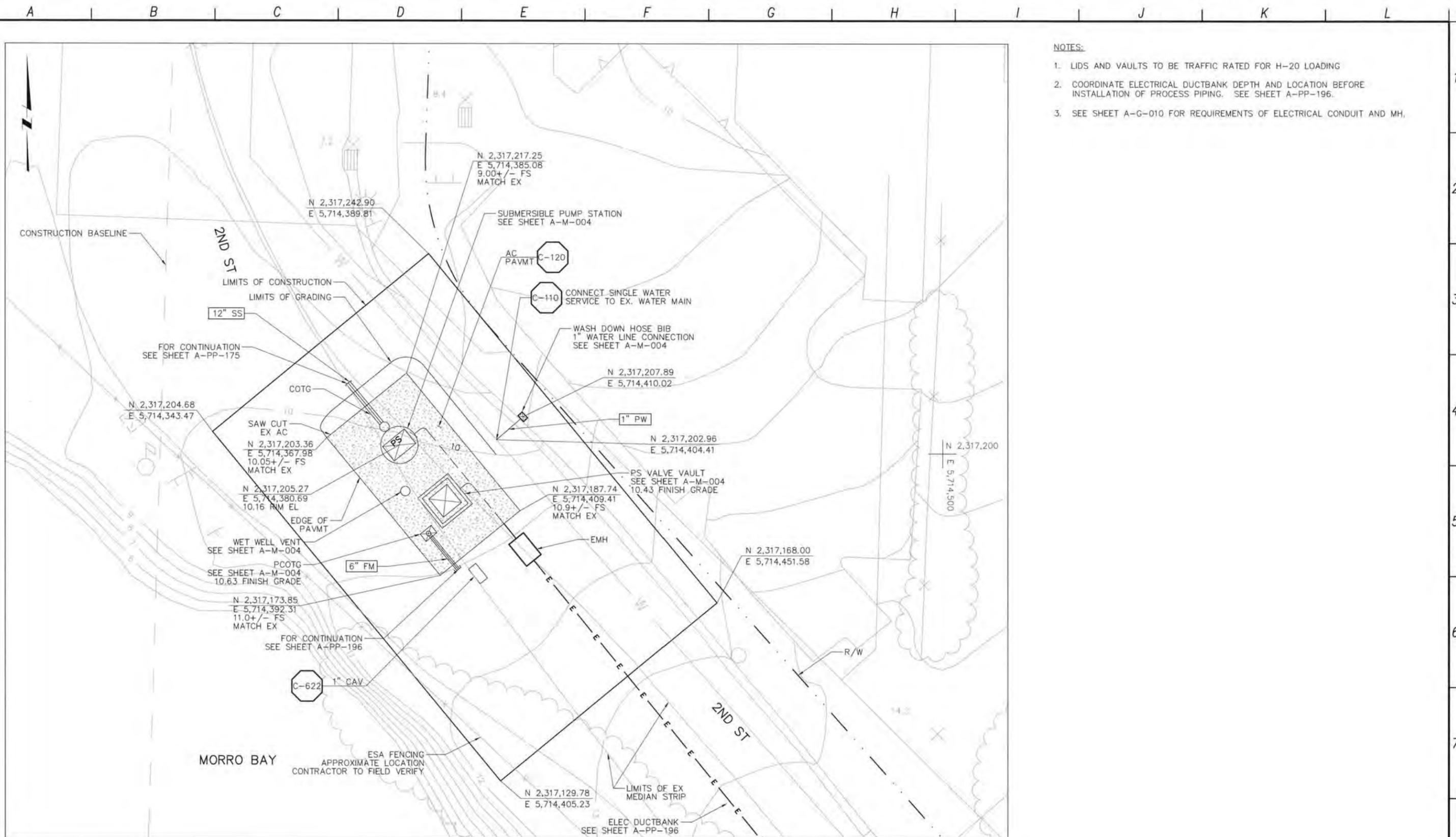
- C. The various piping systems shall be subjected to water, smoke, or air tests as noted and shall hold tight at pressures stated without extra pumping or water addition for the time intervals stated.
- D. All additional tests, methods or materials that may be required by the local ordinances and not specifically specified herein, shall be made as directed by the ENGINEER or the local inspection authority.
- E. Provide for all repeated tests as necessary to make systems tight as required.
- F. Test soil, waste, drain, vent piping as follows:
 - 1. Test rough drainage of soil, waste, drain, vent and rainwater leader by plugging piping where it terminates in the building or where it leaves the building by filling each system completely with water to the outlets on the roof after all outlets in section have been plugged or capped, for at least 1 hour duration.
 - 2. If it becomes necessary during the construction of the building to test a part of a section for any reason or to cover permanently any pipe before piping above the part or section has been completed, apply a water test to such part or section of the piping by maintaining a 10-ft head of water on the highest section of the piping and the test shall hold tight for 1 hour.
- G. Test water piping as follows:
 - 1. Test all interior potable hot, cold and protected water piping to a water pressure of 150 psi to the lowest level and maintain this pressure without additional pumping for 2 hours.
- H. Test gas piping as follows:
 - 1. Test all gas piping with air under pressure as required and recommend by the NFPA Pamphlet Nos. 54 and 58 Regulations which shall be considered as part of this Section.

3.03 CLEANING

- A. At the completion of the work, clean all piping, fixtures, equipment, apparatus and exposed trim for same included in this Section and, where required, polish ready for use.
- B. Thoroughly disinfect the entire potable water distribution systems with a solution of not less than 50 ppm of available chlorine. Allow the disinfecting solution to remain in the system for a period of 3 hours after which time, open all valves and faucets and flush the system with clean water until the residual chlorine content is not greater than 0.2 ppm, unless otherwise directed.

END OF SECTION

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- NOTES:
- LIDS AND VAULTS TO BE TRAFFIC RATED FOR H-20 LOADING
 - COORDINATE ELECTRICAL DUCTBANK DEPTH AND LOCATION BEFORE INSTALLATION OF PROCESS PIPING. SEE SHEET A-PP-196.
 - SEE SHEET A-G-010 FOR REQUIREMENTS OF ELECTRICAL CONDUIT AND MH.

REV. NO.	DATE	DRWN	CHKD	REMARKS
5/01/12	LLB	MDM	ADDENDUM #2	

DESIGNED BY: MPH
 DRAWN BY: JAW
 CHECKED BY: CCA
 DATE: APRIL 2012

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 Sacramento, CA 95833
 Tel: (916) 997-9900

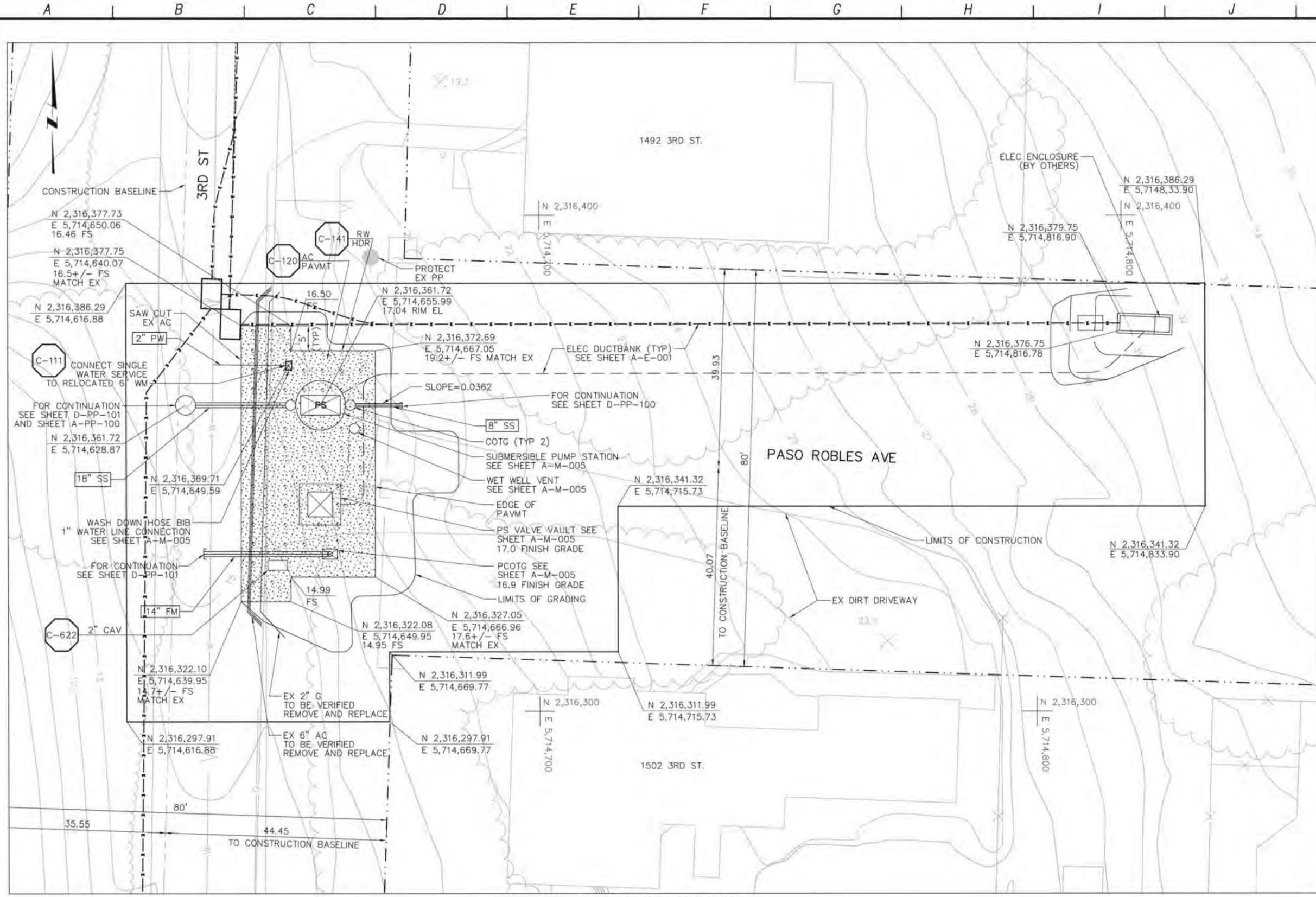


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 AT LEAST TWO DAYS BEFORE YOU DIG
 UNDERGROUND SERVICE ALERT OF NORTHERN CALIFORNIA

LOS OSOS WASTEWATER COLLECTION SYSTEM
CIVIL BAYWOOD PS SITE PLAN
 PROJECT NO. 42502-83120
 FILE NAME: A-C-102
 SHEET NO. A-C-102

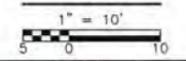
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- NOTES:**
1. REMOVE AND REPLACE EX 6" AC W SECTION WITH 6" PVC CLASS 200, ENCASED.
 2. REMOVE AND REPLACE EX 2" G SECTION WITH 2" G AS SHOWN.
 3. PROVIDE RESTRAIN JOINTS/THRUST BLOCKS FOR 6" PVC.
 4. LIDS AND VAULTS TO BE TRAFFIC RATED FOR H-20 LOADING.
 5. NOTIFY HOME OWNER AT 1502 3RD ST. OF DRIVEWAY/STREET CLOSURE DUE TO CONSTRUCTION.
 6. COORDINATE ELECTRICAL DUCTBANK DEPTH AND LOCATION BEFORE INSTALLATION OF PROCESS PIPING. SEE SHEETS D-PP-100, D-PP-101, AND A-PP-100.
 7. SEE SHEET A-G-010 FOR REQUIREMENTS OF ELECTRICAL CONDUIT AND MH.

WEST PASO PUMP STATION

PLAN



REV. NO.	DATE	DRWN	CHKD	REMARKS
5/01/12	LLB	MDM		ADDENDUM #2

DESIGNED BY: MPH
 DRAWN BY: WKT
 CHECKED BY: MDM
 DATE: APRIL 2012

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 2295 Gateway Oaks Drive, Suite 240
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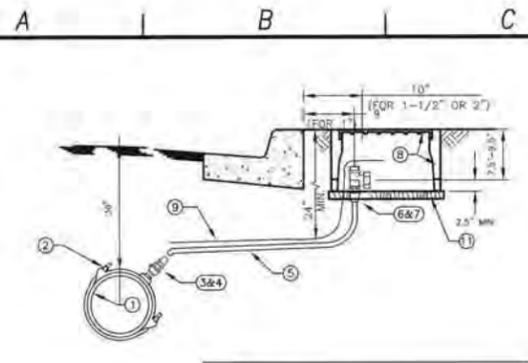
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LOS OSOS WASTEWATER COLLECTION SYSTEM
CIVIL WEST PASO PS SITE PLAN

PROJECT No. 42502-83120
 FILE NAME: A-C-103
 SHEET NO. **A-C-103**

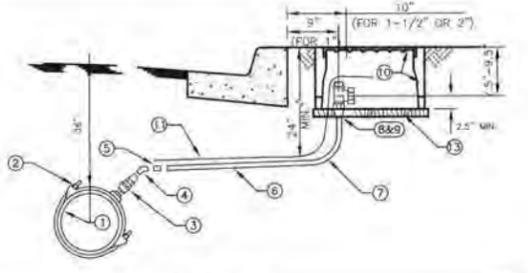
SCALE: HORZ: 1"=10' VERT: 1"=10'

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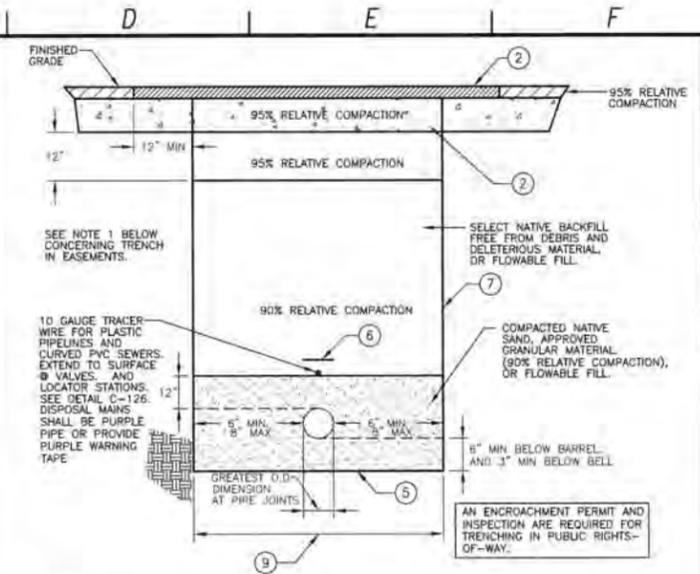
Callout	Description	Material/Specification
1	WATER MAIN	PER PLAN
2	SERVICE SADDLE	BRONZE, DOUBLE STRAP, JAMES JONES J-979 FOR AC PIPE, JAMES JONES J-969 FOR PVC PIPE OR APPROVED EQUAL
3	CORPORATION STOP	GROUNDKEY, JAMES JONES J-1844, 1" SIZE ONLY, MIP X MIP #41
4	ADAPTER	1" FIP X INSTANTITE, MUELLER H15456
5	SERVICE LATERAL	1" POLYETHYLENE ONLY, IPS SIZE, 200 PSI MINIMUM, WESTFLEX GOLD LABEL 3408, DRISCORP, OR APPROVED EQUAL
6	ANGLE METER STOP (BALL TYPE)	JAMES JONES J-1527 (1" X 1" OR 1" X 3/4")
7	ADAPTER	1" MIP X INSTANTITE H15456
8	METER BOX AND LID	BROOKS 37 SERIES (TRAFFIC LID IN TRAFFIC AREA ONLY)
9	10 GAGE TRACER WIRE	PER SPECIFICATIONS
10	IN UNPAVED AREAS, RAISE METER BOX	1" ABOVE THE ADJACENT FINISHED SURFACE
11	1" X 12" CONCRETE BASE	
12	CUSTOMER SIDE CURB STOP	- JONES J 1913W

SINGLE WATER SERVICE C-110



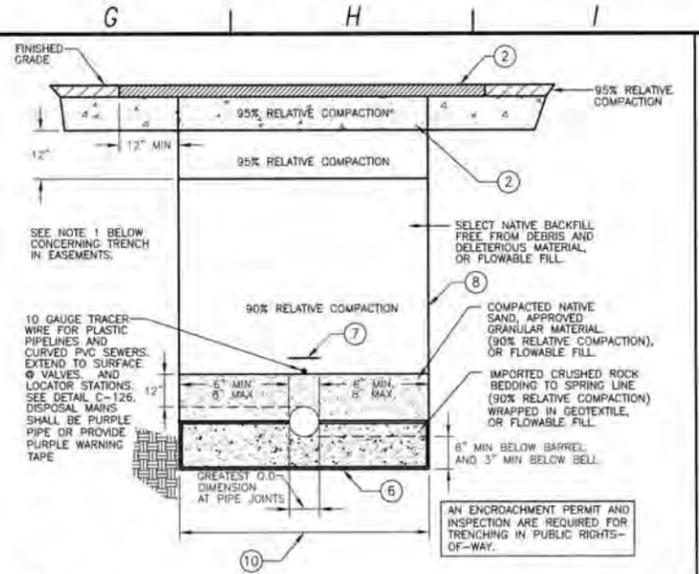
Callout	Description	Material/Specification
1	WATER MAIN	PER PLAN
2	SERVICE SADDLE	BRONZE, DOUBLE STRAP, JAMES JONES J-979 FOR AC PIPE, JAMES JONES J-969 FOR PVC PIPE OR APPROVED EQUAL
3	CORPORATION STOP	BALL VALVE, JAMES JONES J-1943, 2" SIZE ONLY, MIP X MIP
4	BRASS 45° EL	2" 45° ELBOW ONLY
5	ADAPTER	FORD 2" PAC COUPLING X MIP
6	SERVICE LATERAL	2" SCH 80 PVC ONLY
7	90° ELBOW	2" SCH 80 90° ELBOW
8	ANGLE METER STOP (BALL TYPE)	FORD FB11027
9	ADAPTER	2" SCH 80 MIP X 50C
10	METER BOX AND LID	BROOKS 38 SERIES (TRAFFIC LID IF IN DRIVEWAY)
11	10 GAGE TRACER WIRE	PER SPECIFICATIONS
12	IN UNPAVED AREAS, RAISE METER BOX	1" ABOVE THE ADJACENT FINISHED SURFACE
13	1" X 12" CONCRETE BASE	
14	CUSTOMER SIDE CURB STOP	- JF108

SINGLE WATER SERVICE C-111



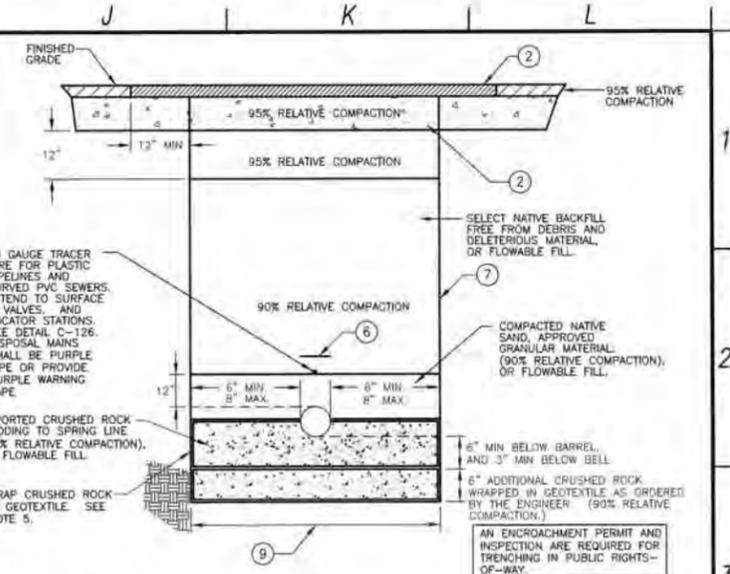
- NOTES:**
- A MINIMUM OF 90% RELATIVE COMPACTION IS PERMITTED IN A NON-ROADWAY TRENCH WHEN NO STRUCTURES ARE TO BE BUILT OVER THE TRENCH. IF STRUCTURES ARE TO BE BUILT OVER THE TRENCH, USE RELATIVE COMPACTIONS SHOWN ON THE TRENCH SECTION ABOVE.
 - PAVEMENT SECTIONS SHALL BE NO LESS THAN EXISTING STRUCTURAL SECTIONS, AND AS REQUIRED BY THE COUNTY FOR TRENCHES WITHIN A COUNTY RIGHT-OF-WAY. SEE DETAIL C-120, SEE DETAIL C-116B FOR WET TRENCH SECTION.
 - A DRY TRENCH IS A TRENCH IN NON-GROUNDWATER AREAS.
 - WHERE THE BOTTOM OF THE TRENCH HAS BEEN DISTURBED, THE CONTRACTOR SHALL SCARIFY AND COMPACT THE SUBGRADE TO 90% RELATIVE COMPACTION.
 - 3" WIDE POLYETHYLENE NON-DETECTABLE WARNING TAPE 12" ABOVE ALL PIPE AND LATERALS.
 - VERTICAL TRENCH WALL DEPICTED, SHORING SHALL BE DESIGNED BY CONTRACTOR. TRENCH WALLS MAY BE SLOPED, CONTRACTOR SHALL COORDINATE TRENCH CONFIGURATION WITH OTHER GRAVITY, FORCEMAIN, RECYCLED WATER, AND CONDUIT PIPELINE TRENCH SECTIONS, AND CONFORM TO CULTURAL AND ENVIRONMENTAL RESTRICTIONS, THE TRAFFIC MANAGEMENT PLAN REQUIREMENTS, AND SHALL PROTECT EXISTING IMPROVEMENTS.
 - IF FLOWABLE FILL IS USED FOR BACKFILL, CONTRACTOR SHALL PROTECT AGAINST BUOYANT FORCE.
 - THIS DIMENSION AT PIPE SPRINGLINE, PLUS 24" FOR T-CUT, CONSTITUTES THE PAY LIMIT FOR AC AND AB REPLACEMENT, UNO IN TABLE 1 OF DETAIL C-120A.

PIPELINE DRY TRENCH SECTION 10" AND SMALLER C-116



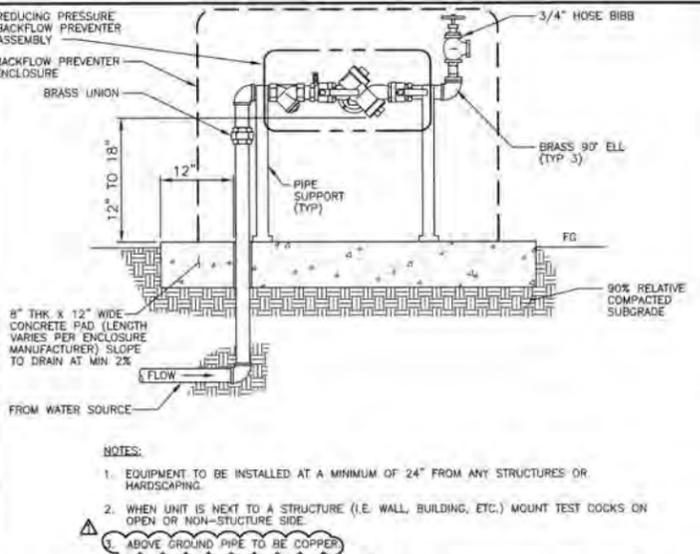
- NOTES:**
- A MINIMUM OF 90% RELATIVE COMPACTION IS PERMITTED IN A NON-ROADWAY TRENCH WHEN NO STRUCTURES ARE TO BE BUILT OVER THE TRENCH. IF STRUCTURES ARE TO BE BUILT OVER THE TRENCH, USE RELATIVE COMPACTIONS SHOWN ON THE TRENCH SECTION ABOVE.
 - PAVEMENT SECTIONS SHALL BE NO LESS THAN EXISTING STRUCTURAL SECTIONS, AND AS REQUIRED BY THE COUNTY FOR TRENCHES WITHIN A COUNTY RIGHT-OF-WAY. SEE DETAIL C-120, SEE DETAIL C-116B FOR WET TRENCH SECTION.
 - A DRY TRENCH IS A TRENCH IN NON-GROUNDWATER AREAS.
 - ENDS OF GEOTEXTILE SHALL TOUCH PIPE BARREL. GEOTEXTILE MAY BE LAPPED UNDER PIPE IF DESIRED.
 - WHERE THE BOTTOM OF THE TRENCH HAS BEEN DISTURBED, THE CONTRACTOR SHALL SCARIFY AND COMPACT THE SUBGRADE TO 90% RELATIVE COMPACTION.
 - 3" WIDE POLYETHYLENE NON-DETECTABLE WARNING TAPE 12" ABOVE ALL PIPE AND LATERALS.
 - VERTICAL TRENCH WALL DEPICTED, SHORING SHALL BE DESIGNED BY CONTRACTOR. TRENCH WALLS MAY BE SLOPED, CONTRACTOR SHALL COORDINATE TRENCH CONFIGURATION WITH OTHER GRAVITY, FORCEMAIN, RECYCLED WATER, AND CONDUIT PIPELINE TRENCH SECTIONS, AND CONFORM TO CULTURAL AND ENVIRONMENTAL RESTRICTIONS, THE TRAFFIC MANAGEMENT PLAN REQUIREMENTS, AND SHALL PROTECT EXISTING IMPROVEMENTS.
 - IF FLOWABLE FILL IS USED FOR BACKFILL, CONTRACTOR SHALL PROTECT AGAINST BUOYANT FORCE.
 - THIS DIMENSION AT PIPE SPRINGLINE, PLUS 24" FOR T-CUT, CONSTITUTES THE PAY LIMIT FOR AC AND AB REPLACEMENT, UNO IN TABLE 1 OF DETAIL C-120A.

PIPELINE DRY TRENCH SECTION 12" AND LARGER C-116A



- NOTES:**
- A MINIMUM OF 90% RELATIVE COMPACTION IS PERMITTED IN A NON-ROADWAY TRENCH WHEN NO STRUCTURES ARE TO BE BUILT OVER THE TRENCH. IF STRUCTURES ARE TO BE BUILT OVER THE TRENCH, USE RELATIVE COMPACTIONS SHOWN ON THE TRENCH SECTION ABOVE.
 - PAVEMENT SECTIONS SHALL BE NO LESS THAN EXISTING STRUCTURAL SECTIONS, AND AS REQUIRED BY THE COUNTY FOR TRENCHES WITHIN A COUNTY RIGHT-OF-WAY. SEE DETAIL C-120, SEE DETAILS C-116 AND C-116A FOR DRY TRENCH SECTIONS.
 - A WET TRENCH IS A TRENCH IN GROUNDWATER AREAS BUT HAS BEEN DEWATERED IN ACCORDANCE WITH THE CONTRACT REQUIREMENTS.
 - ENDS OF GEOTEXTILE SHALL TOUCH PIPE BARREL. GEOTEXTILE MAY BE LAPPED UNDER PIPE IF DESIRED.
 - 3" WIDE POLYETHYLENE NON-DETECTABLE WARNING TAPE 12" ABOVE ALL PIPE AND LATERALS.
 - VERTICAL TRENCH WALL DEPICTED, SHORING SHALL BE DESIGNED BY CONTRACTOR. TRENCH WALLS MAY BE SLOPED, CONTRACTOR SHALL COORDINATE TRENCH CONFIGURATION WITH OTHER GRAVITY, FORCEMAIN, RECYCLED WATER, AND CONDUIT PIPELINE TRENCH SECTIONS, AND CONFORM TO CULTURAL AND ENVIRONMENTAL RESTRICTIONS, THE TRAFFIC MANAGEMENT PLAN REQUIREMENTS, AND SHALL PROTECT EXISTING IMPROVEMENTS.
 - IF FLOWABLE FILL IS USED FOR BACKFILL, CONTRACTOR SHALL PROTECT AGAINST BUOYANT FORCE.
 - THIS DIMENSION AT PIPE SPRINGLINE, PLUS 24" FOR T-CUT, CONSTITUTES THE PAY LIMIT FOR AC AND AB REPLACEMENT, UNO IN TABLE 1 OF DETAIL C-120A.

PIPELINE WET TRENCH SECTION ALL DIAMETERS C-116B



BACKFLOW PREVENTER WITH HOSE BIBB AND ENCLOSURE NOT TO SCALE C-112

DESIGNED BY: BJC
 DRAWN BY: JAW
 CHECKED BY: MM
 DATE: APRIL 2012

CDM Smith
 2295 Gateway Oaks Drive, Suite 340
 Sacramento, CA 95833
 Tel: (916) 567-9900

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REV. NO.	DATE	DRWN	CHKD	REMARKS
5/01/12	LLB	MDM		ADDENDUM #2

LOS OSOS WASTEWATER COLLECTION SYSTEM

GENERAL CIVIL STANDARD CIVIL DETAILS - 2

PROJECT NO. 42502-83120
 FILE NAME: A-GC-061
 SHEET NO. A-GC-061

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A B C D E F G H I J K L

A. GENERAL NOTES

1. ALL STRUCTURAL DRAWINGS SHALL BE USED IN CONJUNCTION WITH THE CIVIL, MECHANICAL, ARCHITECTURAL, ELECTRICAL, INSTRUMENTATION AND SHOP DRAWINGS AND THE PROJECT SPECIFICATIONS.
2. ALL CONSTRUCTION SHALL CONFORM TO THE 2010 EDITION OF THE CALIFORNIA BUILDING CODE (CBC).
3. SEE ALL OTHER PROJECT DOCUMENTS FOR REGLETS, PIPE SLEEVES, CONDUITS OR OTHER ITEMS TO BE EMBEDDED OR PASSED THROUGH CONCRETE STRUCTURES.
4. PENETRATIONS THROUGH WALLS OR SLABS MAY NOT BE SHOWN ON STRUCTURAL DRAWINGS - REFER TO ASSOCIATED DOCUMENTS FOR LOCATIONS.
5. THE MINIMUM CLEAR DISTANCE BETWEEN PIPE OR CONDUIT PENETRATIONS SHALL BE 3 TIMES THE DIAMETER OF THE PENETRATION OR 8", WHICHEVER IS SMALLER. LOCATE CONDUIT IN MIDDLE THIRD OF SLABS.
6. NO STRUCTURAL MEMBERS SHALL BE CUT FOR PIPES, DUCTS, ETC., UNLESS SPECIFICALLY DETAILED OR APPROVED IN WRITING BY THE ENGINEER.
7. WRITTEN DIMENSIONS SHALL TAKE PRECEDENCE OVER SCALED SIZES.
8. USE PERTINENT STANDARD DETAILS SHOWN, EVEN THOUGH THEY MAY NOT BE CALLED OUT AT LOCATIONS WHERE THEY APPLY.
9. UNLESS MODIFIED BY THIS NOTE, SPECIAL INSPECTION BY ICC CERTIFIED INSPECTORS SHALL BE CONDUCTED IN ACCORDANCE WITH THE REQUIREMENTS SET FORTH IN SECTION 1701 OF THE CALIFORNIA BUILDING CODE, (CBC). THE FOLLOWING ITEMS, AS A MINIMUM, SHALL RECEIVE SPECIAL INSPECTION:
 - a. REINFORCING STEEL: REINFORCING STEEL SHALL BE INSPECTED PRIOR TO CLOSING THE FORMS OR DELIVERY OF CONCRETE TO JOB SITE.
 - b. WATERSTOP: THE INSPECTOR SHALL INSPECT ALL WATERSTOP INSTALLATIONS PRIOR TO CONCRETE PLACEMENT.
 - c. BOLTS INSTALLED IN CONCRETE: BOLTS SHALL BE INSPECTED PRIOR TO AND DURING CONCRETE PLACEMENT.
 - d. CONCRETE: THE INSPECTOR SHALL SUPERVISE THE PREPARATION OF COMPRESSION TEST SPECIMENS AND THE PLACEMENT OF REINFORCED CONCRETE.
 - e. ADHESIVE ANCHORS OR DOWELS INSTALLED IN CONCRETE: AT A MINIMUM, THE INSPECTOR SHALL PERIODICALLY VERIFY ANCHOR TYPE, ANCHOR DIMENSIONS, CONCRETE TYPE, CONCRETE COMPRESSIVE STRENGTH, HOLE DIMENSIONS, HOLE CLEANING PROCEDURES, ANCHOR SPACING, EDGE DISTANCES, CONCRETE THICKNESS ANCHOR EMBEDMENT, TIGHTENING TORQUE, AND ADHESIVE EXPIRATION DATE; THE INSPECTOR SHALL VERIFY ANCHOR INSTALLATION HAS BEEN PERFORMED IN COMPLIANCE WITH THE MANUFACTURER'S PUBLISHED INSTRUCTIONS AND THE APPROPRIATE ICC EVALUATION SERVICE REPORT.
 - f. EXPANSION ANCHORS INSTALLED IN CONCRETE: THE INSPECTOR SHALL PERIODICALLY VERIFY ANCHOR TYPE, ANCHOR DIMENSIONS, CONCRETE TYPE, CONCRETE COMPRESSIVE STRENGTH, HOLE DIMENSIONS, ANCHOR SPACING, EDGE DISTANCES, CONCRETE MEMBER THICKNESS, ANCHOR EMBEDMENT, AND TIGHTENING TORQUE. THE INSPECTOR SHALL VERIFY ANCHOR INSTALLATION HAS BEEN PERFORMED IN COMPLIANCE WITH THE MANUFACTURER'S PUBLISHED INSTRUCTIONS AND THE APPROPRIATE ICC EVALUATION SERVICE REPORT.
- g. WELDING: CONTINUOUS VISUAL INSPECTION SHALL BE PROVIDED FOR ALL STRUCTURAL WELDING DONE IN THE FIELD.
10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SAFELY SUPPORTING THE STRUCTURE DURING CONSTRUCTION. STRUCTURES HAVE BEEN DESIGNED FOR OPERATIONAL LOADS ON THE COMPLETED STRUCTURES. DURING CONSTRUCTION, STRUCTURES SHALL BE SUPPORTED BY BRACING OR SHORING WHEREVER EXCESSIVE CONSTRUCTION LOADS MAY OCCUR.

B. DESIGN LOADS

1. GRAVITY: PUMP STATION AND VAULT ROOF, LIVE LOAD HS-20
2. LATERAL: LATERAL LOADS SHALL COMPLY WITH THE REQUIREMENTS OF CHAPTER 16 OF THE 2010 CBC, UNLESS OTHERWISE NOTED. THE FOLLOWING DESIGN PARAMETERS SHALL BE USED.
WIND (2010 CBC): 85 MPH, EXPOSURE D, $I_w = 1.15$ (UNO)

OCCUPANCY CATEGORY: IV

B. DESIGN LOADS CONT

SEISMIC DESIGN CATEGORY D
SEISMIC (2010 CBC): SEE TABLE BELOW

FACILITIES	S _{DS} *	S _{D1} *
WEST PASO/BAYWOOD	0.937	0.850
EAST YSABEL	0.917	0.832
EAST PASO	0.934	0.846
POCKET PUMP STATIONS	0.984	0.894

* VALUE IS BASED ON THE HIGHER OF SITE CLASS D OR F (SITE CLASS F IS EQUIVALENT TO SITE CLASS E ASSUMING NO SITE MITIGATION IS PERFORMED TO ADDRESS LIQUEFACTION)
IMPORTANCE FACTOR: I = 1.5, I^P = 1.5

C. GEOTECHNICAL INFORMATION

1. ALLOWABLE BEARING PRESSURE SHALL BE 2000 PSF WITH A 50% ALLOWABLE INCREASE FOR LOAD COMBINATIONS INCLUDING SEISMIC OR WIND LOADS.
2. THE COEFFICIENT OF FRICTION SHALL BE 0.4.
3. ADDITIONAL GEOTECHNICAL DESIGN PARAMETERS ARE IN GEOTECHNICAL REPORT TITLED "GEOTECHNICAL REPORT LOS OSOS WASTEWATER PROJECT LOS OSOS COMMUNITY SERVICES DISTRICT SAN LUIS OBISPO COUNTY, CALIFORNIA" PREPARED BY FUGRO WEST, INC. DATED MARCH 9, 2004 AND "ADDENDUM TO GEOTECHNICAL REPORT FOR LOS OSOS WASTEWATER PROJECT" PREPARED BY FUGRO CONSULTANTS, INC. DATED OCTOBER 24, 2011.

D. CAST-IN-PLACE CONCRETE

1. REINFORCED CONCRETE SHALL CONFORM TO ACI 318-08 AND 350-06.
2. MINIMUM CONCRETE COMPRESSIVE STRENGTH AT 28 DAYS, UNLESS OTHERWISE NOTED ON THE DRAWINGS:

STRUCTURAL CONCRETE (CLASS E):	f'c = 5000 psi
SEAL SLAB (CLASS D):	f'c = 4000 psi
SIDEWALKS, PAVEMENT, CONCRETE FILL, ENCASEMENT (CLASS B):	f'c = 3000 psi
3. REINFORCING STEEL SHALL CONFORM TO THE LATEST EDITION OF ASTM SPECIFICATION A615 GRADE 60 AS SPECIFIED IN SPECIFICATION SECTION 03200.
4. REINFORCING STEEL FABRICATION SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF CRSI MANUAL OF STANDARD PRACTICE.
5. REINFORCING SHALL HAVE THE FOLLOWING CLEAR CONCRETE COVER, UNLESS OTHERWISE NOTED ON THE DRAWINGS.

CONDITION	COVER
UNFORMED SURFACES IN CONTACT WITH EARTH	3"
FORMED SURFACES EXPOSED TO EARTH, WATER, & WEATHER	2"
BOTTOM SURFACES FOR SLAB OVER WATER	2"
CONCRETE SURFACES FOR DRY CONDITIONS:	
WALLS AND SLAB	1 1/2"
BEAMS:	
PRIMARY REINFORCEMENT	2"
STIRRUPS AND TIES	1 1/2"

6. SPLICED BARS SHALL HAVE A MINIMUM LAP AS SPECIFIED IN LATEST EDITION OF THE ACI 315 DETAILING MANUAL AND ACI 318 CHAPTER 21 UNLESS OTHERWISE NOTED IN CONTRACT DOCUMENTS. ALL SPLICES SHALL BE CLASS B TENSION SPLICES AND BE IN ACCORDANCE WITH THE STANDARD DETAILS, UNO.
7. CONSTRUCTION JOINTS SHALL NOT BE PLACED AT LOCATIONS OTHER THAN THOSE SHOWN ON THE DRAWINGS WITHOUT THE PRIOR APPROVAL OF THE ENGINEER.
8. ALL EXPOSED CORNERS OF CONCRETE SHALL HAVE 3/4" CHAMFER, UNLESS NOTED OTHERWISE.
9. WRITTEN SPACING AND LOCATION OF REINFORCING SHALL TAKE PRECEDENCE OVER DEPICTED SPACING AND LOCATION.

E. STRUCTURAL STEEL

1. STRUCTURAL STEEL WIDE FLANGE SHAPES SHALL CONFORM TO ASTM A992.
2. OTHER STRUCTURAL STEEL SHAPES, PLATES AND BARS SHALL CONFORM TO ASTM A36.
3. HOLLOW STRUCTURAL SECTIONS SHALL CONFORM TO ASTM A500 GRADE B.
4. STRUCTURAL STEEL SHALL BE FABRICATED, ERECTED, AND CONNECTED IN COMPLIANCE WITH THE LATEST AISC SPECIFICATION FOR STRUCTURAL BUILDINGS.
5. SHOP PAINTING AND FIELD PAINTING, IF REQUIRED, SHALL BE DONE IN ACCORDANCE WITH THE SPECIFICATIONS.
6. SEE SPECIFICATION SECTION 05500 FOR ADDITIONAL REQUIREMENTS.

F. ANCHORS AND ADHESIVE DOWELS FOR CONCRETE

1. CAST-IN ANCHORS SHALL BE HEADED BOLTS CONFORMING TO ASTM F1554 AND GALVANIZED IN ACCORDANCE WITH ASTM A153, UNO.
2. POST-INSTALLED ANCHORS AND ADHESIVE DOWELS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AND THE APPROPRIATE ICC EVALUATION SERVICE REPORTS. ONLY ANCHORS OR ADHESIVES WITH CURRENT ICC EVALUATION SERVICE REPORTS AVAILABLE FOR DOWNLOAD ON THE ICC WEBSITE SHALL BE USED. SEE SPEC SECTION 05500 FOR ADDITIONAL INFORMATION.
3. THE CONTRACTOR SHALL LOCATE EXISTING CONCRETE REINFORCEMENT USING NON-DESTRUCTIVE METHODS PRIOR TO DRILLING HOLES FOR POST-INSTALLED ANCHORS OR DOWELS. ADJUST SPACING OF ANCHORS TO MISS EXISTING REINFORCING. THE TOTAL NUMBER OF ANCHORS PROVIDED SHALL BE EQUAL TO WHAT IS SHOWN ON THE DRAWINGS OR EQUIPMENT ANCHORAGE SHOP DRAWINGS.
4. POST-INSTALLED ANCHORS SHALL NOT BE USED FOR VIBRATORY LOADS, UNO.

G. CONCRETE JOINTS

1. UNO, WATERSTOPS SHALL BE PROVIDED IN JOINTS WHERE SHOWN ON THE DRAWINGS AND WHERE INDICATED BY THE FOLLOWING:
 - a. IN ALL JOINTS IN WALLS AND SLABS OF LIQUID CONTAINMENT STRUCTURES TO PREVENT EXFILTRATION OF LIQUID INTO SOIL OR DRY AREAS OF THE STRUCTURE.
 - b. IN ALL BELOW-GRADE JOINTS IN WALLS AND SLABS TO PREVENT INFILTRATION OF GROUNDWATER INTO STRUCTURE.
2. PROVIDE SEALANT IN JOINTS AS SHOWN ON THE DRAWINGS.
3. MATERIAL FOR WATERSTOPS AND JOINT SEALANTS SHALL BE AS NOTED ON THE DRAWINGS AND IN ACCORDANCE WITH THE SPECIFICATIONS.
4. INTENTIONALLY ROUGHEN THE SURFACES OF CONSTRUCTION JOINTS AND WHERE NEW CONCRETE CONTACTS EXISTING CONCRETE TO A CONCRETE SURFACE PROFILE (CSP) 9 PER ICRI GUIDELINE 03732 WITH 1/4" MINIMUM AMPLITUDE. THIS ROUGHENED SURFACE MAY BE ACCOMPLISHED BY RAKING THE PLASTIC CONCRETE OR BY BUSHHAMMERING OR CHISELING HARDENED CONCRETE SURFACES. THOROUGHLY CLEAN JOINT SURFACES OF LOOSE OR WEAKENED MATERIALS BY WATERBLASTING OR SANDBLASTING. SATURATE SURFACE WITH WATER 12 HOURS BEFORE AND AGAIN IMMEDIATELY PRIOR TO CONCRETE PLACEMENT.

REV. NO.	DATE	DRWN	CHKD	REMARKS
5/01/12	LLB	MDM		ADDENDUM #2

DESIGNED BY: CND
DRAWN BY: TVN
CHECKED BY: LGS
DATE: APRIL 2012

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UNDERGROUND SERVICE AGENCY OF NORTHERN CALIFORNIA

LOS OSOS WASTEWATER COLLECTION SYSTEM
STRUCTURAL NOTES 1

PROJECT NO. 42502-83120
FILE NAME: A-S-001
SHEET NO.
A-S-001

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H. PRECAST CONCRETE

1. THE SUPPLIER OF THE PRECAST CONCRETE UNITS SHALL DESIGN AND PROVIDE DRAWINGS AND CALCULATIONS STAMPED AND SIGNED BY A PROFESSIONAL CIVIL OR STRUCTURAL ENGINEER REGISTERED IN THE STATE OF CALIFORNIA. THE DESIGN SHALL BE PER THE SPECIFICATIONS AND AS SHOWN IN THE DRAWINGS.
2. THE SUPPLIER SHALL COORDINATE WITH THE CONTRACTOR FOR THE SIZE AND LOCATION OF ALL ROOF AND WALL PENETRATIONS PRIOR TO FABRICATION.

I. SUBMERSIBLE PUMP STATION

1. REINFORCED CONCRETE PIPE AND DESIGN FOR THE CAISSONS CONSTRUCTION PUMP STATIONS SHALL BE IN ACCORDANCE WITH SPECIFICATION SECTION 02612.
2. PVC LINING FOR THE PUMP STATION WALLS SHALL BE IN ACCORDANCE WITH SPECIFICATION SECTION 02765.
3. CAISSON CONSTRUCTION SHALL BE IN ACCORDANCE WITH SPECIFICATION SECTION 02355.

J. DEFERRED SUBMITTALS

1. THE FOLLOWING PORTIONS OF THE PROJECT ARE DEFERRED SUBMITTAL ITEMS & HAVE NOT BEEN DESIGNED BY THE ENGINEER OF RECORD.
 - a) SUPPORT AND ANCHORAGE OF EQUIPMENT
 - b) PRECAST MANHOLES
 - c) PRECAST VAULTS
 - d) PRECAST REINFORCED CONCRETE PIPE CAISSONS

2. CALCULATIONS AND DRAWINGS OF DEFERRED SUBMITTAL ITEMS SHALL BE STAMPED AND SIGNED BY A PROFESSIONAL CIVIL OR STRUCTURAL ENGINEER REGISTERED IN THE STATE OF CALIFORNIA.

3. DEFERRED SUBMITTAL ITEMS SHALL NOT BE INSTALLED UNTIL THE ENGINEER OF RECORD HAS REVIEWED THE SUBMITTAL DOCUMENTS AND INDICATED THAT THEY HAVE BEEN REVIEWED AND THAT THEY HAVE BEEN FOUND TO BE IN GENERAL CONFORMANCE WITH THE DESIGN OF THE STRUCTURE.

K. ABBREVIATION NOTES

1. ABBREVIATIONS AND DESIGNATIONS FOR STEEL MEMBERS MAY BE FOUND IN THE CURRENT MANUAL OF STEEL CONSTRUCTION BY AISC.
2. WELDING SYMBOLS AND ABBREVIATIONS MAY BE FOUND IN AWS D1.1.
3. ABBREVIATIONS LISTED ARE FOR USE WITH STRUCTURAL DRAWINGS ONLY. SOME ABBREVIATIONS LISTED MAY NOT BE USED ON THE PLANS.

STRUCTURAL ABBREVIATIONS

Ø	DIAMETER	LG	LONG
AB	ANCHOR BOLT	LLH	LONG LEG HORIZONTAL
ADDL	ADDITIONAL	LLV	LONG LEG VERTICAL
AL	ALUMINUM	LNTL	LINTEL
ALT	ALTERNATE(ING)	LONG.	LONGITUDINAL
APPROX	APPROXIMATE(LY)	LP	LOW POINT
ARND	AROUND	LT	LEFT
BGS	BELOW GROUND SURFACE	MATL	MATERIAL
BLDG	BUILDING	MAX	MAXIMUM
BLK	BLOCK(ING)	MFR	MANUFACTURER
BO	BOTTOM OF	MIN	MINIMUM
BOT	BOTTOM	MOL	MAXIMUM OPERATING LEVEL
BTWN	BETWEEN	MTL	METAL
CHKD	CHECKED	(N)	NEW
CIRC	CIRCUMFERENTIAL	NOM	NOMINAL
CJ	CONSTRUCTION JOINT	NSG	NON-SHRINK GROUT
CJP	COMPLETE JOINT PENETRATION	NTS	NOT TO SCALE
CL, ☉	CENTERLINE	O/E	OR EQUAL
CTJ	CONTROL JOINT	OC	ON CENTER
CLR	CLEAR	OD	OUTSIDE DIAMETER
COL	COLUMN	O.F	OUTSIDE FACE
CONC	CONCRETE	OPNG(S)	OPENING(S)
CONN	CONNECTION	OPP	OPPOSITE
CONST	CONSTRUCTION	OPP HD	OPPOSITE HAND
CONT	CONTINUOUS	OPT	OPTION (AL)
CTR	CENTER (ED)	PJF	PREMOLDED JOINT FILLER
D	DEEP, DEPTH	PL	PLATE
DEMO	DEMOLITION	PREFAB	PRE-FABRICATED
DET	DETAIL	PT	POINT
DIA	DIAMETER	R	RISER
DIAG	DIAGONAL	RAD	RADIUS
DIM	DIMENSION	RD	ROOF DRAIN
DL	DEAD LOAD	REF	REFERENCE / REFER
DN	DOWN	REINF	REINFORCE (D, ING)
DO	DITTO	REQD	REQUIRED
DR	DRAIN	REV	REVISION
DWG(S)	DRAWING(S)	RO	ROUGH OPENING
DWL(S)	DOWEL(S)	RT	RIGHT
EA	EACH	SECT	SECTION
EB	EXPANSION BOLT	SHT	SHEET
ECC	ECCENTRIC	SIM	SIMILAR
EF	EACH FACE	SL	SLOPE
EL	ELEVATION	SP	SPACE (S, ED)
EMBED	EMBEDMENT	SPEC	SPECIFICATION, SPECIFIED
EQ	EQUAL (LY)	SQ	SQUARE
EQPT	EQUIPMENT	SST	STAINLESS STEEL
EQUIV	EQUIVALENT	SSW	SIDE SEAM WELD
ES	EACH SIDE	STD	STANDARD
ETC	ETCETERA	STL	STEEL
EW	EACH WAY	STRUC	STRUCTURE (S, URAL)
EXP	EXPANSION	SYM	SYMMETRICAL
EXST, (E)	EXISTING	T	TREAD (S)
EXT	EXTERIOR	T&B	TOP AND BOTTOM
f'c	CONCRETE COMPRESSIVE STRENGTH	TD	TRENCH DRAIN
FD	FLOOR DRAIN	THK	THICK (NESS)
FDN	FOUNDATION	T.O.	TOP OF
FIG	FIGURE	TOC	TOP OF CONCRETE
FIN	FINISH (ED)	TOS	TOP OF STEEL
FL	FLOOR	T.O.W.	TOP OF WALL
FLEX	FLEXIBLE	TRNSV	TRANSVERSE
FTG	FOOTING	TSW	TOP SEAM WELD
GA	GAGE	TYP	TYPICAL
GALV	GALVANIZED	UNO	UNLESS NOTED OTHERWISE
GALVS	GALVANIZED STEEL	VB	VAPOR BARRIER
GR	GUARD RAIL	VERT	VERTICAL
GRTG	GRATING	W	WIDE
HDR	HEADER	W/	WITH
H	HEIGHT	W/O	WITHOUT
HOR	HORIZONTAL	WD	WIDTH / WOOD
HP	HIGH POINT	WP	WORKING POINT
HR	HANDRAIL	WPG	WATERPROOFING
HSB	HIGH STRENGTH BOLTS	WS	WATERSTOP
ICC	INTERNATIONAL CODE COUNCIL	WT	WEIGHT
ID	INSIDE DIAMETER	WWF	WELDED
I.F.	INSIDE FACE	WIRE	FABRIC
INT	INTERIOR		
INV	INVERT		
JT	JOINT		
JT FLR	JOINT FILLER		

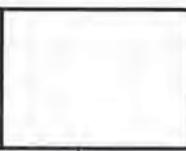
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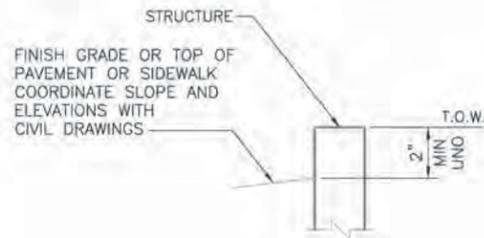
LOS OSOS WASTEWATER COLLECTION SYSTEM
STRUCTURAL NOTES 2

PROJECT NO.42502-B3120
FILE NAME: A-S-002
SHEET NO.
A-S-002

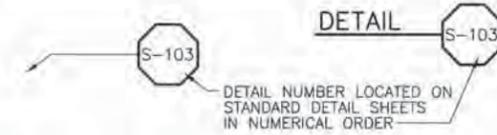
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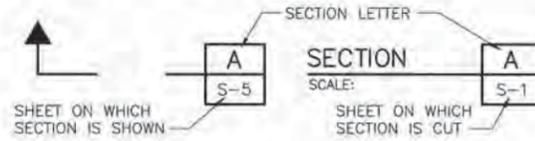
CLASS 2 PERMEABLE MATERIAL	
STRUCTURAL FILL/BACKFILL	
UNDISTURBED EARTH OR SCARIFIED SOIL	
CONCRETE FILL/CONCRETE	
GROUT	
COVER PLATE	



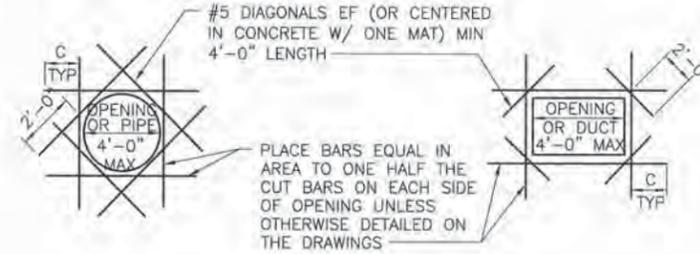
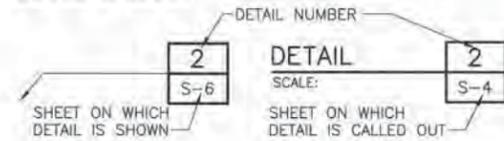
STRUCTURAL STANDARD DETAIL CALLOUT



SECTION CALLOUT



DETAIL CALLOUT

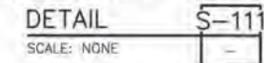


1. C = TENSION DEVELOPMENT LENGTH: PROVIDE STD HOOK IF FULL DEVELOPMENT LENGTH IS NOT POSSIBLE.
2. REINFORCING STEEL IS TO BE CARRIED ACROSS ALL CONSTRUCTION JOINTS.
3. DETAIL IS TYP FOR ALL OPENINGS GREATER THAN 10 INCHES IN CONCRETE WALLS AND SLABS UNLESS OTHERWISE DETAILED ON THE DRAWINGS.
4. EXTRA BARS ARE NOT REQUIRED AT AN OPENING EDGE PARALLEL TO AND WITHIN 6 INCHES OF A WALL OR BEAM, UNO.

EXTRA REINFORCEMENT AT CONCRETE OPENINGS



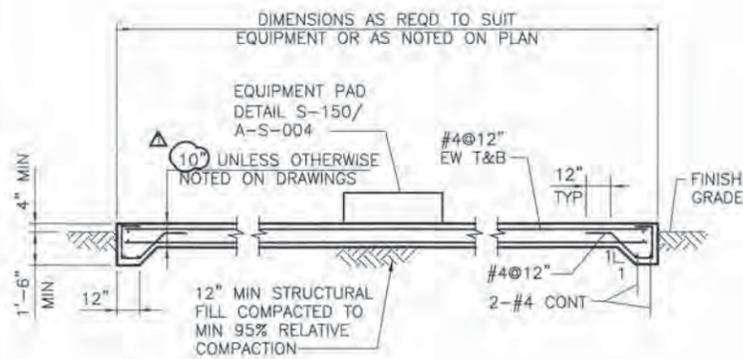
LAP SPLICE LENGTH IN CONCRETE



REINF	DEVELOPMENT LENGTH (INCHES)		LAP LENGTH (INCHES)	
	TOP BAR	OTHER	TOP BAR	OTHER
#3	20	15	26	20
#4	22	17	28	22
#5	27	21	35	27
#6	32	25	42	32
#7	38	29	49	38
#8	43	33	56	43
#9	48	37	63	48

NOTES:

1. TOP BAR IS ANY HORIZ BAR WITH MORE THAN 12" CONCRETE CAST IN ONE LIFT BENEATH IT. HORIZONTAL BARS MAY OCCUR IN WALL OR A SLAB.
2. PROVIDE LAP LENGTHS PER ABOVE TABLE AT ALL SPLICES.
3. SPLICES IN HORIZONTAL BARS SHALL BE STAGGERED.
4. UNLESS OTHERWISE DETAILED ON THE DRAWINGS, SPLICES IN TWO CURTAINS SHALL NOT OCCUR IN THE SAME LOCATION.
5. BASED ON ACI 318-08 CHAP. 12 AND 21.
6. COMPRESSIVE STRENGTH OF CONCRETE, f'c, IS 5,000 psi.



EXTERIOR EQUIPMENT SLAB
DETAIL S-114
SCALE: NONE

REV. NO.	DATE	DRWN	CHKD	REMARKS
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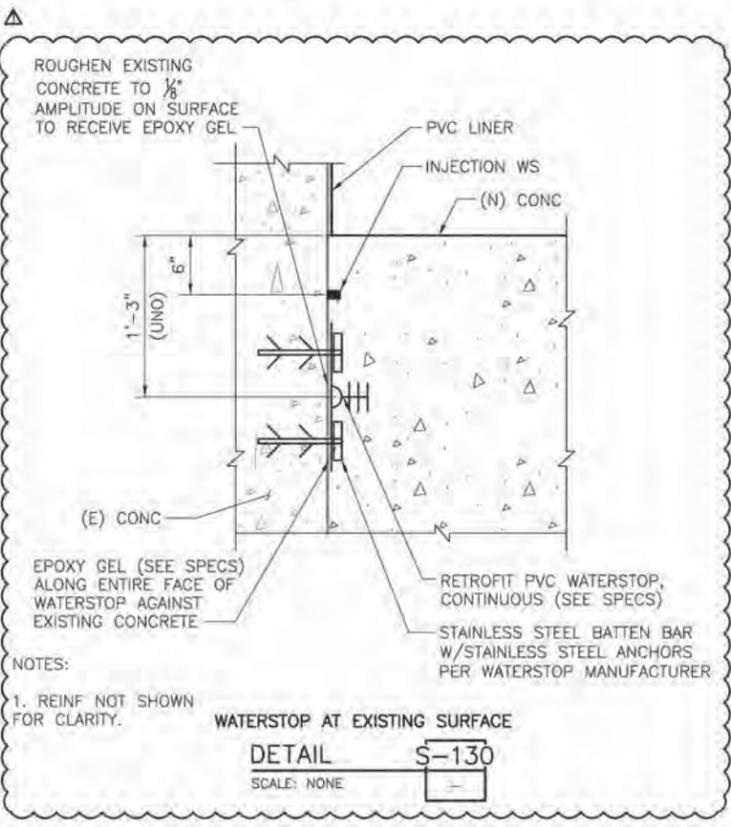


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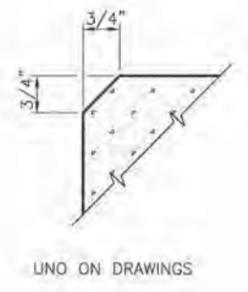
LOS OSOS WASTEWATER COLLECTION SYSTEM
STANDARD STRUCTURAL DETAILS 1

PROJECT NO. 42502-83120
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 SHEET NO.
A-S-003

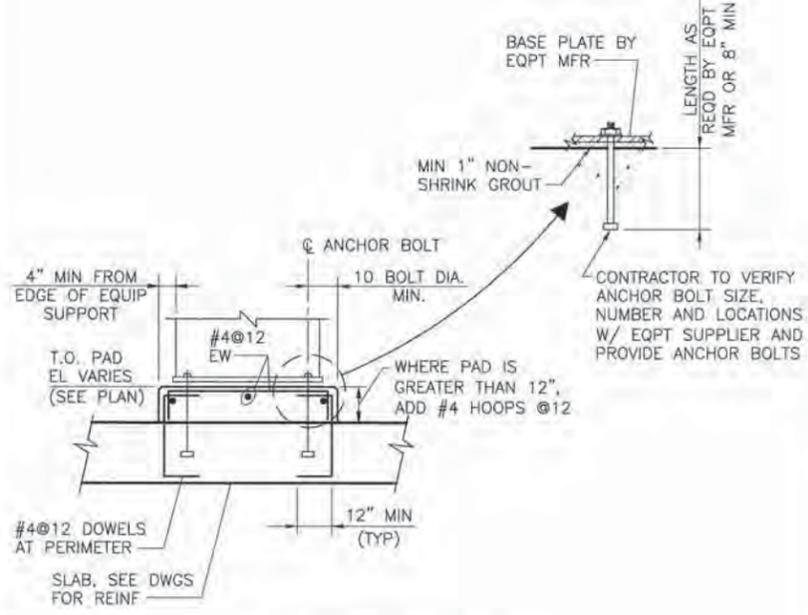
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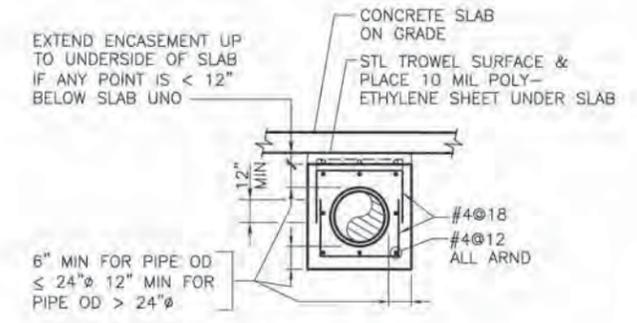
WATERSTOP AT EXISTING SURFACE
DETAIL S-130
 SCALE: NONE



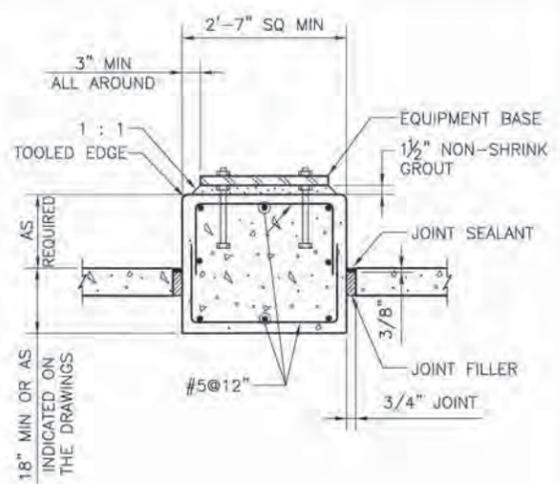
CONCRETE CHAMFER
DETAIL S-140
 SCALE: NONE



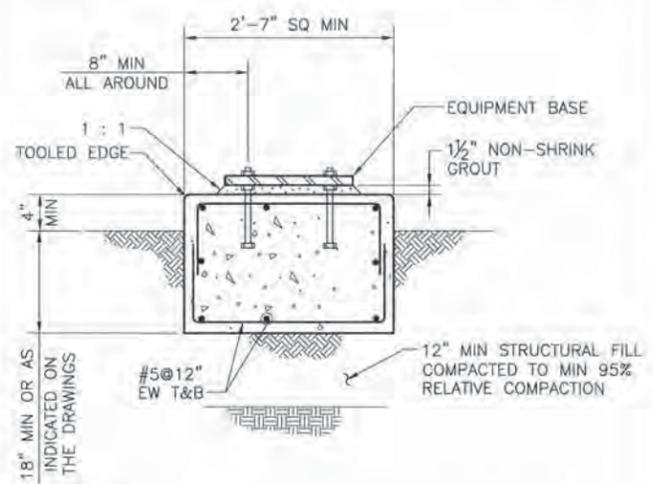
EQUIPMENT PAD
DETAIL S-150
 SCALE: NONE



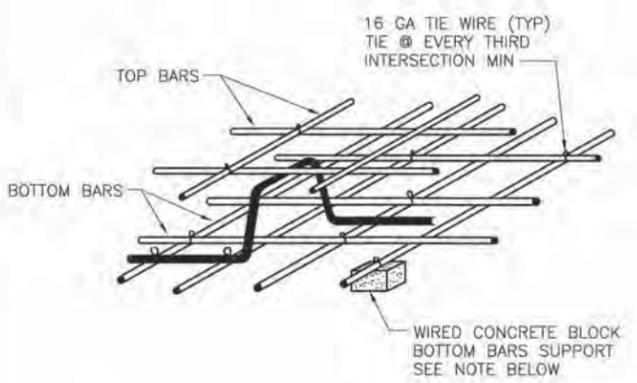
PIPE ENCASEMENT
DETAIL S-172
 SCALE: NONE



EQUIPMENT BASE ON GRADE WITH SEPARATING JOINT
DETAIL S-193
 SCALE: NONE



SMALL EQUIPMENT BASE ON GRADE
DETAIL S-194
 SCALE: NONE



REINFORCEMENT SUPPORT
DETAIL S-204
 SCALE: NONE

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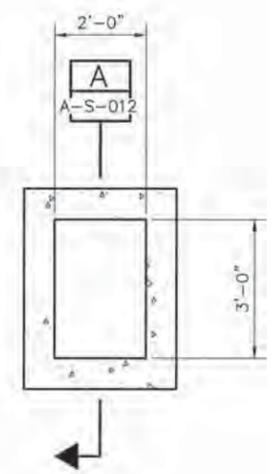
LOS OSOS WASTEWATER COLLECTION SYSTEM
STANDARD STRUCTURAL DETAILS 2

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 SHEET NO.
A-S-004

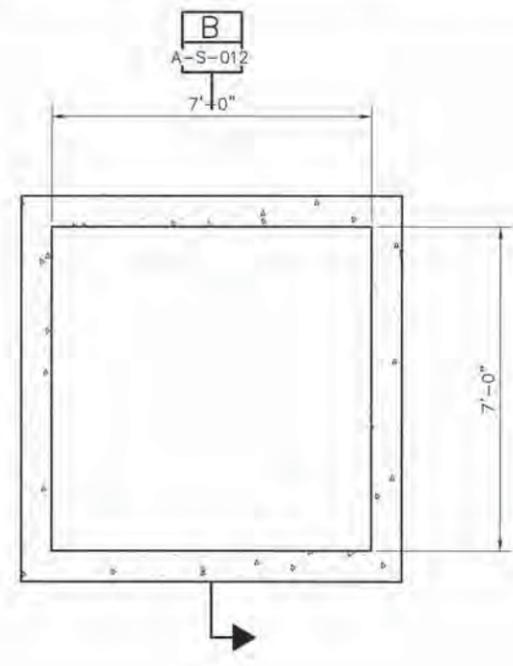
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 REVISE DOCUMENTS: C:\Users\jgarcia\Documents\Projects\LosOsos\Drawings\A-S-011-04/30/12 16:38 Bullock\XREFS\LosOsos-04r-Submittals-PSMoore.sxd, CA-CAD

A B C D E F G H I J K L

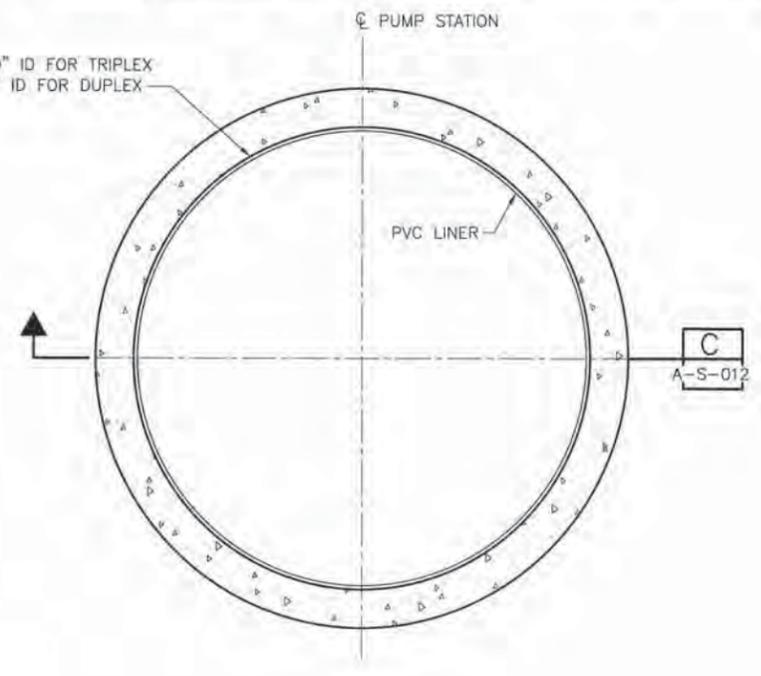
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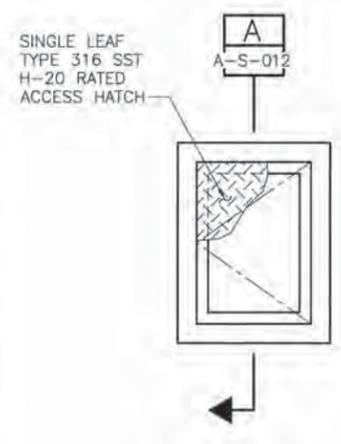
PRECAST CLEANOUT VAULT FOUNDATION PLAN
SCALE: 1/2"=1'-0"



PRECAST VALVE VAULT FOUNDATION PLAN
SCALE: 1/2"=1'-0"

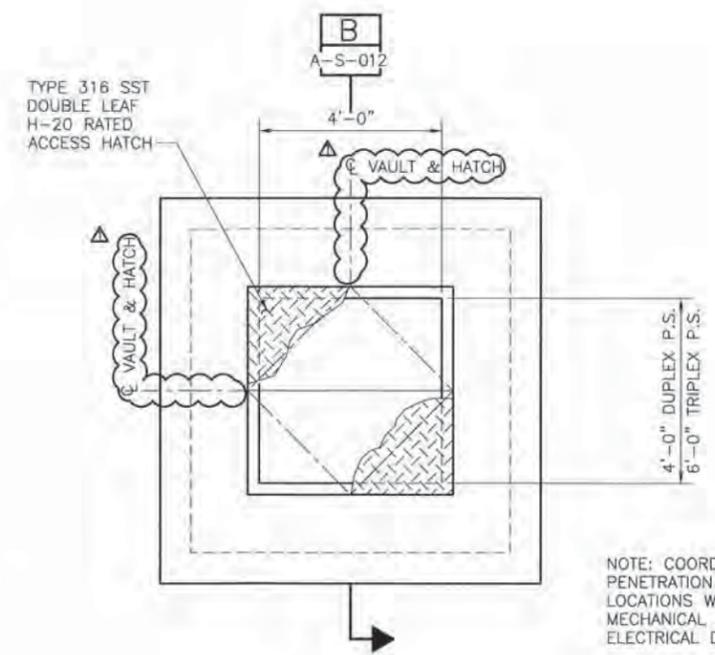


PUMP STATION FOUNDATION PLAN
SCALE: 1/2"=1'-0"



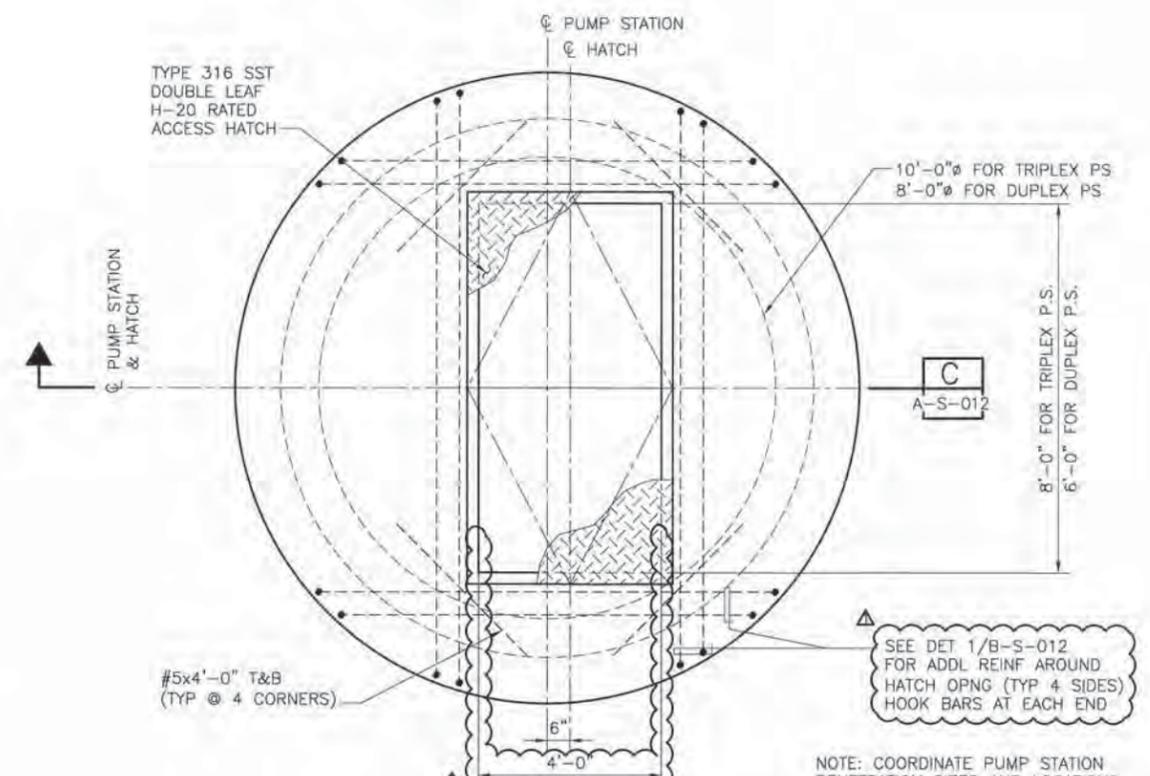
PRECAST CLEANOUT VAULT TOP PLAN
SCALE: 1/2"=1'-0"

NOTE: COORDINATE VAULT PENETRATION SIZES AND LOCATIONS WITH CIVIL, MECHANICAL AND ELECTRICAL DRAWINGS.



PRECAST VALVE VAULT TOP PLAN
SCALE: 1/2"=1'-0"

NOTE: COORDINATE VAULT PENETRATION SIZES AND LOCATIONS WITH CIVIL, MECHANICAL AND ELECTRICAL DRAWINGS.



PUMP STATION TOP PLAN
SCALE: 1/2"=1'-0"

SEE DET 1/B-S-012 FOR ADDL REINF AROUND HATCH OPNG (TYP 4 SIDES) HOOK BARS AT EACH END

NOTE: COORDINATE PUMP STATION PENETRATION SIZES AND LOCATIONS WITH CIVIL, MECHANICAL AND ELECTRICAL DRAWINGS.

REV. NO.	DATE	DRWN	CHKD	REMARKS
5/01/12	LLB	MDM		ADDENDUM #2

DESIGNED BY: CND
 DRAWN BY: TVN
 CHECKED BY: LGS
 DATE: APRIL 2012

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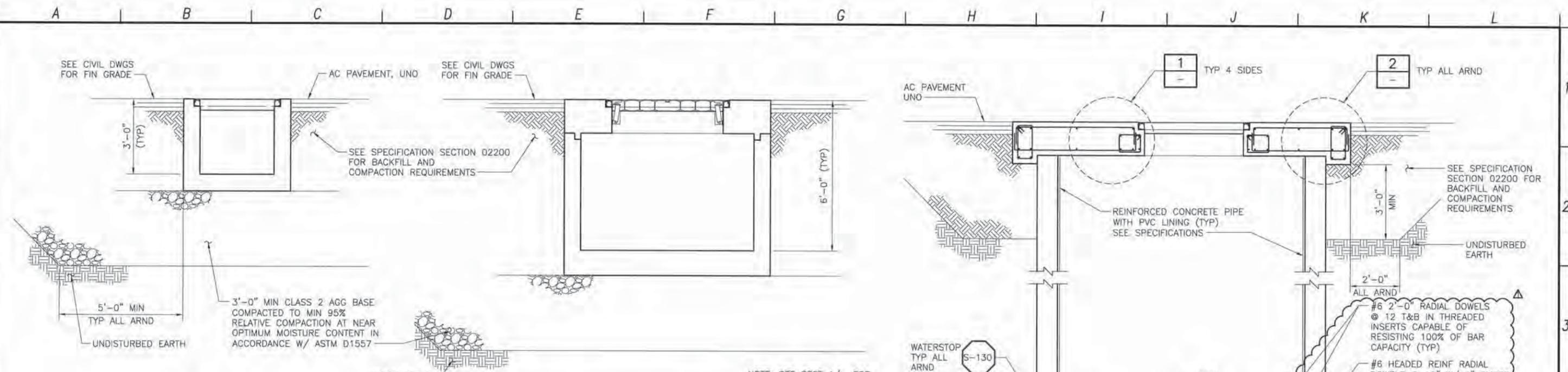


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LOS OSOS WASTEWATER COLLECTION SYSTEM
STRUCTURAL SUBMERSIBLE PUMP STATIONS & VALVE VAULTS - FOUNDATION AND TOP PLANS

PROJECT NO. 42502-83120
 FILE NAME: A-S-011
 SHEET NO. A-S-011

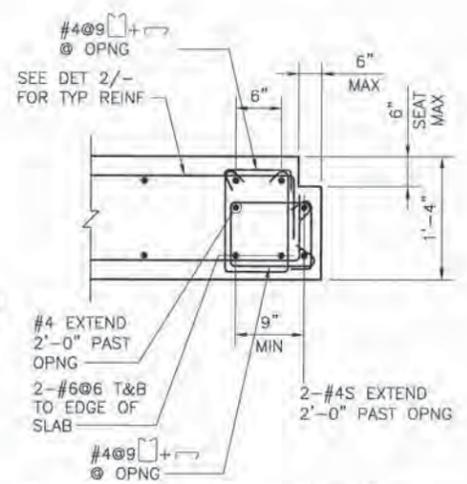
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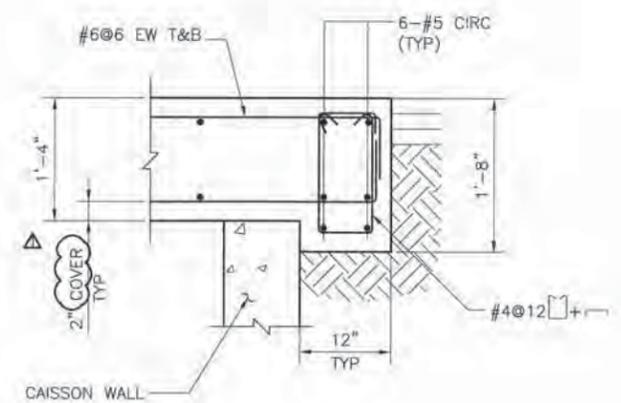
PRECAST CLEANOUT VAULT
SECTION A
 SCALE: 1/2"=1'
 A-S-011

PRECAST VALVE VAULT
SECTION B
 SCALE: 1/2"=1'
 A-S-011

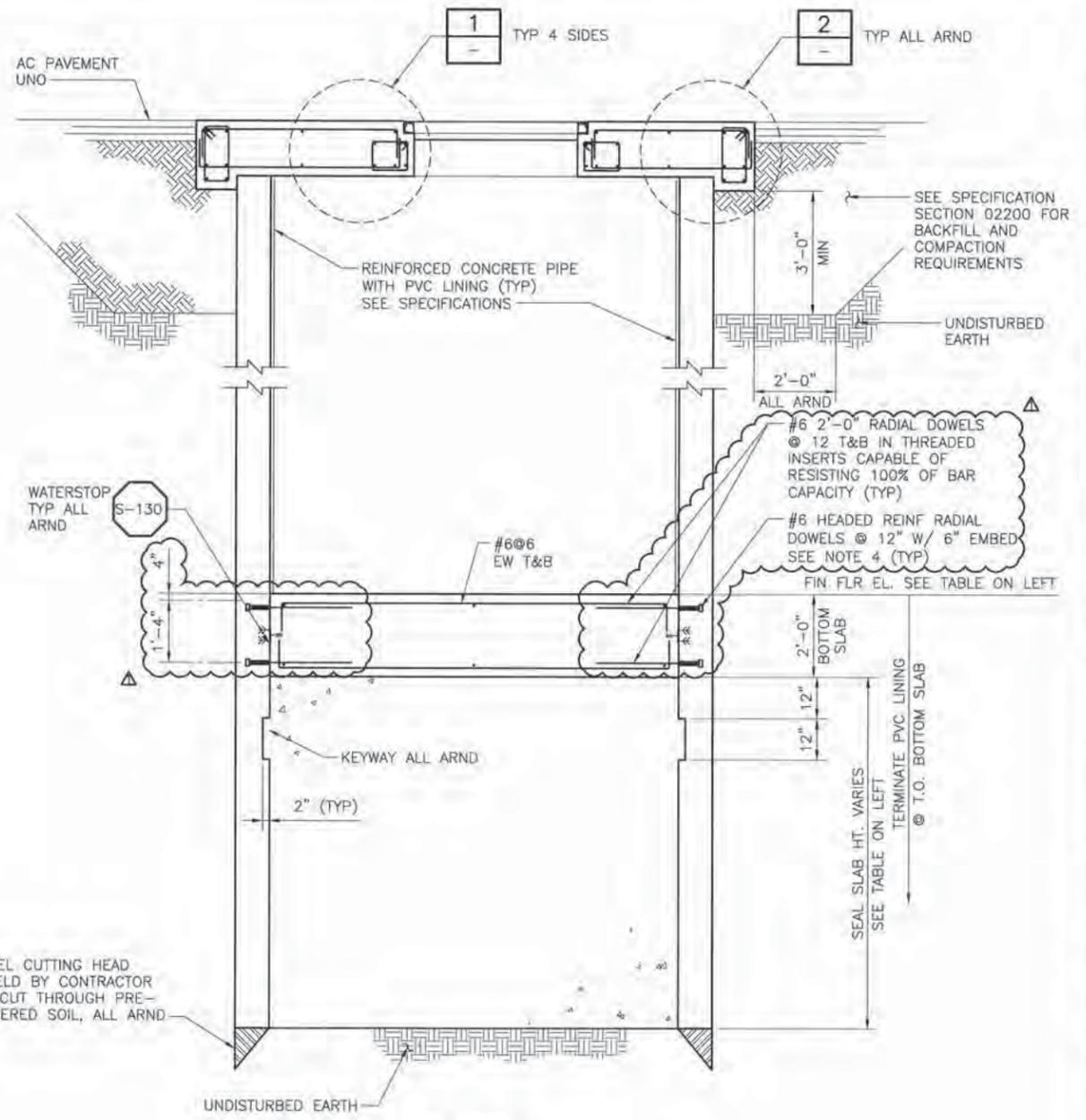
NOTES:
 1. ACCESS HATCH NOT SHOWN FOR CLARITY.



DETAIL 1
 SCALE: 1"=1'
 A-S-013



DETAIL 2
 SCALE: 1"=1'
 A-S-013



PUMP STATION
SECTION C
 SCALE: 1/2"=1'
 A-S-011

- NOTES:
- REFER TO SPEC SECTION Q2355 FOR PUMP STATION RECOMMENDED CHRONOLOGICAL SEQUENCED OF CONSTRUCTION AND ADD'L INFO.
 - REFER TO THE TABLE HEREIN FOR THE FINISHED GRADE ELEVATIONS AND FINISHED FLOOR ELEVATIONS OF THE WET WELL AT VARIOUS SITES. SEE CIVIL DWGS FOR FIN GR EL OF PRECAST VALVE VAULT AND CLEANOUT VAULT.
 - 8' OR 10' INTERNAL DIA PRECAST CONCRETE SECTIONS USED FOR THE SUBMERSIBLE PUMP STATIONS SHALL BE REINFORCED CONCRETE PIPE PER ASTM C-76, CLASS III. REINFORCEMENT SHALL BE CIRCULAR. JOINTS SHALL BE STEEL FLUSH BELL WITH O-RING GASKET, CONFORMING TO ASTM C-361.
 - SEE SPECIFICATION Q3200 FOR ADD'L INFORMATION ON HEADED REINF.

PUMP	TRIPLEX		DUPLEX	
	WEST PASO	BAYWOOD	EAST YSABEL	EAST PASO
SUBMERSIBLE PS FIN GRADE EL.	17.04'	10.16'	79.3'	71.50'
SUBMERSIBLE PS FIN FLR EL.	-3.40'	-7.70'	64.80'	56.70'
SUBMERSIBLE PS I.D.	10'-0"	10'-0"	8'-0"	8'-0"
MIN SEAL SLAB DEPTH	9'-0"	7'-6"	6'-0"	6'-0"

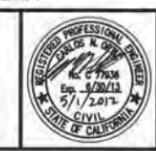
REV. NO.	DATE	DRWN	CHKD	REMARKS
5/01/12	LLB	MDM		ADDENDUM #2

DESIGNED BY: CNO
 DRAWN BY: TVH
 CHECKED BY: LGS
 DATE: APRIL 2012

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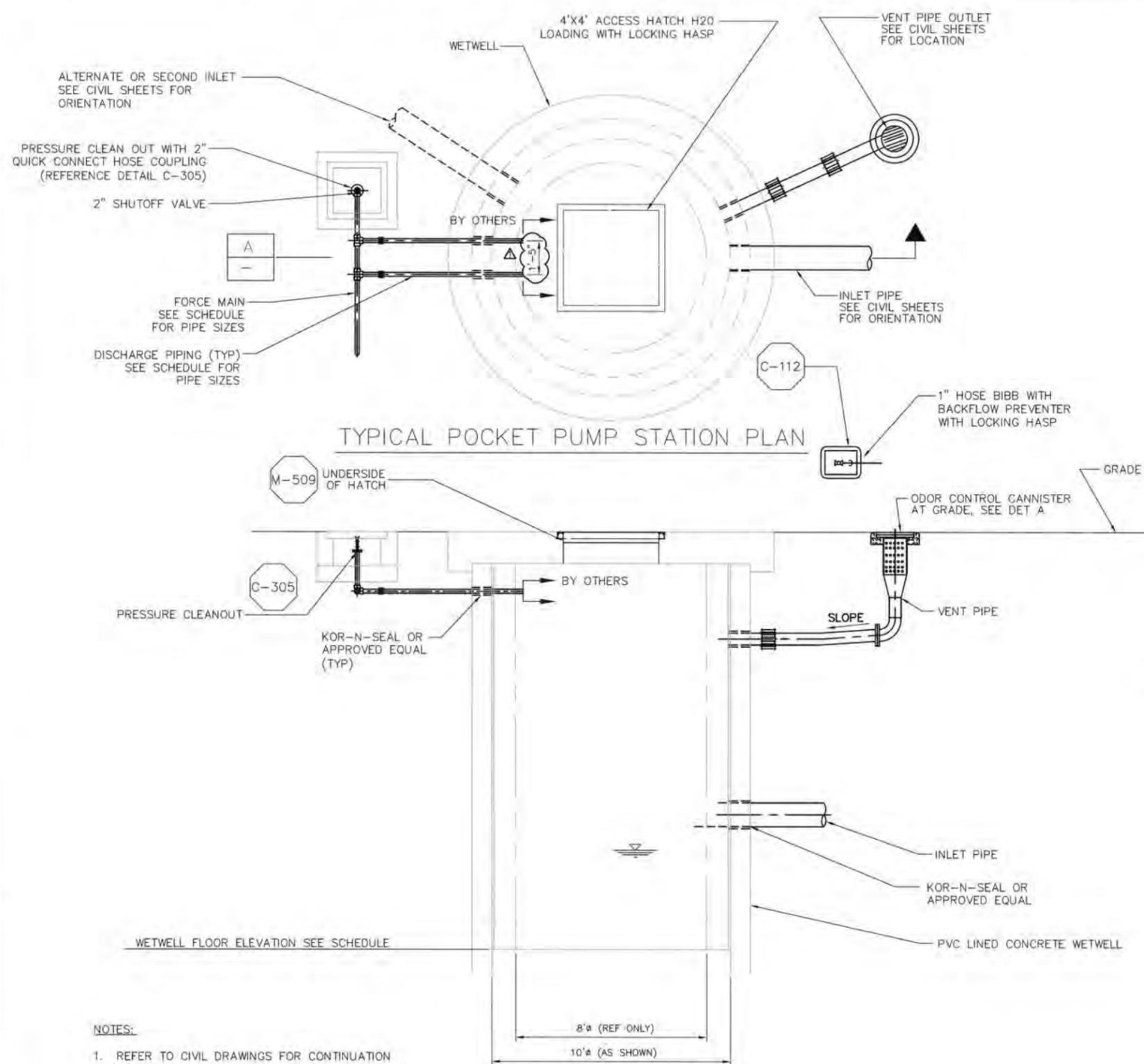
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LOS OSOS WASTEWATER COLLECTION SYSTEM
STRUCTURAL SUBMERSIBLE PUMP STATIONS & VALVE VAULTS - SECTIONS AND DETAILS

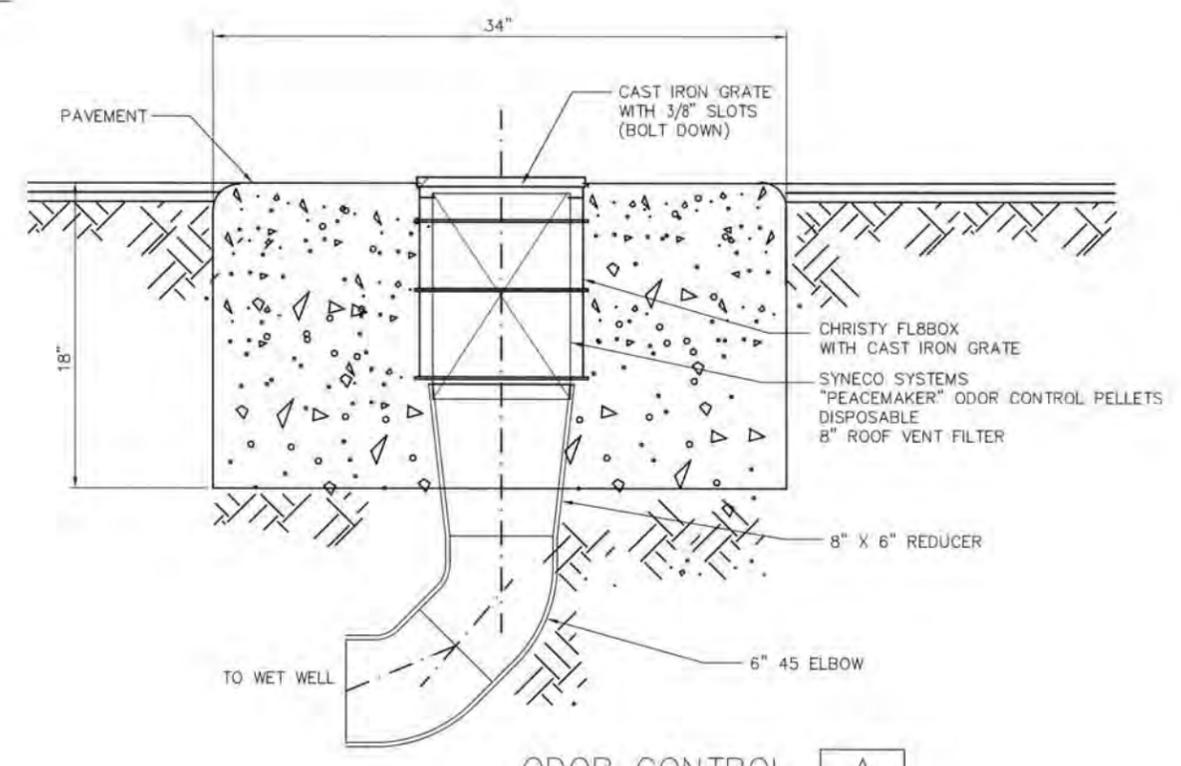
PROJECT NO. 42502-83120
 FILE NAME: A-S-012
 SHEET NO. **A-S-012**

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A B C D E F G H I J K L



POCKET GRINDER PUMP STATION SCHEDULE								
DESCRIPTION	04A	07A	08A	09A	10A	11A	12A	13A
AREA	A	A	A	A	A	A	A	A
TOP WETWELL SLAB ELEVATION (FT)	17.7	45.5	28	33	47.7	53.1	67.89	77.4
WETWELL FLOOR ELEVATION (FT)	5.83	33.93	14.83	19.33	31.83	37.83	55.83	66.03
WETWELL DEPTH (FT)	11.87	11.57	13.17	13.67	15.87	15.27	12.06	11.37
WETWELL DIAMETER (FT)	10	8	8	8	8	8	10	10
INLET PIPING SIZE (IN)	8	8	8	8	8	8	8	8
NUMBER OF INLETS	2	1	1	1	1	2	2	2
	12.05	38.10	19.00	23.50	36.00	44.00	60.00	70.20
	11.59					42.00	60.00	70.20
INLET PIPING INVERT ELEVATION (FT)								
DISCHARGE PIPING SIZE (IN)	1.5	1.5	2	2	1.5	1.5	1.5	1.5
FORCE MAIN SIZE (IN)	2	1.5	2	2	2	2	2	2
FORCE MAIN CENTERLINE ELEVATION (FT)	14.62	42.44	24.92	29.92	44.62	50.02	64.81	74.32



SECTION A
POCKET PUMP STATION

- NOTES:
- REFER TO CIVIL DRAWINGS FOR CONTINUATION OF PIPING.
 - CONTRACTOR TO VERIFY INLET PIPING CONDITIONS WITH COLLECTION SYSTEM PIPING.
 - CONTRACTOR TO VERIFY INLET PIPING AND WETWELL ELEVATION CONDITIONS.

REV. NO.	DATE	DRWN	CHKD	REMARKS
5/01/12	LLB	MDM		ADDENDUM #2

DESIGNED BY: MPH
 DRAWN BY: JAW
 CHECKED BY: CCA
 DATE: APRIL 2012

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 Sacramento, CA 95833
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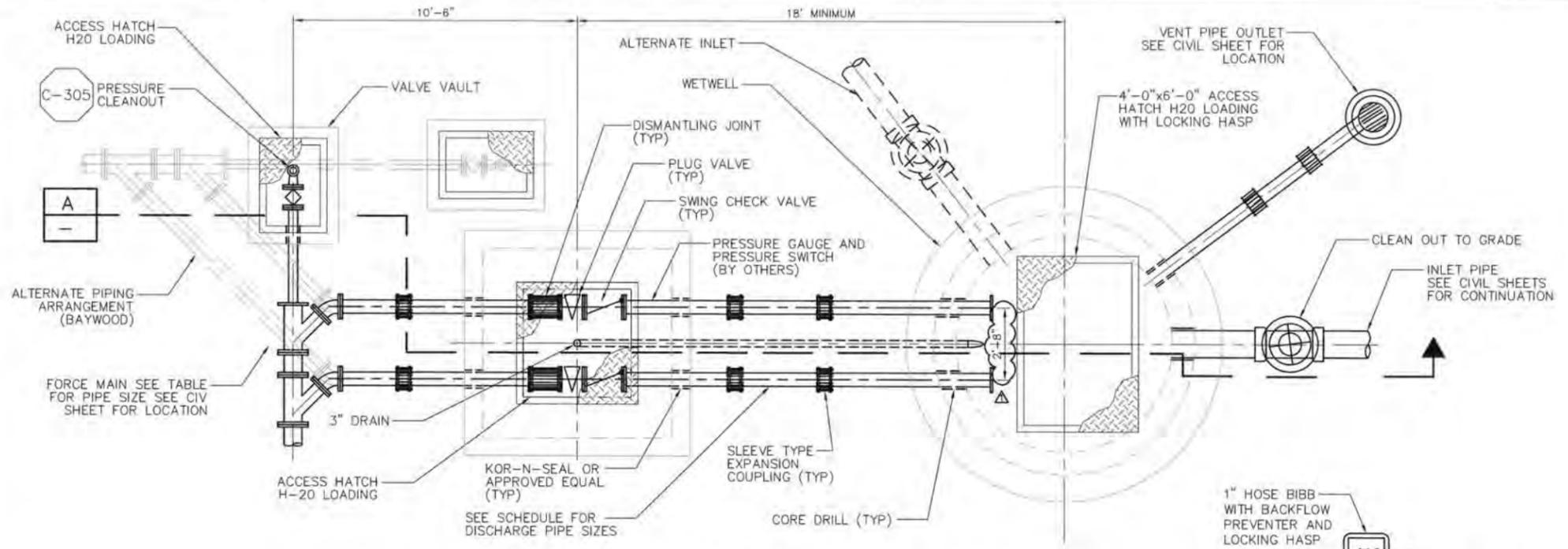
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LOS OSOS WASTEWATER COLLECTION SYSTEM
MECHANICAL POCKET PUMP STATIONS PLAN & SECTIONS

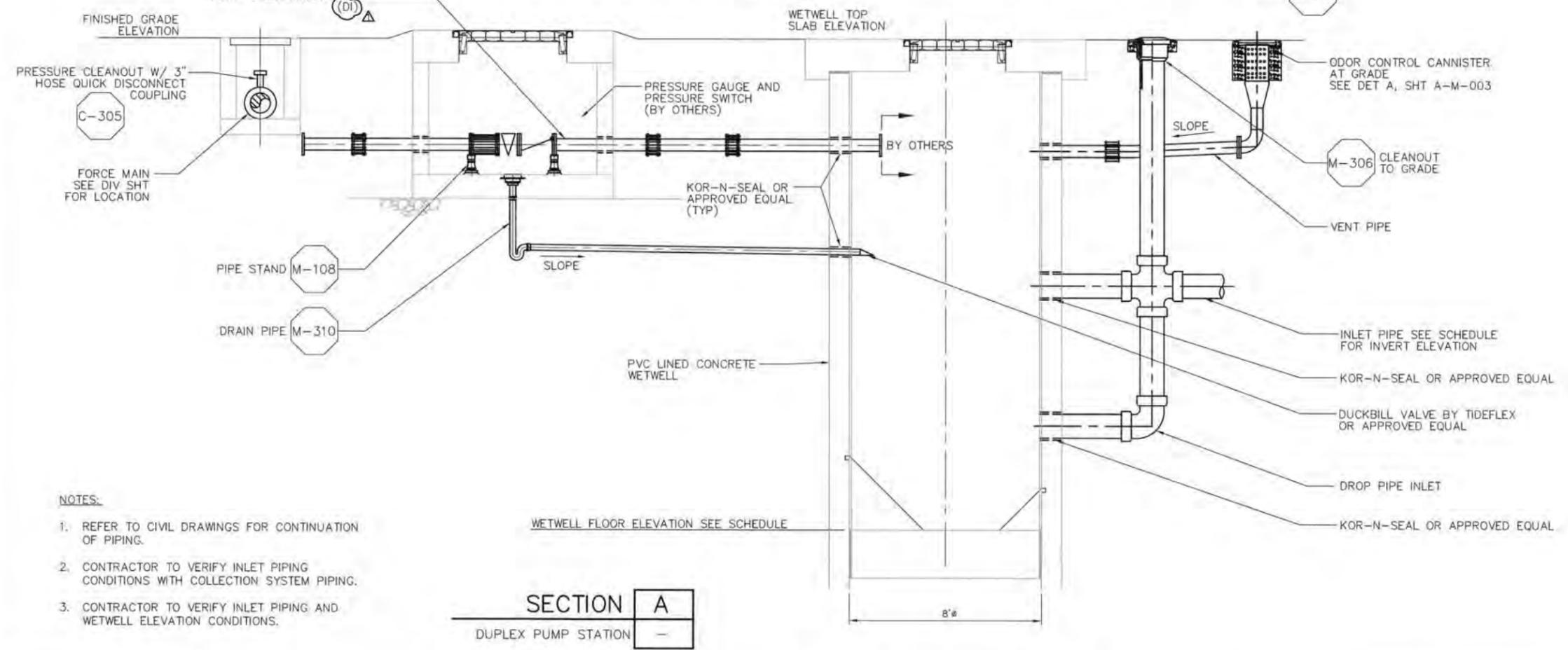
PROJECT NO. 42502-83120
 FILE NAME: A-M-003
 SHEET NO. **A-M-003**

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DUPLEX PUMP STATION SCHEDULE			
DESCRIPTION	BAYWOOD	EAST YSABEL	EAST PASO
AREA	A	A	A
TOP WETWELL SLAB ELEVATION (FT)	10.16	79.3	71.75
WETWELL FLOOR ELEVATION (FT)	-7.7	64.8	56.5
WETWELL DEPTH (FT)	17.8	14.6	15.2
INLET PIPING SIZE (IN)	12	8	8
NUMBER OF INLETS	1	2	1
INLET PIPING INVERT ELEVATION (FT)	-1	70	61.79
DISCHARGE PIPING SIZE (IN)	6	6	6
FORCE MAIN SIZE (IN)	6	6	6
FORCE MAIN CENTERLINE ELEVATION (FT)	6.9	76.1	68.4



DUPLEX SUBMERSIBLE PUMP STATION PLAN



- NOTES:
- REFER TO CIVIL DRAWINGS FOR CONTINUATION OF PIPING.
 - CONTRACTOR TO VERIFY INLET PIPING CONDITIONS WITH COLLECTION SYSTEM PIPING.
 - CONTRACTOR TO VERIFY INLET PIPING AND WETWELL ELEVATION CONDITIONS.

SECTION A
DUPLEX PUMP STATION

REV. NO.	DATE	DRWN	CHKD	REMARKS
5/01/12	LLB	MDM		ADDENDUM #2

DESIGNED BY: MPH
 DRAWN BY: JAW
 CHECKED BY: CCA
 DATE: APRIL 2012

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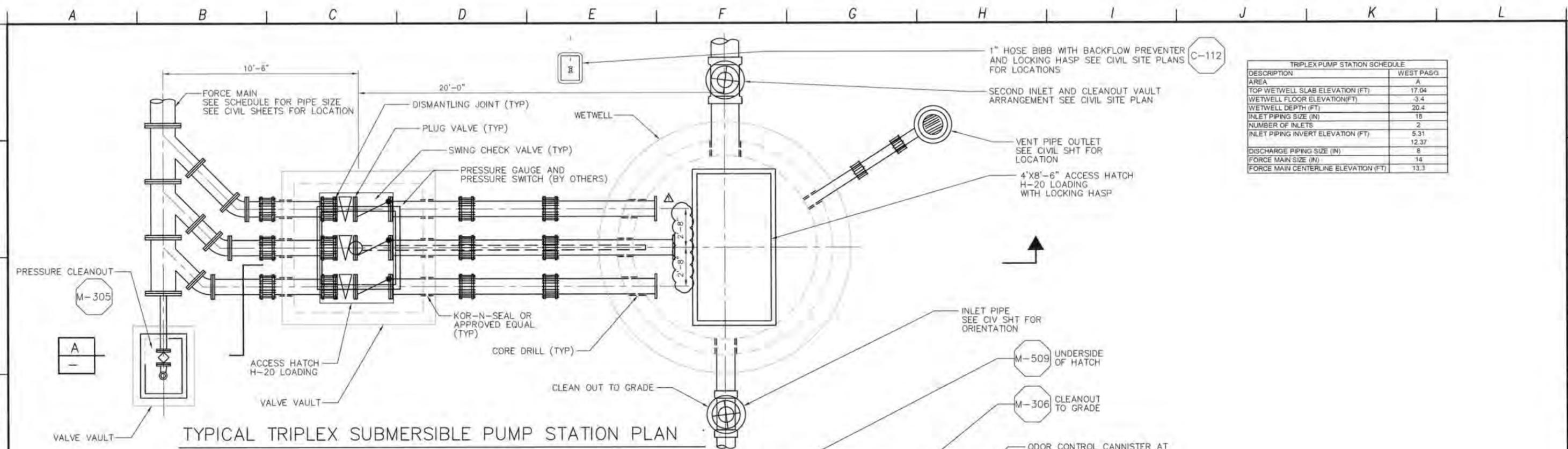


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LOS OSOS WASTEWATER COLLECTION SYSTEM
MECHANICAL
SUBMERSIBLE PUMP STATIONS
DUPLEX LAYOUT - PLAN & SECTION

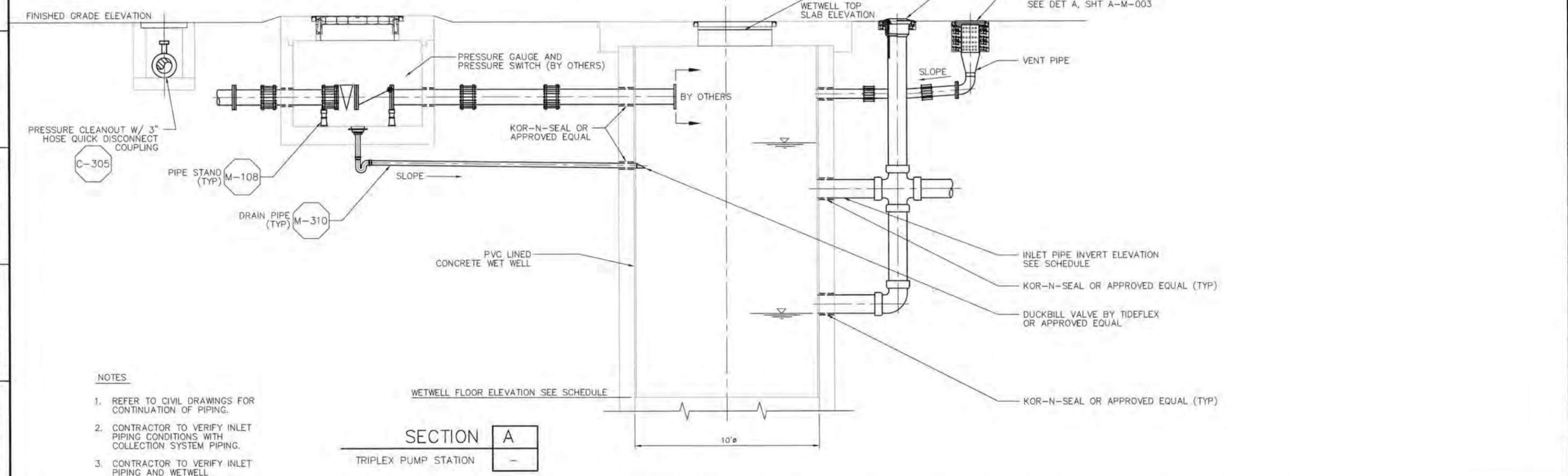
PROJECT NO. 42502-83120
FILE NAME: A-M-004
SHEET NO. A-M-004

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TRIPLEX PUMP STATION SCHEDULE	
DESCRIPTION	WEST PASO
AREA	A
TOP WETWELL SLAB ELEVATION (FT)	17.04
WETWELL FLOOR ELEVATION (FT)	-3.4
WETWELL DEPTH (FT)	20.4
INLET PIPING SIZE (IN)	18
NUMBER OF INLETS	2
INLET PIPING INVERT ELEVATION (FT)	5.31
	12.37
DISCHARGE PIPING SIZE (IN)	8
FORCE MAIN SIZE (IN)	14
FORCE MAIN CENTERLINE ELEVATION (FT)	13.3

TYPICAL TRIPLEX SUBMERSIBLE PUMP STATION PLAN

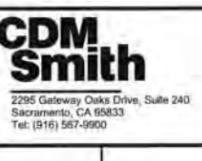


- NOTES**
- REFER TO CIVIL DRAWINGS FOR CONTINUATION OF PIPING.
 - CONTRACTOR TO VERIFY INLET PIPING CONDITIONS WITH COLLECTION SYSTEM PIPING.
 - CONTRACTOR TO VERIFY INLET PIPING AND WETWELL ELEVATION CONDITIONS.

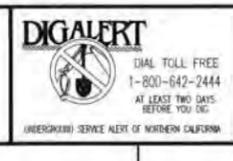
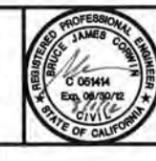
SECTION A
TRIPLEX PUMP STATION

REV. NO.	DATE	DRWN	CHKD	REMARKS
5/01/12	LLB	MDM		ADDENDUM #2

DESIGNED BY: MPH
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 DATE: APRIL 2012



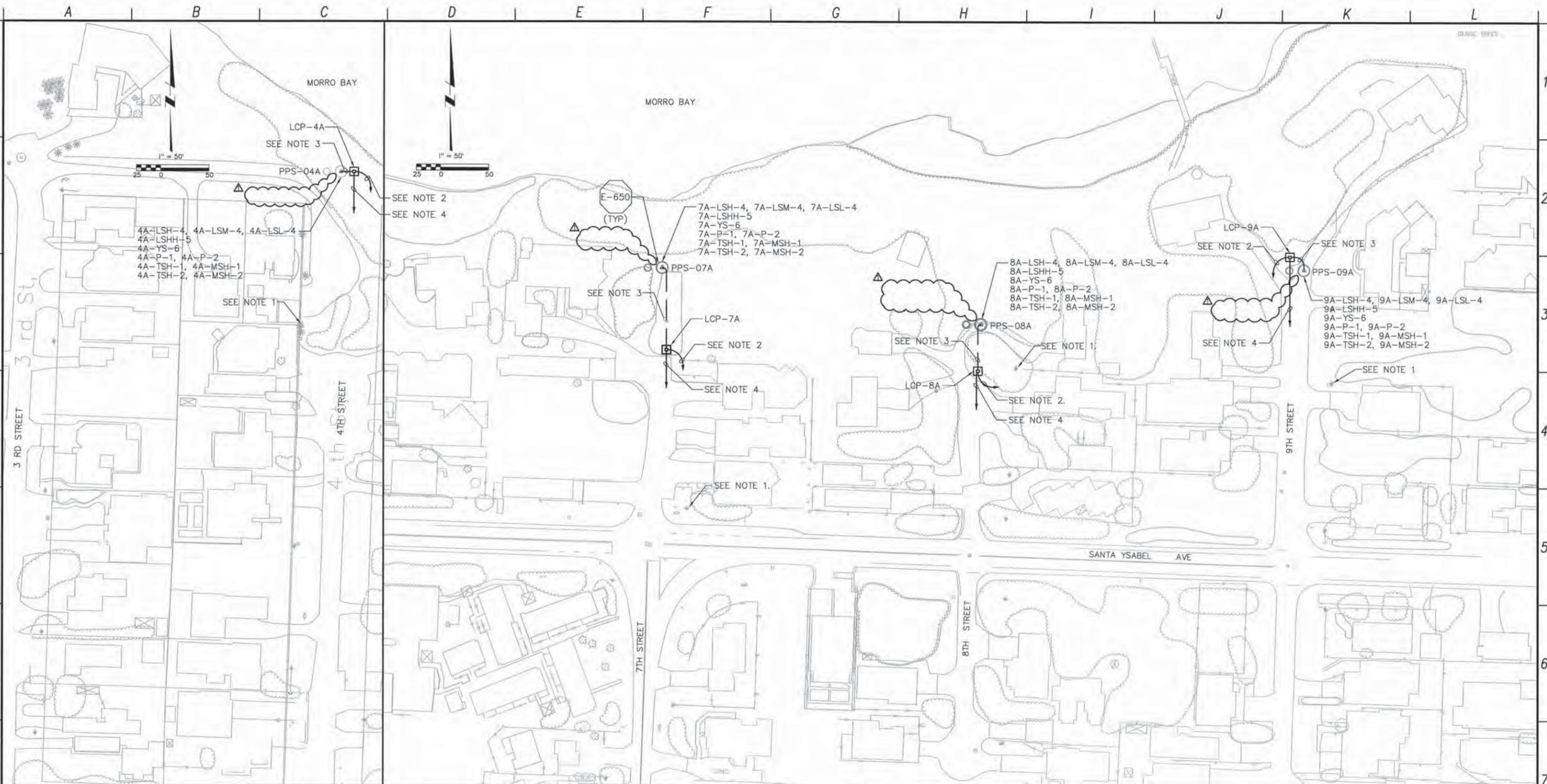
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LOS OSOS WASTEWATER COLLECTION SYSTEM
MECHANICAL SUBMERSIBLE PUMP STATIONS
 TRIPLEX LAYOUT - PLAN & SECTION

PROJECT NO. 42502-83120
 FILE NAME: A-M-005
 SHEET NO. A-M-005

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- NOTES:
- APPROXIMATE PG&E POWER FEED LOCATION
 - CONTRACTOR SHALL PROVIDE 3" CO FROM PG&E PROVIDED POLE MOUNTED XFMR TO LCP. CONTRACTOR MUST RECEIVE APPROVAL FROM PG&E PRIOR TO CONSTRUCTION. PG&E SHALL PROVIDE CONDUCTORS, FURNISH AND INSTALL CONDUIT PER PG&E REQUIREMENTS.
 - POWER CONTROL DUCTBANK SHALL INCLUDE (3) [1" CONDUIT ONLY]
 - FIBER OPTIC CONDUIT. REFER TO SPEC 16800.

REV. NO.	DATE	DRWN	CHKD	REMARKS
5/01/12	LLB	MDM		ADDENDUM #2

DESIGNED BY: CAL
 DRAWN BY: JAW
 CHECKED BY: GNM
 DATE: APRIL 2012

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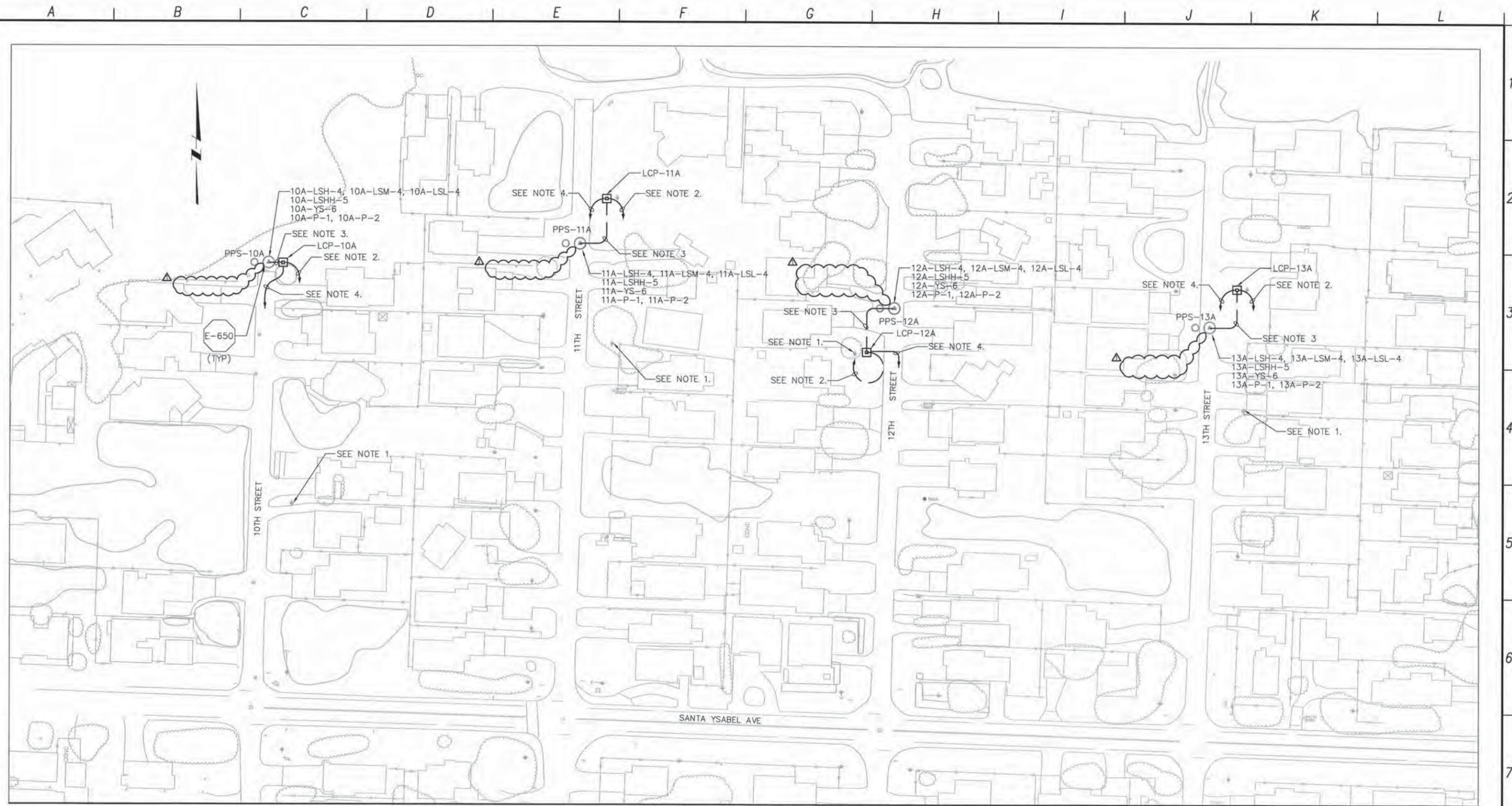


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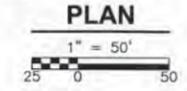
LOS OSOS WASTEWATER COLLECTION SYSTEM
ELECTRICAL
 POCKET PUMP STATIONS 04A, 07A, 08A & 09A ELECTRICAL SITE PLAN

PROJECT NO. 42502-83120
 FILE NAME: A-E-101
 SHEET NO.
A-E-101

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POCKET PUMP STATIONS 10A, 11A, 12A, & 13A ELECTRICAL



- NOTES:
- APPROXIMATE PG&E POWER FEED LOCATION
 - CONTRACTOR SHALL PROVIDE 3" CO FROM PG&E PROVIDED POLE MOUNTED XFMR TO LCP. CONTRACTOR MUST RECEIVE APPROVAL FROM PG&E PRIOR TO CONSTRUCTION. PG&E SHALL PROVIDE CONDUCTORS, FURNISH AND INSTALL CONDUIT PER PG&E REQUIREMENTS.
 - POWER CONTROL DUCTBANK SHALL INCLUDE
 - (3) [1" CONDUIT ONLY]
 - FIBER OPTIC CONDUIT. REFER TO SPEC 16800.

REV. NO.	DATE	DRWN	CHKD	REMARKS
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DESIGNED BY: _____ CAL
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 DATE: _____ APRIL 2012

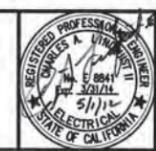
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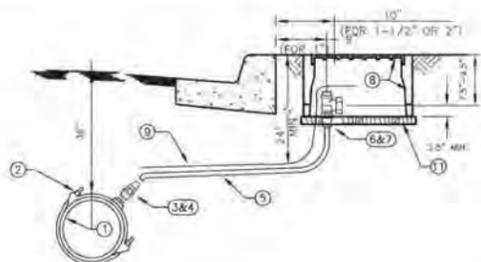
ELECTRICAL

POCKET PUMP STATIONS 10A, 11A, 12A & 13A ELECTRICAL SITE PLAN

PROJECT NO. 42502-83120
 FILE NAME: A-E-102
 SHEET NO.
A-E-102

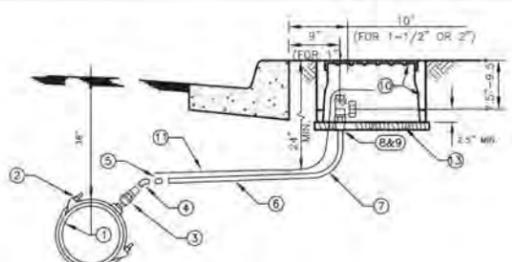
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A B C



3/4"	
1 WATER MAIN	PER PLAN
2 SERVICE SADDLE	BRONZE, DOUBLE STRAP, JAMES JONES J-979 FOR AC PIPE, JAMES JONES J-989 FOR PVC PIPE OR APPROVED EQUAL
3 CORPORATION STOP	GROUNDKEY: JAMES JONES J-1944, 1" SIZE ONLY, MIP X MIP #41
4 ADAPTER	1" FIP X INSTANTITE, MUELLER H15456
5 SERVICE LATERAL	1" POLYETHYLENE ONLY, IPS SIZE, 200 PSI MINIMUM, WESTFLEX COLD LABEL, 3408, DRISCOPE, OR APPROVED EQUAL
6 ANGLE METER STOP (BALL TYPE)	JAMES JONES J-1527 (1" X 1" OR 1" X 3/4")
7 ADAPTER	1" MIP X INSTANTITE H15456
8 METER BOX AND LID	BROOKS 37 SERIES (TRAFFIC LID IN TRAFFIC AREA ONLY)
9	10 GAGE TRACER WIRE PER SPECIFICATIONS.
10	IN UNPAVED AREAS, RAISE METER BOX 1" ABOVE THE ADJACENT FINISHED SURFACE.
11	1" X 12" CONCRETE BASE
12	CUSTOMER SIDE CURB STOP - JONES J 1913W

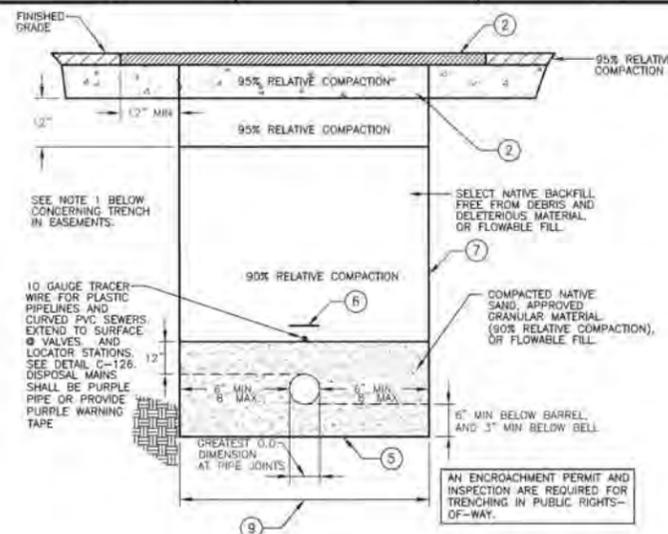
SINGLE WATER SERVICE C-110



1-1/2"	
1 WATER MAIN	PER PLAN
2 SERVICE SADDLE	BRONZE, DOUBLE STRAP, JAMES JONES J-979 FOR AC PIPE, JAMES JONES J-989 FOR PVC PIPE OR APPROVED EQUAL
3 CORPORATION STOP	BALL VALVE: JAMES JONES J-1943, 2" SIZE ONLY, MIP X MIP
4 BRASS 45° EL	2" 45° ELBOW ONLY
5 ADAPTER	FORD 2" PAC COUPLING X MIP
6 SERVICE LATERAL	2" SCH 80 PVC ONLY
7 90° ELBOW	2" SCH 80 90° ELBOW
8 ANGLE METER STOP (BALL TYPE)	FORD FB11027
9 ADAPTER	2" SCH 80 MIP X SOC
10 METER BOX AND LID	BROOKS 38 SERIES (TRAFFIC LID IF IN DRIVEWAY)
11	10 GAGE TRACER WIRE PER SPECIFICATIONS.
12	IN UNPAVED AREAS, RAISE METER BOX 1" ABOVE THE ADJACENT FINISHED SURFACE.
13	1" X 12" CONCRETE BASE
14	CUSTOMER SIDE CURB STOP - JF108

SINGLE WATER SERVICE C-111

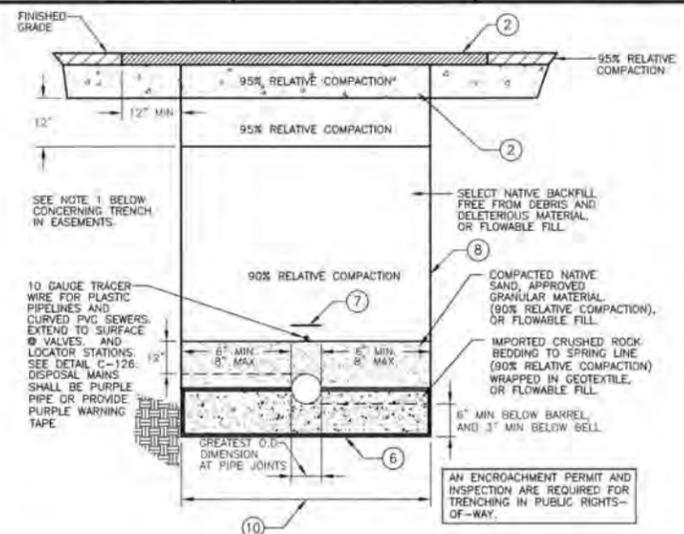
D E F



- NOTES:**
- A MINIMUM OF 90% RELATIVE COMPACTION IS PERMITTED IN A NON-ROADWAY TRENCH WHEN NO STRUCTURES ARE TO BE BUILT OVER THE TRENCH. IF STRUCTURES ARE TO BE BUILT OVER THE TRENCH, USE RELATIVE COMPACTIONS SHOWN ON THE TRENCH SECTION ABOVE.
 - PAVEMENT SECTIONS SHALL BE NO LESS THAN EXISTING STRUCTURAL SECTIONS, AND AS REQUIRED BY THE COUNTY FOR TRENCHES WITHIN A COUNTY RIGHT-OF-WAY. SEE DETAIL C-120.
 - SEE DETAIL C-116B FOR WET TRENCH SECTION.
 - A DRY TRENCH IS A TRENCH IN NON-GROUNDWATER AREAS.
 - WHERE THE BOTTOM OF THE TRENCH HAS BEEN DISTURBED, THE CONTRACTOR SHALL SCARIFY AND COMPACT THE SUBGRADE TO 90% RELATIVE COMPACTION.
 - 3" WIDE POLYETHYLENE NON-DETECTABLE WARNING TAPE 12" ABOVE ALL PIPE AND LATERALS.
 - VERTICAL TRENCH WALL DEPICTED, SHORING SHALL BE DESIGNED BY CONTRACTOR. TRENCH WALLS MAY BE SLOPED, CONTRACTOR SHALL COORDINATE TRENCH CONFIGURATION WITH OTHER GRAVITY, FORCEMAIN, RECYCLED WATER, AND CONDUIT PIPELINE TRENCH SECTIONS, AND CONFORM TO CULTURAL AND ENVIRONMENTAL RESTRICTIONS, THE TRAFFIC MANAGEMENT PLAN REQUIREMENTS, AND SHALL PROTECT EXISTING IMPROVEMENTS.
 - IF FLOWABLE FILL IS USED FOR BACKFILL, CONTRACTOR SHALL PROTECT AGAINST BUOYANT FORCE.
 - THIS DIMENSION AT PIPE SPRINGLINE, PLUS 24" FOR T-CUT, CONSTITUTES THE PAY LIMIT FOR AC AND AB REPLACEMENT, UNO IN TABLE 1 OF DETAIL C-120A

PIPELINE DRY TRENCH SECTION 10" AND SMALLER C-116

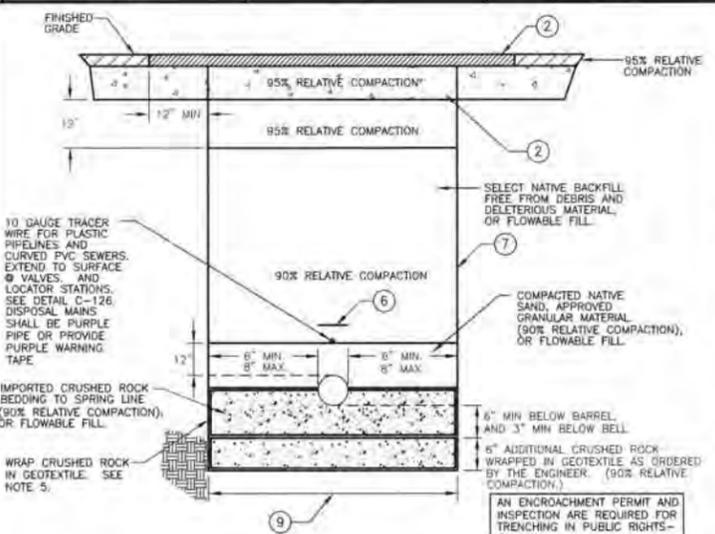
G H I



- NOTES:**
- A MINIMUM OF 90% RELATIVE COMPACTION IS PERMITTED IN A NON-ROADWAY TRENCH WHEN NO STRUCTURES ARE TO BE BUILT OVER THE TRENCH. IF STRUCTURES ARE TO BE BUILT OVER THE TRENCH, USE RELATIVE COMPACTIONS SHOWN ON THE TRENCH SECTION ABOVE.
 - PAVEMENT SECTIONS SHALL BE NO LESS THAN EXISTING STRUCTURAL SECTIONS, AND AS REQUIRED BY THE COUNTY FOR TRENCHES WITHIN A COUNTY RIGHT-OF-WAY. SEE DETAIL C-120.
 - SEE DETAIL C-116B FOR WET TRENCH SECTION.
 - A DRY TRENCH IS A TRENCH IN NON-GROUNDWATER AREAS.
 - ENDS OF GEOTEXTILE SHALL TOUCH PIPE BARREL. GEOTEXTILE MAY BE LAPPED UNDER PIPE IF DESIRED.
 - WHERE THE BOTTOM OF THE TRENCH HAS BEEN DISTURBED, THE CONTRACTOR SHALL SCARIFY AND COMPACT THE SUBGRADE TO 90% RELATIVE COMPACTION.
 - 3" WIDE POLYETHYLENE NON-DETECTABLE WARNING TAPE 12" ABOVE ALL PIPE AND LATERALS.
 - VERTICAL TRENCH WALL DEPICTED, SHORING SHALL BE DESIGNED BY CONTRACTOR. TRENCH WALLS MAY BE SLOPED, CONTRACTOR SHALL COORDINATE TRENCH CONFIGURATION WITH OTHER GRAVITY, FORCEMAIN, RECYCLED WATER, AND CONDUIT PIPELINE TRENCH SECTIONS, AND CONFORM TO CULTURAL AND ENVIRONMENTAL RESTRICTIONS, THE TRAFFIC MANAGEMENT PLAN REQUIREMENTS, AND SHALL PROTECT EXISTING IMPROVEMENTS.
 - IF FLOWABLE FILL IS USED FOR BACKFILL, CONTRACTOR SHALL PROTECT AGAINST BUOYANT FORCE.
 - THIS DIMENSION AT PIPE SPRINGLINE, PLUS 24" FOR T-CUT, CONSTITUTES THE PAY LIMIT FOR AC AND AB REPLACEMENT, UNO IN TABLE 1 OF DETAIL C-120A

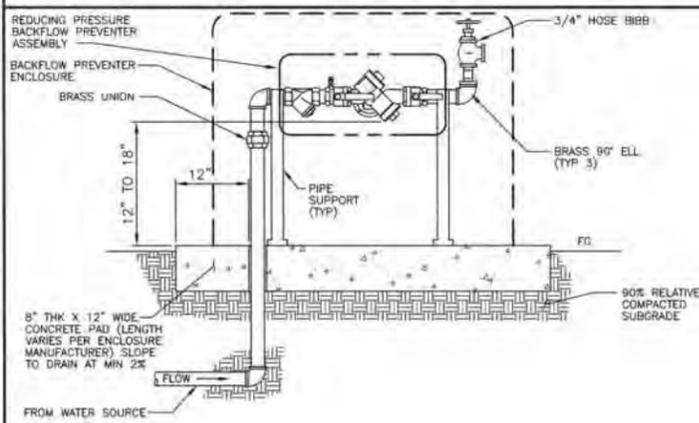
PIPELINE DRY TRENCH SECTION 12" AND LARGER C-116A

J K L



- NOTES:**
- A MINIMUM OF 90% RELATIVE COMPACTION IS PERMITTED IN A NON-ROADWAY TRENCH WHEN NO STRUCTURES ARE TO BE BUILT OVER THE TRENCH. IF STRUCTURES ARE TO BE BUILT OVER THE TRENCH, USE RELATIVE COMPACTIONS SHOWN ON THE TRENCH SECTION ABOVE.
 - PAVEMENT SECTIONS SHALL BE NO LESS THAN EXISTING STRUCTURAL SECTIONS, AND AS REQUIRED BY THE COUNTY FOR TRENCHES WITHIN A COUNTY RIGHT-OF-WAY. SEE DETAIL C-120.
 - SEE DETAILS C-116 AND C-116A FOR DRY TRENCH SECTIONS.
 - A WET TRENCH IS A TRENCH IN GROUNDWATER AREAS BUT HAS BEEN DEWATERED IN ACCORDANCE WITH THE CONTRACT REQUIREMENTS.
 - ENDS OF GEOTEXTILE SHALL TOUCH PIPE BARREL. GEOTEXTILE MAY BE LAPPED UNDER PIPE IF DESIRED.
 - 3" WIDE POLYETHYLENE NON-DETECTABLE WARNING TAPE 12" ABOVE ALL PIPE AND LATERALS.
 - VERTICAL TRENCH WALL DEPICTED, SHORING SHALL BE DESIGNED BY CONTRACTOR. TRENCH WALLS MAY BE SLOPED, CONTRACTOR SHALL COORDINATE TRENCH CONFIGURATION WITH OTHER GRAVITY, FORCEMAIN, RECYCLED WATER, AND CONDUIT PIPELINE TRENCH SECTIONS, AND CONFORM TO CULTURAL AND ENVIRONMENTAL RESTRICTIONS, THE TRAFFIC MANAGEMENT PLAN REQUIREMENTS, AND SHALL PROTECT EXISTING IMPROVEMENTS.
 - IF FLOWABLE FILL IS USED FOR BACKFILL, CONTRACTOR SHALL PROTECT AGAINST BUOYANT FORCE.
 - THIS DIMENSION AT PIPE SPRINGLINE, PLUS 24" FOR T-CUT, CONSTITUTES THE PAY LIMIT FOR AC AND AB REPLACEMENT, UNO IN TABLE 1 OF DETAIL C-120A

PIPELINE WET TRENCH SECTION ALL DIAMETERS C-116B



- NOTES:**
- EQUIPMENT TO BE INSTALLED AT A MINIMUM OF 24" FROM ANY STRUCTURES OR HARDSCAPING.
 - WHEN UNIT IS NEXT TO A STRUCTURE (I.E. WALL, BUILDING, ETC.) MOUNT TEST COCKS ON OPEN OR NON-STRUCTURE SIDE.
 - ABOVE GROUND PIPE TO BE COPPER

BACKFLOW PREVENTER WITH HOSE BIBB AND ENCLOSURE C-112

DESIGNED BY:	BJC
DRAWN BY:	JAW
CHECKED BY:	MDM
DATE:	APRIL 2012

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LOS OSOS WASTEWATER COLLECTION SYSTEM
 GENERAL CIVIL STANDARD CIVIL DETAILS - 2
 PROJECT NO. 42502-8312C
 FILE NAME: D-GC-061
 SHEET NO. D-GC-061

REV. NO.	DATE	DRWN	CHKD	REMARKS
5/01/12	LLB	MDM		ADDENDUM #2

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A B C D E F G H I J K L

A. GENERAL NOTES

1. ALL STRUCTURAL DRAWINGS SHALL BE USED IN CONJUNCTION WITH THE CIVIL, MECHANICAL, ARCHITECTURAL, ELECTRICAL, INSTRUMENTATION AND SHOP DRAWINGS AND THE PROJECT SPECIFICATIONS.
2. ALL CONSTRUCTION SHALL CONFORM TO THE 2010 EDITION OF THE CALIFORNIA BUILDING CODE (CBC).
3. SEE ALL OTHER PROJECT DOCUMENTS FOR REGLETS, PIPE SLEEVES, CONDUITS OR OTHER ITEMS TO BE EMBEDDED OR PASSED THROUGH CONCRETE STRUCTURES.
4. PENETRATIONS THROUGH WALLS OR SLABS MAY NOT BE SHOWN ON STRUCTURAL DRAWINGS - REFER TO ASSOCIATED DOCUMENTS FOR LOCATIONS.
5. THE MINIMUM CLEAR DISTANCE BETWEEN PIPE OR CONDUIT PENETRATIONS SHALL BE 3 TIMES THE DIAMETER OF THE PENETRATION OR "B", WHICHEVER IS SMALLER. LOCATE CONDUIT IN MIDDLE THIRD OF SLABS.
6. NO STRUCTURAL MEMBERS SHALL BE CUT FOR PIPES, DUCTS, ETC., UNLESS SPECIFICALLY DETAILED OR APPROVED IN WRITING BY THE ENGINEER.
7. WRITTEN DIMENSIONS SHALL TAKE PRECEDENCE OVER SCALED SIZES.
8. USE PERTINENT STANDARD DETAILS SHOWN, EVEN THOUGH THEY MAY NOT BE CALLED OUT AT LOCATIONS WHERE THEY APPLY.
9. UNLESS MODIFIED BY THIS NOTE, SPECIAL INSPECTION BY ICC CERTIFIED INSPECTORS SHALL BE CONDUCTED IN ACCORDANCE WITH THE REQUIREMENTS SET FORTH IN SECTION 1701 OF THE CALIFORNIA BUILDING CODE, (CBC). THE FOLLOWING ITEMS, AS A MINIMUM, SHALL RECEIVE SPECIAL INSPECTION:
 - a. REINFORCING STEEL: REINFORCING STEEL SHALL BE INSPECTED PRIOR TO CLOSING THE FORMS OR DELIVERY OF CONCRETE TO JOB SITE.
 - b. WATERSTOP: THE INSPECTOR SHALL INSPECT ALL WATERSTOP INSTALLATIONS PRIOR TO CONCRETE PLACEMENT.
 - c. BOLTS INSTALLED IN CONCRETE: BOLTS SHALL BE INSPECTED PRIOR TO AND DURING CONCRETE PLACEMENT.
 - d. CONCRETE: THE INSPECTOR SHALL SUPERVISE THE PREPARATION OF COMPRESSION TEST SPECIMENS AND THE PLACEMENT OF REINFORCED CONCRETE.
 - e. ADHESIVE ANCHORS OR DOWELS INSTALLED IN CONCRETE: AT A MINIMUM, THE INSPECTOR SHALL PERIODICALLY VERIFY ANCHOR TYPE, ANCHOR DIMENSIONS, CONCRETE TYPE, CONCRETE COMPRESSIVE STRENGTH, HOLE DIMENSIONS, HOLE CLEANING PROCEDURES, ANCHOR SPACING, EDGE DISTANCES, CONCRETE THICKNESS ANCHOR EMBEDMENT, TIGHTENING TORQUE, AND ADHESIVE EXPIRATION DATE; THE INSPECTOR SHALL VERIFY ANCHOR INSTALLATION HAS BEEN PERFORMED IN COMPLIANCE WITH THE MANUFACTURER'S PUBLISHED INSTRUCTIONS AND THE APPROPRIATE ICC EVALUATION SERVICE REPORT.
 - f. EXPANSION ANCHORS INSTALLED IN CONCRETE: THE INSPECTOR SHALL PERIODICALLY VERIFY ANCHOR TYPE, ANCHOR DIMENSIONS, CONCRETE TYPE, CONCRETE COMPRESSIVE STRENGTH, HOLE DIMENSIONS, ANCHOR SPACING, EDGE DISTANCES, CONCRETE MEMBER THICKNESS, ANCHOR EMBEDMENT, AND TIGHTENING TORQUE. THE INSPECTOR SHALL VERIFY ANCHOR INSTALLATION HAS BEEN PERFORMED IN COMPLIANCE WITH THE MANUFACTURER'S PUBLISHED INSTRUCTIONS AND THE APPROPRIATE ICC EVALUATION SERVICE REPORT.
 - g. WELDING: CONTINUOUS VISUAL INSPECTION SHALL BE PROVIDED FOR ALL STRUCTURAL WELDING DONE IN THE FIELD.
10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SAFELY SUPPORTING THE STRUCTURE DURING CONSTRUCTION. STRUCTURES HAVE BEEN DESIGNED FOR OPERATIONAL LOADS ON THE COMPLETED STRUCTURES. DURING CONSTRUCTION, STRUCTURES SHALL BE SUPPORTED BY BRACING OR SHORING WHEREVER EXCESSIVE CONSTRUCTION LOADS MAY OCCUR.

B. DESIGN LOADS

1. GRAVITY: PUMP STATION AND VAULT ROOF, LIVE LOAD HS-20
2. LATERAL: LATERAL LOADS SHALL COMPLY WITH THE REQUIREMENTS OF CHAPTER 16 OF THE 2010 CBC, UNLESS OTHERWISE NOTED. THE FOLLOWING DESIGN PARAMETERS SHALL BE USED.
WIND (2010 CBC): 85 MPH, EXPOSURE D, $I_w = 1.15$ (UNO)

OCCUPANCY CATEGORY: IV

B. DESIGN LOADS CONT

SEISMIC DESIGN CATEGORY D
SEISMIC (2010 CBC): SEE TABLE BELOW

FACILITIES	S_{DS}^*	S_{D1}^*
MOUNTAIN VIEW	0.960	0.868
POCKET PUMP STATIONS	0.984	0.894

* VALUE IS BASED ON THE HIGHER OF SITE CLASS D OR F (SITE CLASS F IS EQUIVALENT TO SITE CLASS E ASSUMING NO SITE MITIGATION IS PERFORMED TO ADDRESS LIQUEFACTION)
IMPORTANCE FACTOR: $I = 1.5, I_p = 1.5$

C. GEOTECHNICAL INFORMATION

1. ALLOWABLE BEARING PRESSURE SHALL BE 2000 PSF WITH A 50% ALLOWABLE INCREASE FOR LOAD COMBINATIONS INCLUDING SEISMIC OR WIND LOADS.
2. THE COEFFICIENT OF FRICTION SHALL BE 0.4.
3. ADDITIONAL GEOTECHNICAL DESIGN PARAMETERS ARE IN GEOTECHNICAL REPORT TITLED "GEOTECHNICAL REPORT LOS OSOS WASTEWATER PROJECT LOS OSOS COMMUNITY SERVICES DISTRICT SAN LUIS OBISPO COUNTY, CALIFORNIA" PREPARED BY FUGRO WEST, INC. DATED MARCH 9, 2004 AND "ADDENDUM TO GEOTECHNICAL REPORT FOR LOS OSOS WASTEWATER PROJECT" PREPARED BY FUGRO CONSULTANTS, INC. DATED OCTOBER 24, 2011.

D. CAST-IN-PLACE CONCRETE

1. REINFORCED CONCRETE SHALL CONFORM TO ACI 318-08 AND 350-06.
2. MINIMUM CONCRETE COMPRESSIVE STRENGTH AT 28 DAYS, UNLESS OTHERWISE NOTED ON THE DRAWINGS:
 - STRUCTURAL CONCRETE (CLASS E): $f'_c = 5000$ psi
 - SEAL SLAB (CLASS D): $f'_c = 4000$ psi
 - SIWALKS, PAVEMENT, CONCRETE FILL, ENCASEMENT (CLASS B): $f'_c = 3000$ psi
3. REINFORCING STEEL SHALL CONFORM TO THE LATEST EDITION OF ASTM SPECIFICATION A615 GRADE 60 AS SPECIFIED IN SPECIFICATION SECTION 03200.
4. REINFORCING STEEL FABRICATION SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF CRSI MANUAL OF STANDARD PRACTICE.
5. REINFORCING SHALL HAVE THE FOLLOWING CLEAR CONCRETE COVER, UNLESS OTHERWISE NOTED ON THE DRAWINGS.

CONDITION	COVER
UNFORMED SURFACES IN CONTACT WITH EARTH	3"
FORMED SURFACES EXPOSED TO EARTH, WATER, & WEATHER	2"
BOTTOM SURFACES FOR SLAB OVER WATER	2"
CONCRETE SURFACES FOR DRY CONDITIONS:	
WALLS AND SLAB	1 1/2"
BEAMS:	
PRIMARY REINFORCEMENT	2"
STIRRUPS AND TIES	1 1/2"

6. SPLICED BARS SHALL HAVE A MINIMUM LAP AS SPECIFIED IN LATEST EDITION OF THE ACI 315 DETAILING MANUAL AND ACI 318 CHAPTER 21 UNLESS OTHERWISE NOTED IN CONTRACT DOCUMENTS. ALL SPLICES SHALL BE CLASS B TENSION SPLICES AND BE IN ACCORDANCE WITH THE STANDARD DETAILS, UNO.
7. CONSTRUCTION JOINTS SHALL NOT BE PLACED AT LOCATIONS OTHER THAN THOSE SHOWN ON THE DRAWINGS WITHOUT THE PRIOR APPROVAL OF THE ENGINEER.
8. ALL EXPOSED CORNERS OF CONCRETE SHALL HAVE 3/4" CHAMFER, UNLESS NOTED OTHERWISE.
9. WRITTEN SPACING AND LOCATION OF REINFORCING SHALL TAKE PRECEDENCE OVER DEPICTED SPACING AND LOCATION.

E. STRUCTURAL STEEL

1. STRUCTURAL STEEL WIDE FLANGE SHAPES SHALL CONFORM TO ASTM A992.
2. OTHER STRUCTURAL STEEL SHAPES, PLATES AND BARS SHALL CONFORM TO ASTM A36.
3. HOLLOW STRUCTURAL SECTIONS SHALL CONFORM TO ASTM A500 GRADE B.
4. STRUCTURAL STEEL SHALL BE FABRICATED, ERECTED, AND CONNECTED IN COMPLIANCE WITH THE LATEST AISC SPECIFICATION FOR STRUCTURAL BUILDINGS.
5. SHOP PAINTING AND FIELD PAINTING, IF REQUIRED, SHALL BE DONE IN ACCORDANCE WITH THE SPECIFICATIONS.
6. SEE SPECIFICATION SECTION 05500 FOR ADDITIONAL REQUIREMENTS.

F. ANCHORS AND ADHESIVE DOWELS FOR CONCRETE

1. CAST-IN ANCHORS SHALL BE HEADED BOLTS CONFORMING TO ASTM F1554 AND GALVANIZED IN ACCORDANCE WITH ASTM A153, UNO.
2. POST-INSTALLED ANCHORS AND ADHESIVE DOWELS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AND THE APPROPRIATE ICC EVALUATION SERVICE REPORTS. ONLY ANCHORS OR ADHESIVES WITH CURRENT ICC EVALUATION SERVICE REPORTS AVAILABLE FOR DOWNLOAD ON THE ICC WEBSITE SHALL BE USED. SEE SPEC SECTION 05500 FOR ADDITIONAL INFORMATION.
3. THE CONTRACTOR SHALL LOCATE EXISTING CONCRETE REINFORCEMENT USING NON-DESTRUCTIVE METHODS PRIOR TO DRILLING HOLES FOR POST-INSTALLED ANCHORS OR DOWELS. ADJUST SPACING OF ANCHORS TO MISS EXISTING REINFORCING. THE TOTAL NUMBER OF ANCHORS PROVIDED SHALL BE EQUAL TO WHAT IS SHOWN ON THE DRAWINGS OR EQUIPMENT ANCHORAGE SHOP DRAWINGS.
4. POST-INSTALLED ANCHORS SHALL NOT BE USED FOR VIBRATORY LOADS, UNO.

G. CONCRETE JOINTS

1. UNO, WATERSTOPS SHALL BE PROVIDED IN JOINTS WHERE SHOWN ON THE DRAWINGS AND WHERE INDICATED BY THE FOLLOWING:
 - a. IN ALL JOINTS IN WALLS AND SLABS OF LIQUID CONTAINMENT STRUCTURES TO PREVENT EXFILTRATION OF LIQUID INTO SOIL OR DRY AREAS OF THE STRUCTURE.
 - b. IN ALL BELOW-GRADE JOINTS IN WALLS AND SLABS TO PREVENT INFILTRATION OF GROUNDWATER INTO STRUCTURE.
2. PROVIDE SEALANT IN JOINTS AS SHOWN ON THE DRAWINGS.
3. MATERIAL FOR WATERSTOPS AND JOINT SEALANTS SHALL BE AS NOTED ON THE DRAWINGS AND IN ACCORDANCE WITH THE SPECIFICATIONS.
4. INTENTIONALLY ROUGHEN THE SURFACES OF CONSTRUCTION JOINTS AND WHERE NEW CONCRETE CONTACTS EXISTING CONCRETE TO A CONCRETE SURFACE PROFILE (CSP) 9 PER ICRI GUIDELINE 03732 WITH 1/4" MINIMUM AMPLITUDE. THIS ROUGHENED SURFACE MAY BE ACCOMPLISHED BY RAKING THE PLASTIC CONCRETE OR BY BUSHHAMMERING OR CHISELING HARDENED CONCRETE SURFACES. THOROUGHLY CLEAN JOINT SURFACES OF LOOSE OR WEAKENED MATERIALS BY WATERBLASTING OR SANDBLASTING. SATURATE SURFACE WITH WATER 12 HOURS BEFORE AND AGAIN IMMEDIATELY PRIOR TO CONCRETE PLACEMENT.

REV. NO.	DATE	DRWN	CHKD	REMARKS
5/01/12	LLB	MDM		ADDENDUM #2

DESIGNED BY: CNO
DRAWN BY: TVN
CHECKED BY: LGS
DATE: APRIL 2012

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2295 Gateway Oaks Drive, Suite 240
Sacramento, CA 95833
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IF THIS BAR DOES NOT MEASURE 1" THEN ADJUST SCALE ACCORDINGLY



LOS OSOS WASTEWATER COLLECTION SYSTEM
STRUCTURAL NOTES 1

PROJECT NO. 42502-83120
FILE NAME: D-S-001
SHEET NO.
D-S-001

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H. PRECAST CONCRETE

1. THE SUPPLIER OF THE PRECAST CONCRETE UNITS SHALL DESIGN AND PROVIDE DRAWINGS AND CALCULATIONS STAMPED AND SIGNED BY A PROFESSIONAL CIVIL OR STRUCTURAL ENGINEER REGISTERED IN THE STATE OF CALIFORNIA. THE DESIGN SHALL BE PER THE SPECIFICATIONS AND AS SHOWN IN THE DRAWINGS.

2. THE SUPPLIER SHALL COORDINATE WITH THE CONTRACTOR FOR THE SIZE AND LOCATION OF ALL ROOF AND WALL PENETRATIONS PRIOR TO FABRICATION.

I. SUBMERSIBLE PUMP STATION

1. REINFORCED CONCRETE PIPE AND DESIGN FOR THE CAISSONS CONSTRUCTION PUMP STATIONS SHALL BE IN ACCORDANCE WITH SPECIFICATION SECTION 02612.

2. PVC LINING FOR THE PUMP STATION WALLS SHALL BE IN ACCORDANCE WITH SPECIFICATION SECTION 02765.

3. CAISSON CONSTRUCTION SHALL BE IN ACCORDANCE WITH SPECIFICATION SECTION 02355.

J. DEFERRED SUBMITTALS

1. THE FOLLOWING PORTIONS OF THE PROJECT ARE DEFERRED SUBMITTAL ITEMS & HAVE NOT BEEN DESIGNED BY THE ENGINEER OF RECORD.

- a) SUPPORT AND ANCHORAGE OF EQUIPMENT
- b) PRECAST MANHOLES
- c) PRECAST VAULTS
- d) PRECAST REINFORCED CONCRETE PIPE CAISSONS
- e) HS-20 ACCESS HATCHES

2. CALCULATIONS AND DRAWINGS OF DEFERRED SUBMITTAL ITEMS SHALL BE STAMPED AND SIGNED BY A PROFESSIONAL CIVIL OR STRUCTURAL ENGINEER REGISTERED IN THE STATE OF CALIFORNIA.

3. DEFERRED SUBMITTAL ITEMS SHALL NOT BE INSTALLED UNTIL THE ENGINEER OF RECORD HAS REVIEWED THE SUBMITTAL DOCUMENTS AND INDICATED THAT THEY HAVE BEEN REVIEWED AND THAT THEY HAVE BEEN FOUND TO BE IN GENERAL CONFORMANCE WITH THE DESIGN OF THE STRUCTURE.

K. ABBREVIATION NOTES

1. ABBREVIATIONS AND DESIGNATIONS FOR STEEL MEMBERS MAY BE FOUND IN THE CURRENT MANUAL OF STEEL CONSTRUCTION BY AISC.

2. WELDING SYMBOLS AND ABBREVIATIONS MAY BE FOUND IN AWS D1.1.

3. ABBREVIATIONS LISTED ARE FOR USE WITH STRUCTURAL DRAWINGS ONLY. SOME ABBREVIATIONS LISTED MAY NOT BE USED ON THE PLANS.

STRUCTURAL ABBREVIATIONS

Ø	DIAMETER	LG	LONG
AB	ANCHOR BOLT	LLH	LONG LEG HORIZONTAL
ADDL	ADDITIONAL	LLV	LONG LEG VERTICAL
AL	ALUMINUM	LNTL	LINTEL
ALT	ALTERNATE(ING)	LONG.	LONGITUDINAL
APPROX	APPROXIMATE(LY)	LP	LOW POINT
ARND	AROUND	LT	LEFT
BGS	BELOW GROUND SURFACE	MATL	MATERIAL
BLDG	BUILDING	MAX	MAXIMUM
BLK	BLOCK(ING)	MFR	MANUFACTURER
BO	BOTTOM OF	MIN	MINIMUM
BOT	BOTTOM	MOL	MAXIMUM OPERATING LEVEL
BTWN	BETWEEN	MTL	METAL
CHKD	CHECKERED	(N)	NEW
CIRC	CIRCUMFERENTIAL	NOM	NOMINAL
CJ	CONSTRUCTION JOINT	NSG	NON-SHRINK GROUT
CJP	COMPLETE JOINT PENETRATION	NTS	NOT TO SCALE
CL, C	CENTERLINE	O/E	OR EQUAL
CTJ	CONTROL JOINT	OC	ON CENTER
CLR	CLEAR	OD	OUTSIDE DIAMETER
COL	COLUMN	O.F	OUTSIDE FACE
CONC	CONCRETE	OPNG(S)	OPENING(S)
CONN	CONNECTION	OPP	OPPOSITE
CONST	CONSTRUCTION	OPP HD	OPPOSITE HAND
CONT	CONTINUOUS	OPT	OPTION (AL)
CTR	CENTER (ED)	PJF	PREMOLDED JOINT FILLER
D	DEEP, DEPTH	PL	PLATE
DEMO	DEMOLITION	PREFAB	PRE-FABRICATED
DET	DETAIL	PT	POINT
DIA	DIAMETER	R	RISER
DIAG	DIAGONAL	RAD	RADIUS
DIM	DIMENSION	RD	ROOF DRAIN
DL	DEAD LOAD	REF	REFERENCE / REFER
DN	DOWN	REINF	REINFORCE (D, ING)
DO,	DITTO	REQD	REQUIRED
DR	DRAIN	REV	REVISION
DWG(S)	DRAWING(S)	RO	ROUGH OPENING
DWL(S)	DOWEL(S)	RT	RIGHT
EA	EACH	SECT	SECTION
EB	EXPANSION BOLT	SHT	SHEET
ECC	ECCENTRIC	SIM	SIMILAR
EF	EACH FACE	SL	SLOPE
EL	ELEVATION	SP	SPACE (S, ED)
EMBED	EMBEDMENT	SPEC	SPECIFICATION, SPECIFIED
EQ	EQUAL (LY)	SQ	SQUARE
EQPT	EQUIPMENT	SST	STAINLESS STEEL
EQUIV	EQUIVALENT	SSW	SIDE SEAM WELD
ES	EACH SIDE	STD	STANDARD
ETC	ETCETERA	STL	STEEL
EW	EACH WAY	STRUC	STRUCTURE (S, URAL)
EXP	EXPANSION	SYM	SYMMETRICAL
EXST, (E)	EXISTING	T	TREAD (S)
EXT	EXTERIOR	T&B	TOP AND BOTTOM
f'c	CONCRETE COMPRESSIVE STRENGTH	TD	TRENCH DRAIN
FD	FLOOR DRAIN	THK	THICK (NESS)
FDN	FOUNDATION	T.O.	TOP OF
FIG	FIGURE	TOC	TOP OF CONCRETE
FIN	FINISH (ED)	TOS	TOP OF STEEL
FL	FLOOR	T.O.W.	TOP OF WALL
FLEX	FLEXIBLE	TRNSV	TRANSVERSE
FTG	FOOTING	TSW	TOP SEAM WELD
GA	GAGE	TYP	TYPICAL
GALV	GALVANIZED	UNO	UNLESS NOTED OTHERWISE
GALVS	GALVANIZED STEEL	VB	VAPOR BARRIER
GR	GUARD RAIL	VERT	VERTICAL
GRTG	GRATING	W	WIDE
HDR	HEADER	W/	WITH
H	HEIGHT	W/O	WITHOUT
HOR	HORIZONTAL	WD	WIDTH / WOOD
HP	HIGH POINT	WP	WORKING POINT
HR	HANDRAIL	WPG	WATERPROOFING
HSB	HIGH STRENGTH BOLTS	WS	WATERSTOP
ICC	INTERNATIONAL CODE COUNCIL	WT	WEIGHT
ID	INSIDE DIAMETER	WWF	WELDED
I.F.	INSIDE FACE	WIRE	FABRIC
INT	INTERIOR		
INV	INVERT		
JT	JOINT		
JT FLR	JOINT FILLER		

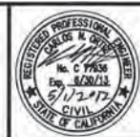
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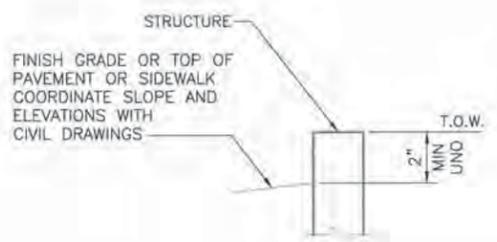
LOS OSOS WASTEWATER COLLECTION SYSTEM
STRUCTURAL NOTES 2

PROJECT NO.42502-83120
FILE NAME: D-S-002
SHEET NO.
D-S-002

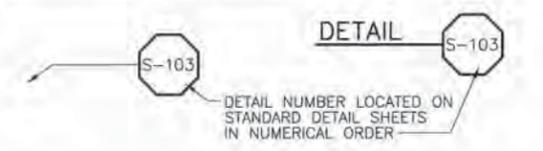
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LEGEND:

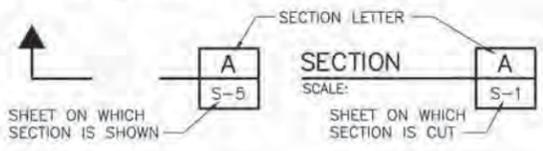
- CLASS 2 PERMEABLE MATERIAL
- STRUCTURAL FILL/BACKFILL
- UNDISTURBED EARTH OR SCARIFIED SOIL
- CONCRETE FILL/CONCRETE
- GROUT
- COVER PLATE



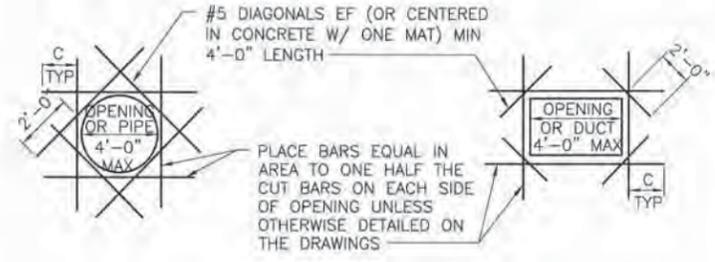
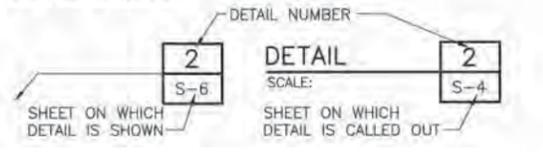
STRUCTURAL STANDARD DETAIL CALLOUT



SECTION CALLOUT



DETAIL CALLOUT



1. C = TENSION DEVELOPMENT LENGTH: PROVIDE STD HOOK IF FULL DEVELOPMENT LENGTH IS NOT POSSIBLE.
2. REINFORCING STEEL IS TO BE CARRIED ACROSS ALL CONSTRUCTION JOINTS.
3. DETAIL IS TYP FOR ALL OPENINGS GREATER THAN 10 INCHES IN CONCRETE WALLS AND SLABS UNLESS OTHERWISE DETAILED ON THE DRAWINGS.
4. EXTRA BARS ARE NOT REQUIRED AT AN OPENING EDGE PARALLEL TO AND WITHIN 6 INCHES OF A WALL OR BEAM, UNO.

EXTRA REINFORCEMENT AT CONCRETE OPENINGS

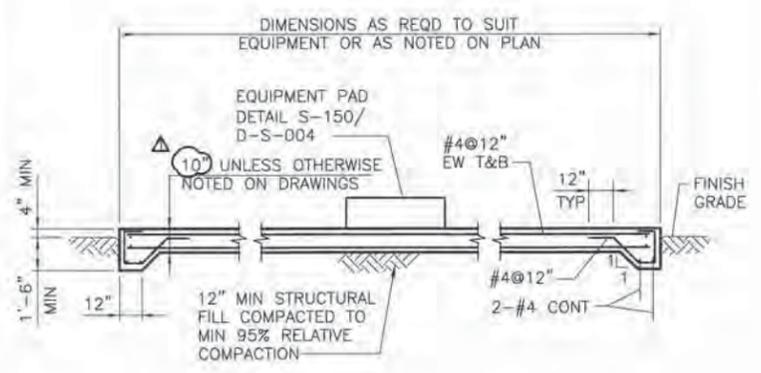
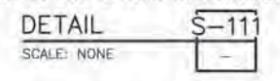


REINF	DEVELOPMENT LENGTH (INCHES)		LAP LENGTH (INCHES)	
	TOP BAR	OTHER	TOP BAR	OTHER
#3	20	15	26	20
#4	22	17	28	22
#5	27	21	35	27
#6	32	25	42	32
#7	38	29	49	38
#8	43	33	56	43
#9	48	37	63	48

NOTES:

1. TOP BAR IS ANY HORIZ BAR WITH MORE THAN 12" CONCRETE CAST IN ONE LIFT BENEATH IT. HORIZONTAL BARS MAY OCCUR IN WALL OR A SLAB.
2. PROVIDE LAP LENGTHS PER ABOVE TABLE AT ALL SPLICES.
3. SPLICES IN HORIZONTAL BARS SHALL BE STAGGERED.
4. UNLESS OTHERWISE DETAILED ON THE DRAWINGS, SPLICES IN TWO CURTAINS SHALL NOT OCCUR IN THE SAME LOCATION.
5. BASED ON ACI 318-08 CHAP. 12 AND 21.
6. COMPRESSIVE STRENGTH OF CONCRETE, f'c, IS 5,000 psi.

LAP SPLICE LENGTH IN CONCRETE



EXTERIOR EQUIPMENT SLAB
DETAIL S-114
SCALE: NONE

REV. NO.	DATE	DRWN	CHKD	REMARKS
5/01/12	LLB	MDM		ADDENDUM #2

DESIGNED BY: CND
DRAWN BY: TVN
CHECKED BY: LGS
DATE: APRIL 2012

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Sacramento, CA 95833
Tel: (916) 567-6900



0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN ADJUST SCALE ACCORDINGLY

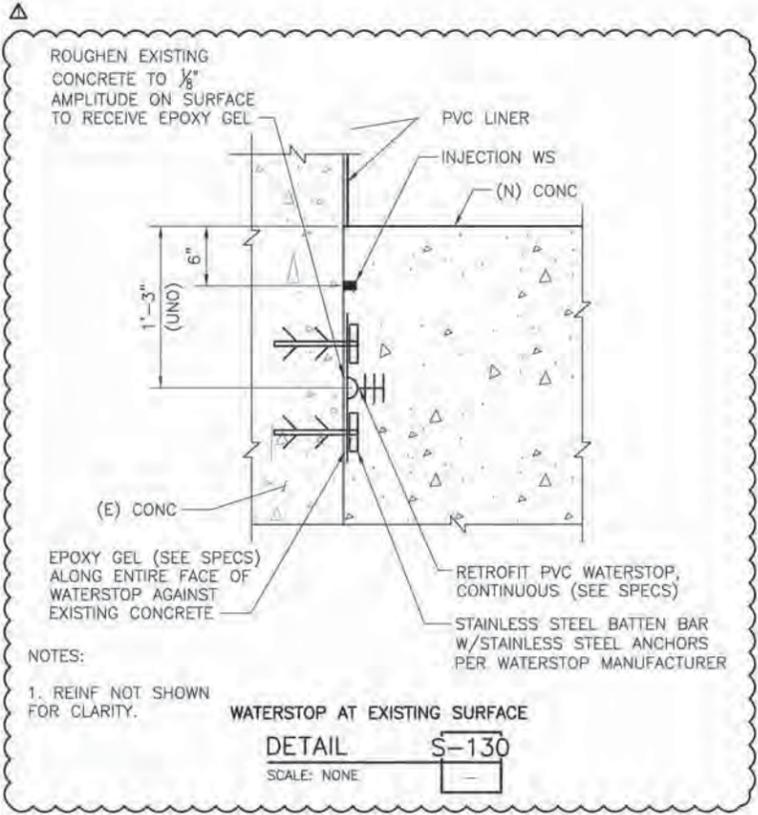


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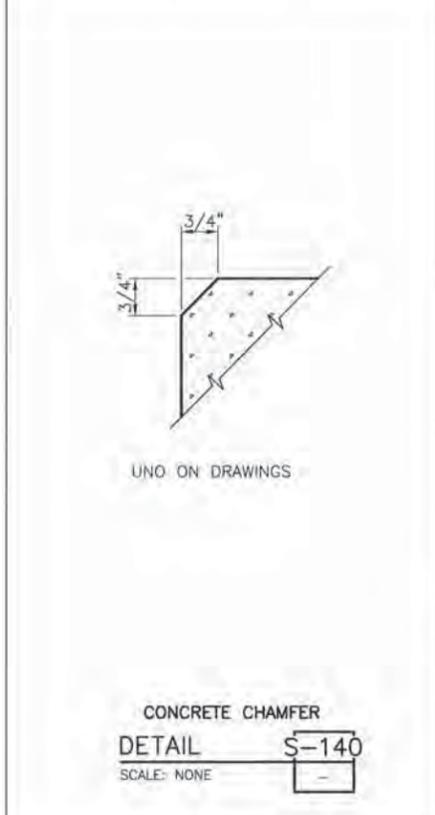
LOS OSOS WASTEWATER COLLECTION SYSTEM
STANDARD STRUCTURAL DETAILS 1

PROJECT NO. 42502-83120
FILE NAME: D-S-003
SHEET NO. D-S-003

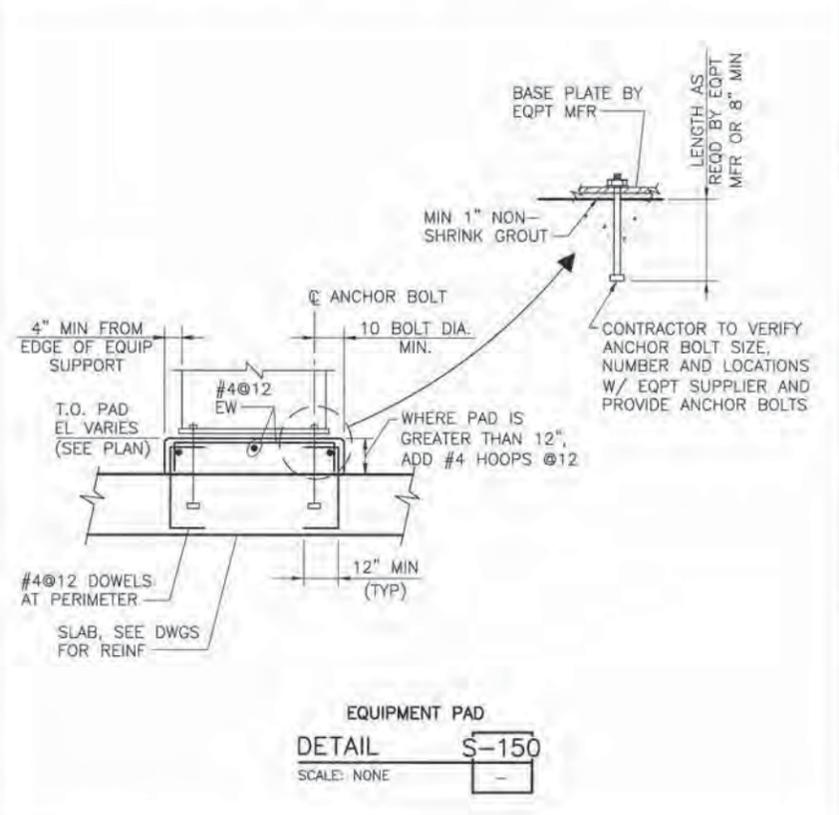
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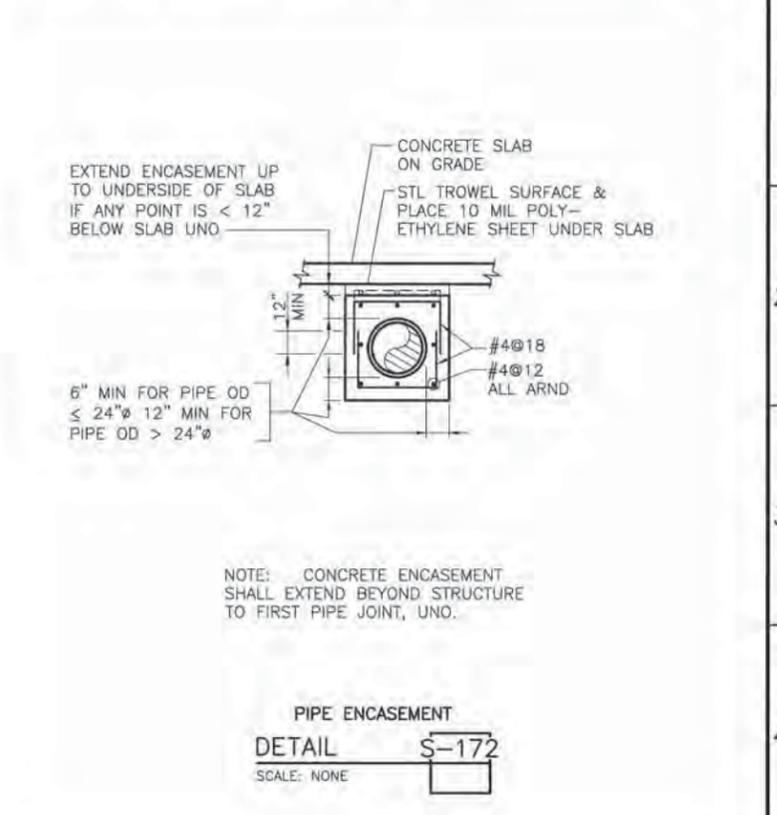
WATERSTOP AT EXISTING SURFACE
DETAIL S-130
 SCALE: NONE



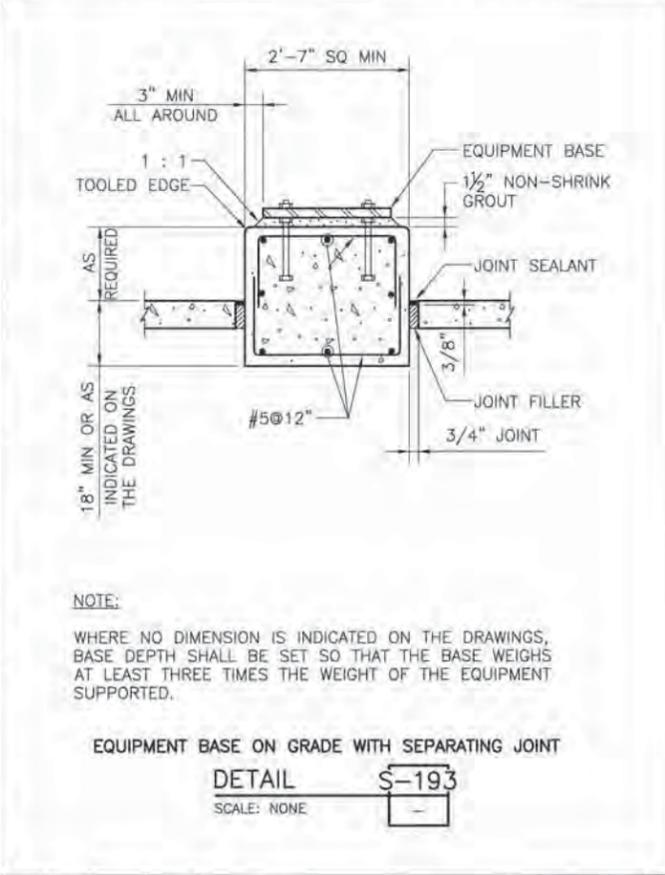
CONCRETE CHAMFER
DETAIL S-140
 SCALE: NONE



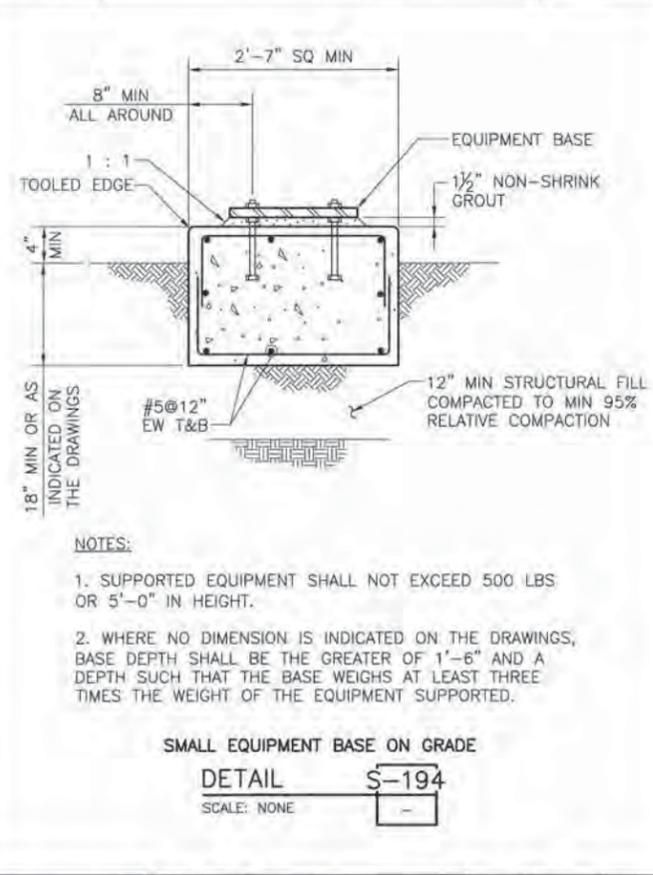
EQUIPMENT PAD
DETAIL S-150
 SCALE: NONE



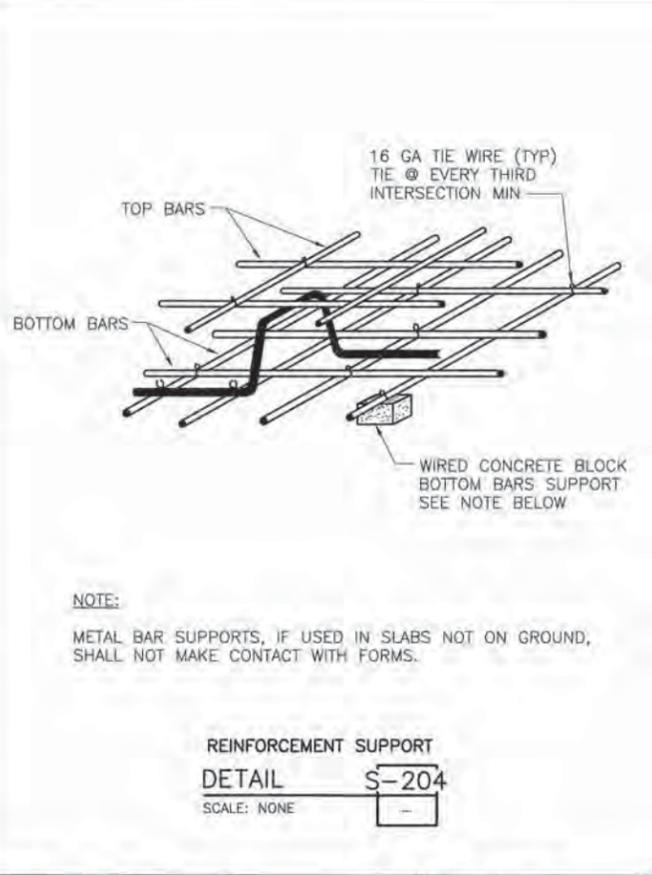
PIPE ENCASEMENT
DETAIL S-172
 SCALE: NONE



EQUIPMENT BASE ON GRADE WITH SEPARATING JOINT
DETAIL S-193
 SCALE: NONE



SMALL EQUIPMENT BASE ON GRADE
DETAIL S-194
 SCALE: NONE



REINFORCEMENT SUPPORT
DETAIL S-204
 SCALE: NONE

REV. NO.	DATE	DRWN	CHKD	REMARKS
5/01/12	LLB	MDM		ADDENDUM #2

DESIGNED BY: CNO
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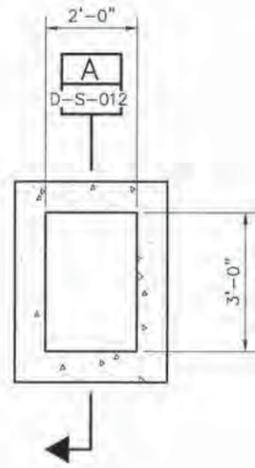


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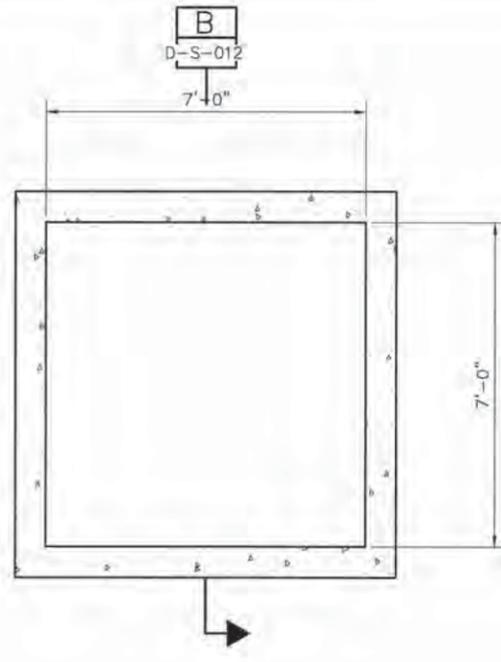
LOS OSOS WASTEWATER COLLECTION SYSTEM
STANDARD STRUCTURAL DETAILS 2

PROJECT NO. 42502-83120
 FILE NAME: D-S-004
 SHEET NO. D-S-004

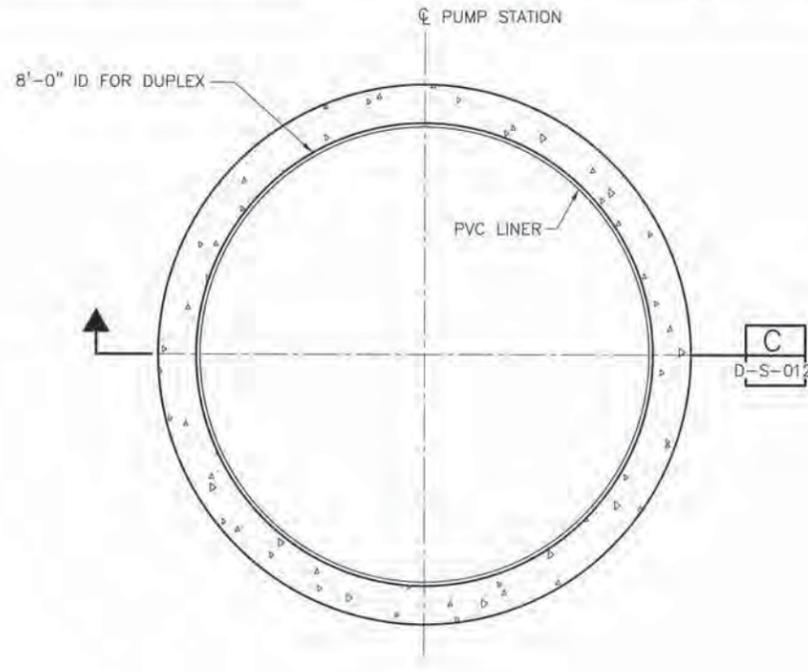
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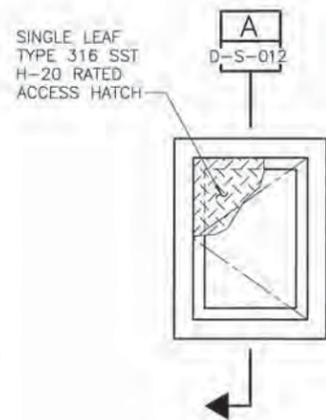
PRECAST CLEANOUT VAULT FOUNDATION PLAN
 SCALE: 1/2"=1'-0"



PRECAST VALVE VAULT FOUNDATION PLAN
 SCALE: 1/2"=1'-0"

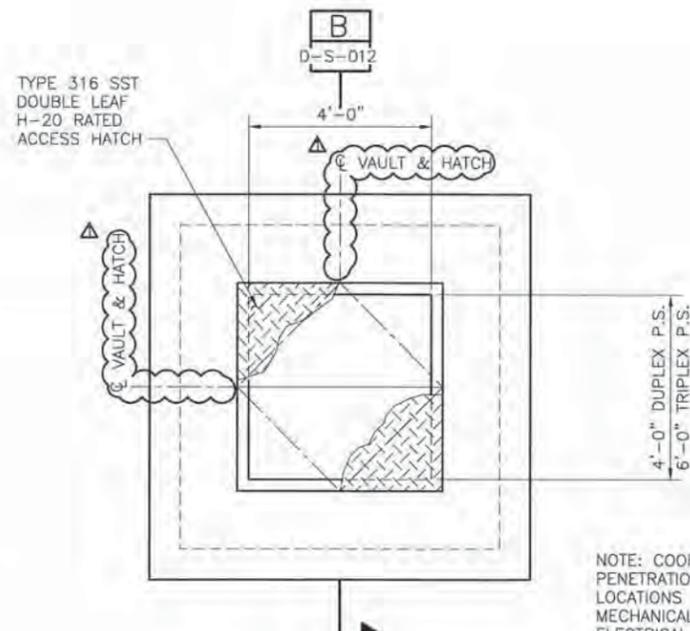


PUMP STATION FOUNDATION PLAN
 SCALE: 1/2"=1'-0"



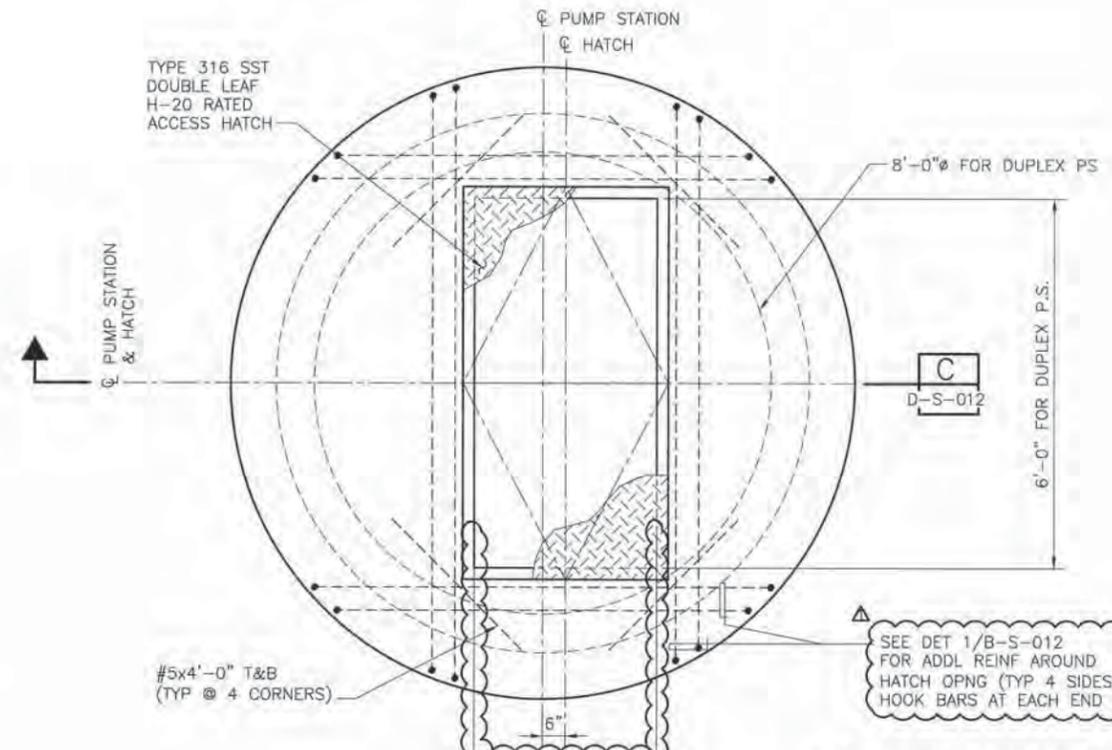
PRECAST CLEANOUT VAULT TOP PLAN
 SCALE: 1/2"=1'-0"

NOTE: COORDINATE VAULT PENETRATION SIZES AND LOCATIONS WITH CIVIL, MECHANICAL AND ELECTRICAL DRAWINGS.



PRECAST VALVE VAULT TOP PLAN
 SCALE: 1/2"=1'-0"

NOTE: COORDINATE VAULT PENETRATION SIZES AND LOCATIONS WITH CIVIL, MECHANICAL AND ELECTRICAL DRAWINGS.



PUMP STATION TOP PLAN
 SCALE: 1/2"=1'-0"

NOTE: COORDINATE PUMP STATION PENETRATION SIZES AND LOCATIONS WITH CIVIL, MECHANICAL AND ELECTRICAL DRAWINGS.

REV. NO.	DATE	DRWN	CHKD	REMARKS
1	5/01/12	LLB	MDM	ADDENDUM #2

DESIGNED BY: CNO
 DRAWN BY: TVN
 CHECKED BY: LGS
 DATE: APRIL 2012

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 Sacramento, CA 95833
 Tel: (916) 587-9800

1/2" = 1'
 IF THIS BAR DOES NOT MEASURE 1" THEN ADJUST SCALE ACCORDINGLY

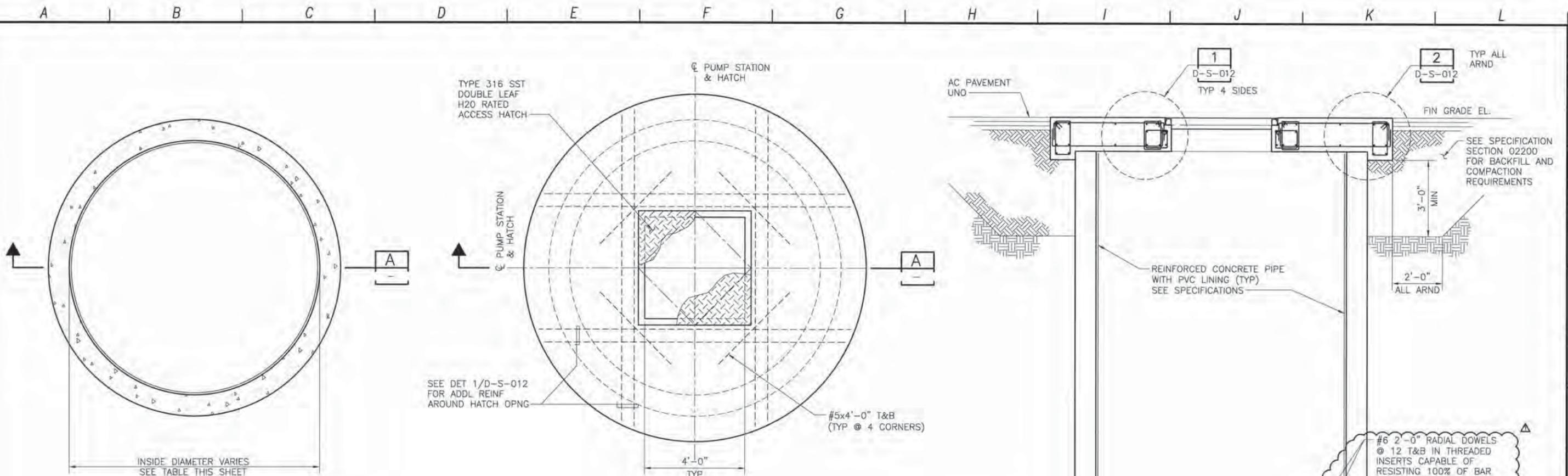
REGISTERED PROFESSIONAL ENGINEER
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 Exp. 8/31/2013
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 STATE OF CALIFORNIA

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LOS OSOS WASTEWATER COLLECTION SYSTEM
STRUCTURAL SUBMERSIBLE PUMP STATIONS & VALVE VAULTS - FOUNDATION AND TOP PLANS

PROJECT NO. 42502-83120
 FILE NAME: D-S-011
 SHEET NO. **D-S-011**

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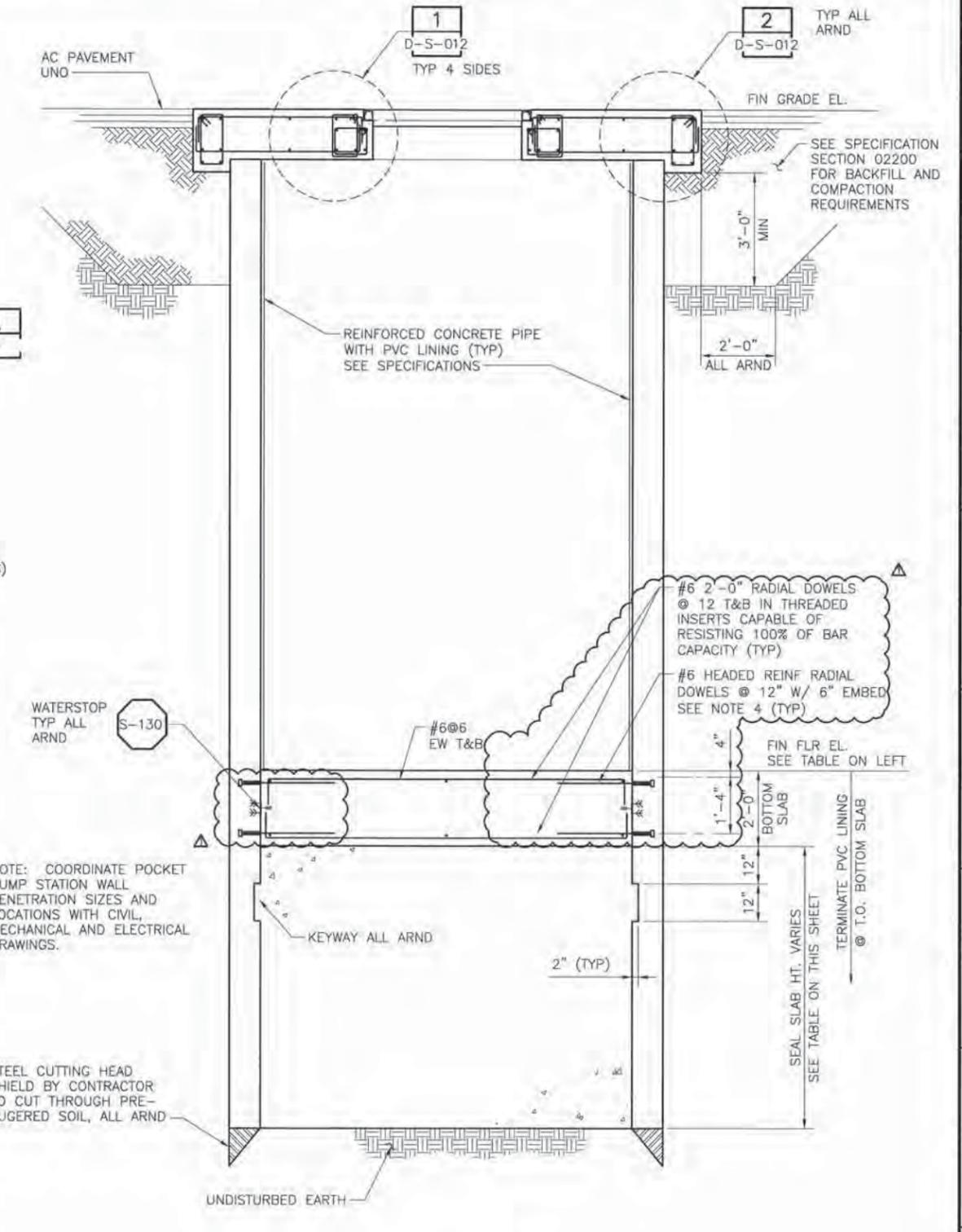


FOUNDATION PLAN
SCALE: 1/2"=1'-0"

TOP PLAN
SCALE: 1/2"=1'-0"

SITE LOCATION	09B	09C	15B
POCKET PS GRADE EL.	73.00'	92.50'	94.50'
POCKET PS FIN FLR EL.	59.66'	75.49'	82.67'
POCKET PS I.D.	8'-0"	8'-0"	8'-0"
MIN SEAL SLAB DEPTH	5'-6"	7'-0"	4'-6"

- NOTES:**
- REFER TO SPEC SECTION 02355 FOR PUMP STATION RECOMMENDED CHRONOLOGICAL SEQUENCE OF CONSTRUCTION AND ADD'L INFO.
 - REFER TO THE TABLE HEREIN FOR THE GROUND ELEVATIONS AND FINISHED FLOOR ELEVATIONS OF THE WET WELL, PRECAST VALVE VAULT AND CLEAN UP VAULT AT VARIOUS SITES.
 - 8' OR 10' INTERNAL DIA PRECAST CONCRETE SECTIONS USED FOR THE SUBMERSIBLE PUMP STATIONS SHALL BE REINFORCED CONCRETE PIPE PER ASTM C-76, CLASS III. REINFORCEMENT SHALL BE CIRCULAR. JOINTS SHALL BE STEEL FLUSH BELL WITH O-RING GASKET, CONFORMING TO ASTM C-361.
 - SEE SPECIFICATION 03200 FOR ADD'L INFORMATION ON HEADED DOWELS.



SECTION A
SCALE: 1/2"=1'

REV. NO.	DATE	DRWN	CHKD	REMARKS
1	5/01/12	LLB	MDM	ADDENDUM #2

DESIGNED BY: CNO
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 CHECKED BY: LGS
 DATE: APRIL 2012

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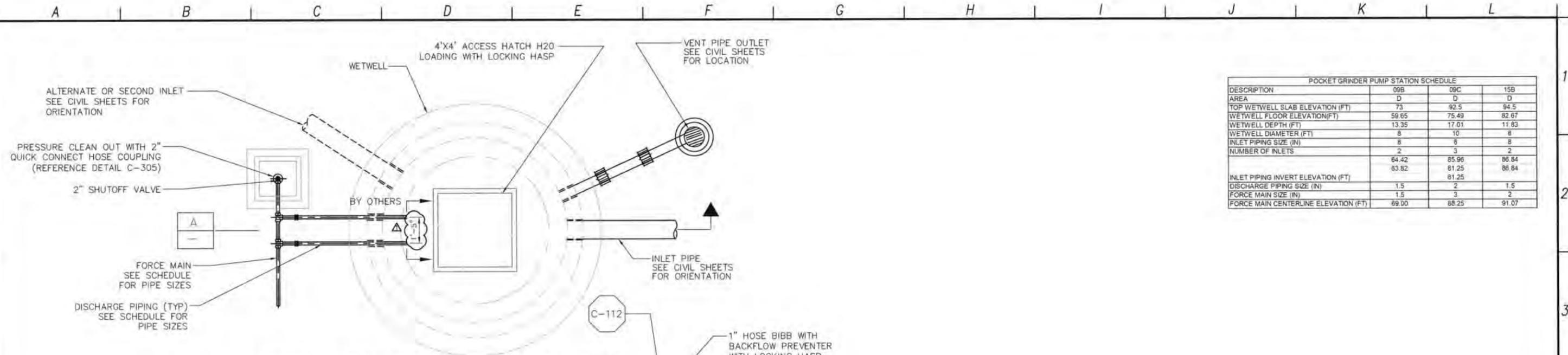


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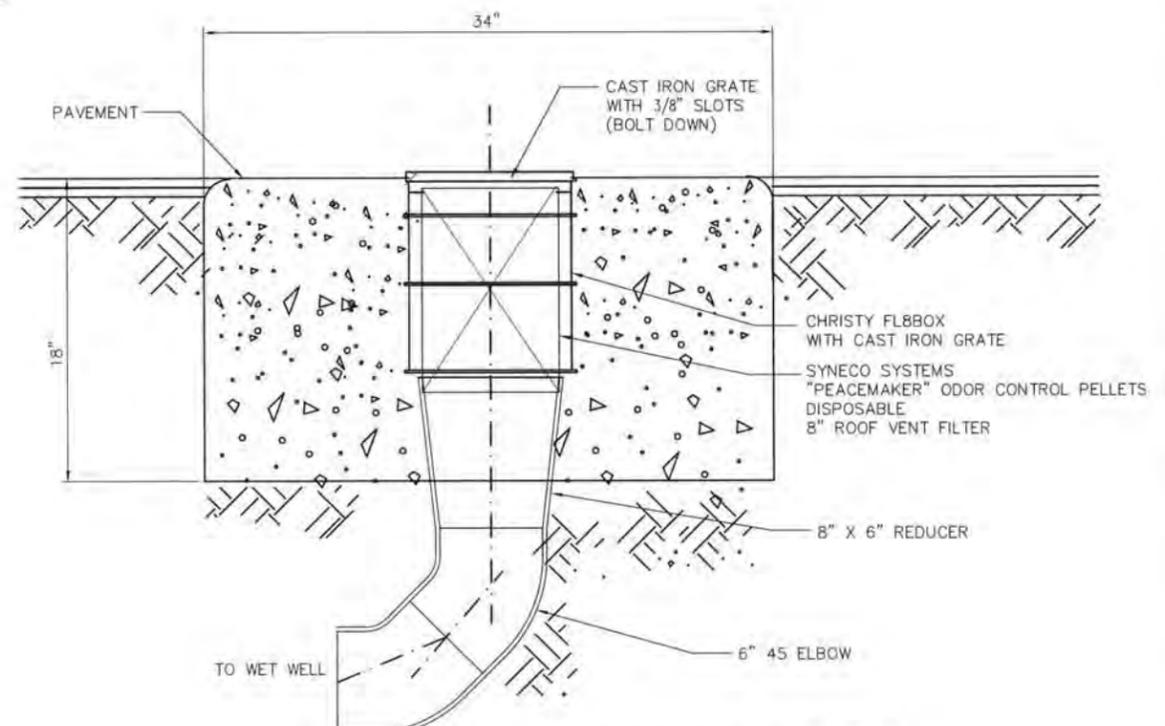
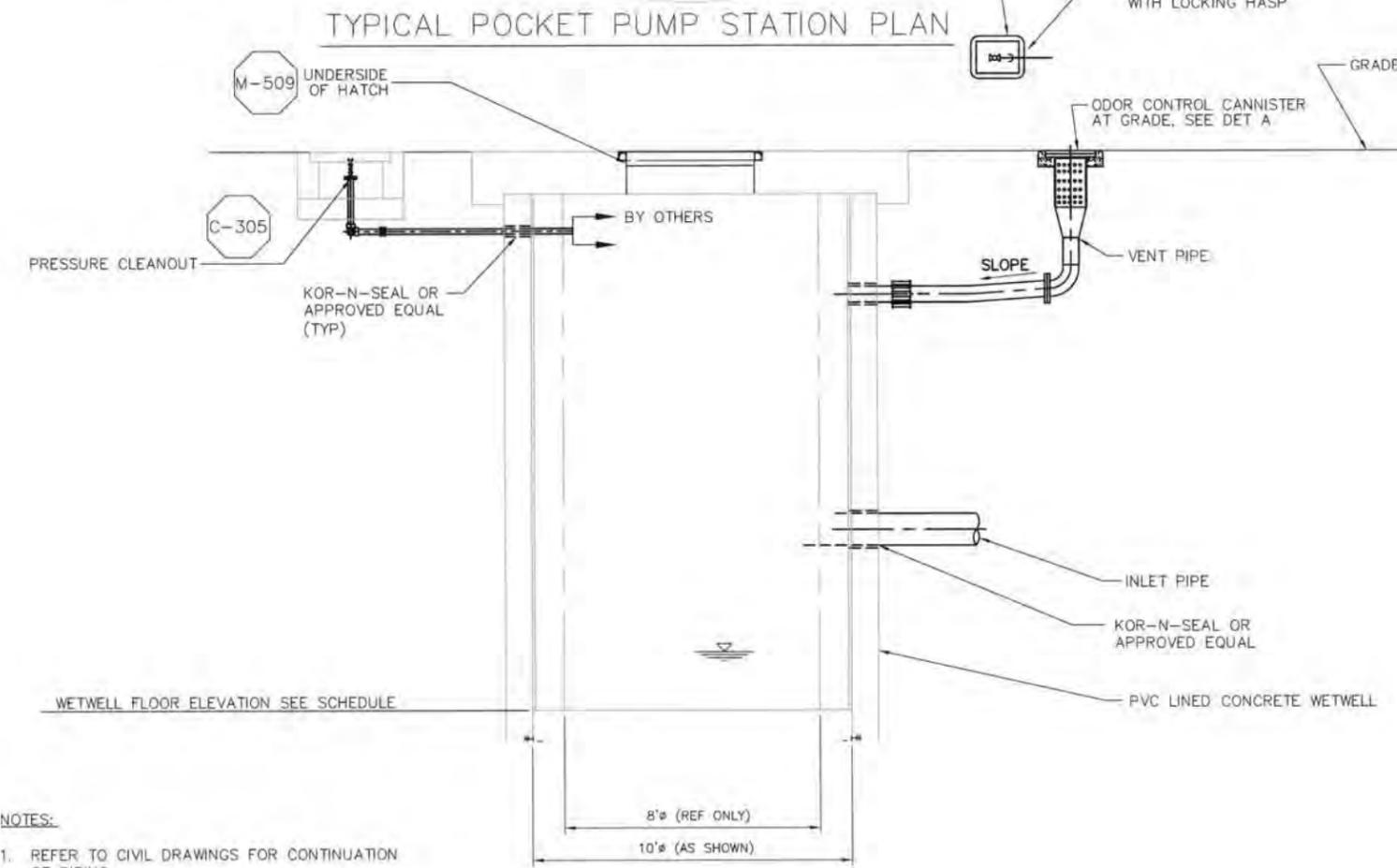
LOS OSOS WASTEWATER COLLECTION SYSTEM
STRUCTURAL POCKET PUMP STATION PLANS, SECTION AND DETAILS

PROJECT NO. 42502-83120
 FILE NAME: D-S-013
 SHEET NO.
D-S-013

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POCKET GRINDER PUMP STATION SCHEDULE			
DESCRIPTION	09B	09C	15B
AREA	D	D	D
TOP WETWELL SLAB ELEVATION (FT)	73	92.5	94.5
WETWELL FLOOR ELEVATION(FT)	59.65	75.49	82.67
WETWELL DEPTH (FT)	13.35	17.01	11.83
WETWELL DIAMETER (FT)	8	10	8
INLET PIPING SIZE (IN)	8	6	8
NUMBER OF INLETS	2	3	2
	64.42	85.96	86.84
INLET PIPING INVERT ELEVATION (FT)	83.82	81.25	86.84
DISCHARGE PIPING SIZE (IN)	1.5	2	1.5
FORCE MAIN SIZE (IN)	1.5	3	2
FORCE MAIN CENTERLINE ELEVATION (FT)	89.00	88.25	91.07



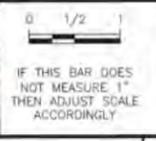
- NOTES:**
- REFER TO CIVIL DRAWINGS FOR CONTINUATION OF PIPING.
 - CONTRACTOR TO VERIFY INLET PIPING CONDITIONS WITH COLLECTION SYSTEM PIPING.
 - CONTRACTOR TO VERIFY INLET PIPING AND WETWELL ELEVATION CONDITIONS.

SECTION A
POCKET PUMP STATION

ODOR CONTROL CANNISTER DETAIL

REV. NO.	DATE	DRWN	CHKD	REMARKS
5/01/12	LLB	MDM		ADDENDUM #2

DESIGNED BY: MPH
 DRAWN BY: JAW
 CHECKED BY: CCA
 DATE: APRIL 2012



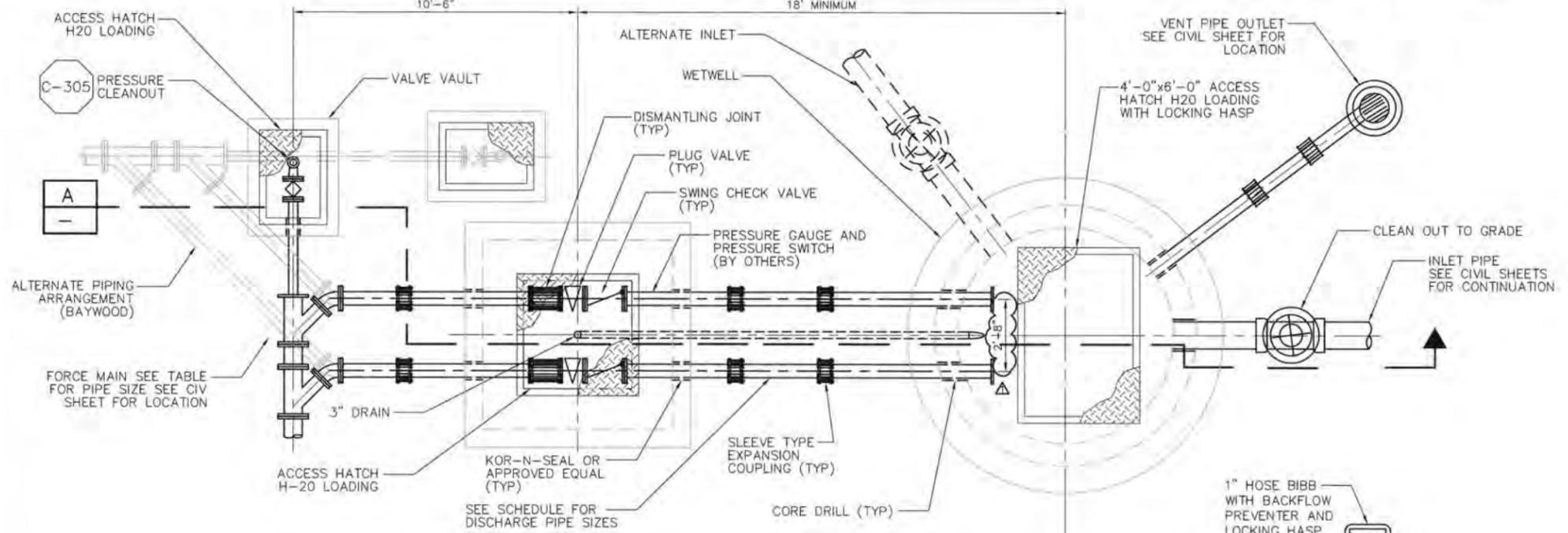
LOS OSOS WASTEWATER COLLECTION SYSTEM
**MECHANICAL
 POCKET PUMP STATIONS
 PLAN & SECTIONS**

PROJECT NO. 42502-83120
 FILE NAME: D-M-003
 SHEET NO.
D-M-003

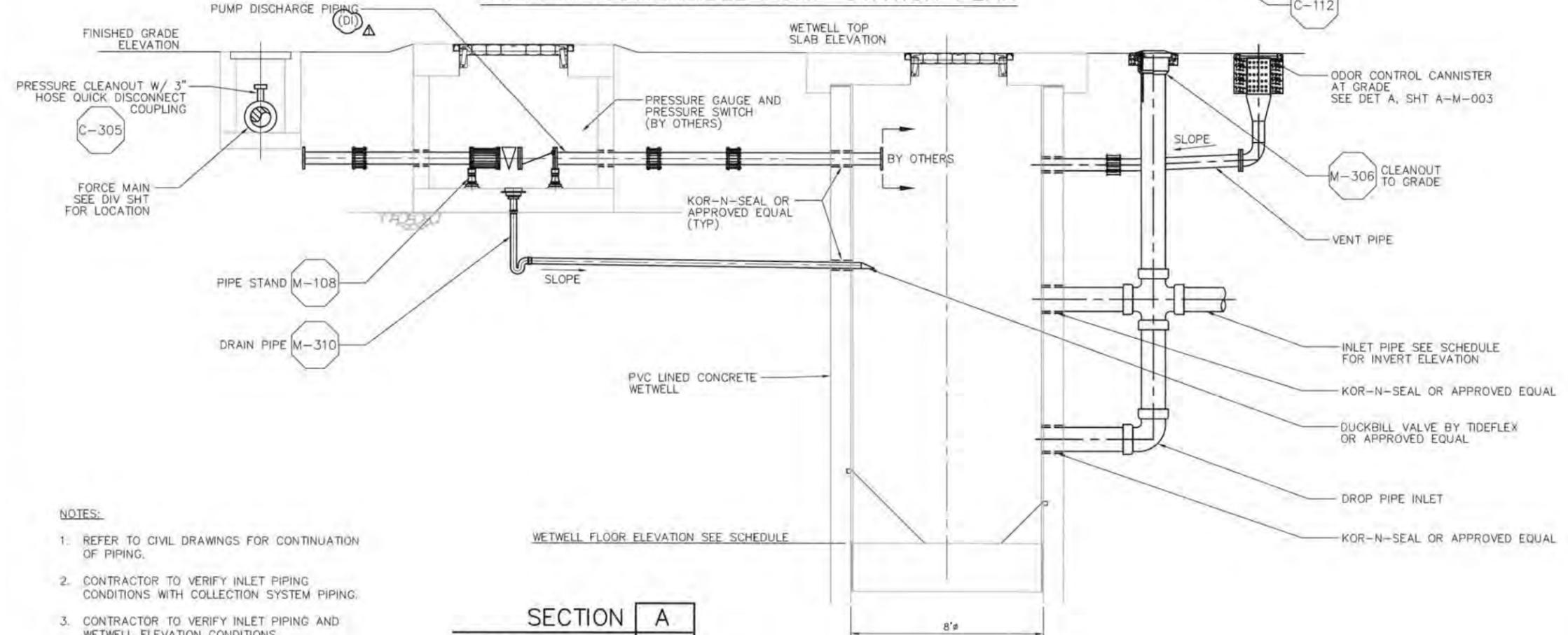
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A B C D E F G H I J K L

DUPLEX PUMP STATION SCHEDULE	
DESCRIPTION	MOUNTAIN VIEW
AREA	D
TOP WETWELL SLAB ELEVATION (FT)	100.2
WETWELL FLOOR ELEVATION (FT)	86.7
WETWELL DEPTH (FT)	13.5
INLET PIPING SIZE (IN)	10
NUMBER OF INLETS	1
INLET PIPING INVERT ELEVATION (FT)	91.75
DISCHARGE PIPING SIZE (IN)	4
FORCE MAIN SIZE (IN)	4
FORCE MAIN CENTERLINE ELEVATION (FT)	97.0



DUPLEX SUBMERSIBLE PUMP STATION PLAN



- NOTES:
- REFER TO CIVIL DRAWINGS FOR CONTINUATION OF PIPING.
 - CONTRACTOR TO VERIFY INLET PIPING CONDITIONS WITH COLLECTION SYSTEM PIPING.
 - CONTRACTOR TO VERIFY INLET PIPING AND WETWELL ELEVATION CONDITIONS.

SECTION A
DUPLEX PUMP STATION

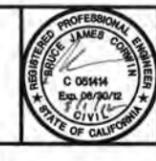
REV. NO.	DATE	DRWN	CHKD	REMARKS
5/01/12	LLB	MDM		ADDENDUM #2

DESIGNED BY: MPH
 DRAWN BY: JAW
 CHECKED BY: CCP
 DATE: APRIL 2012

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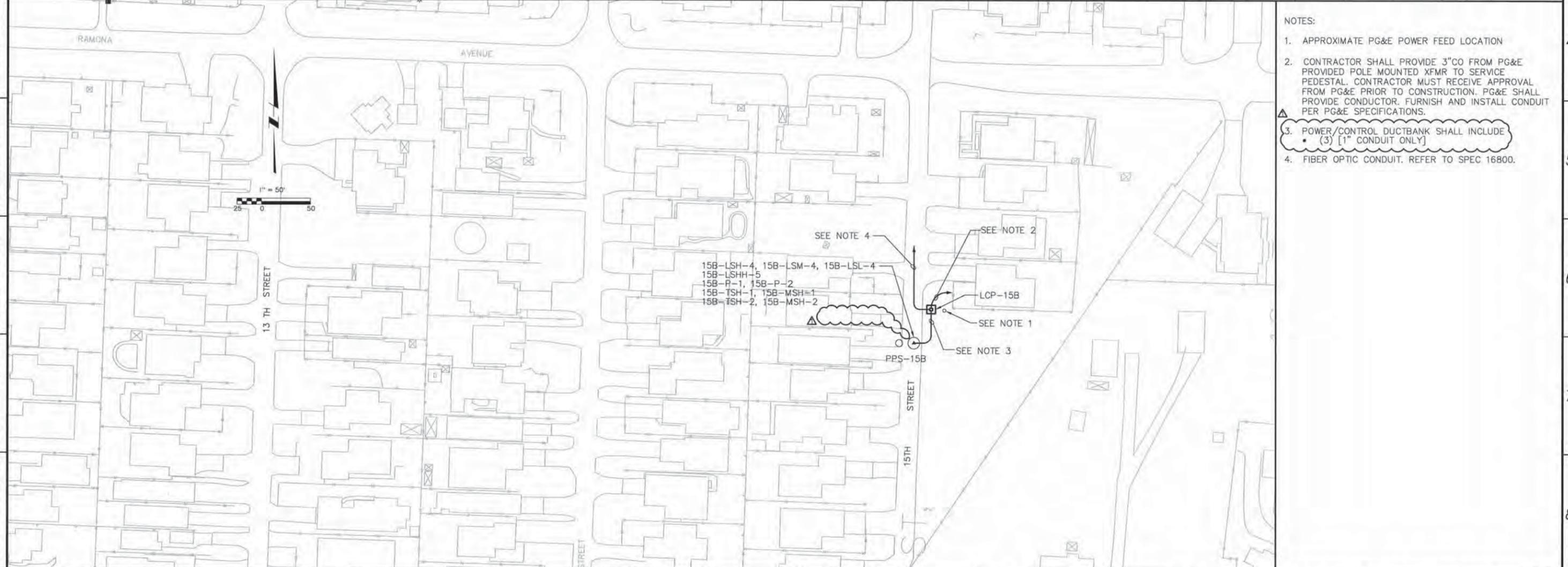
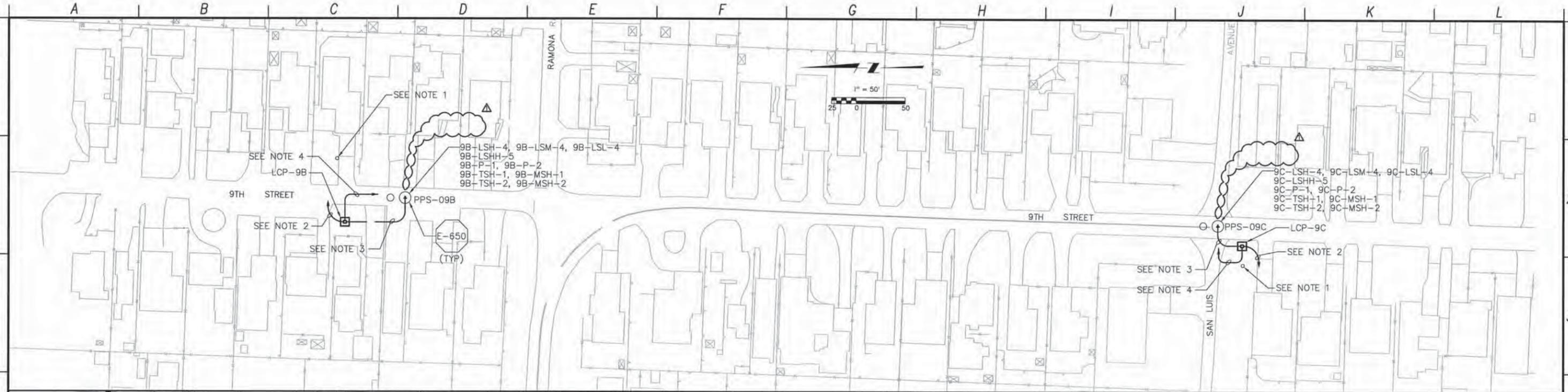


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LOS OSOS WASTEWATER COLLECTION SYSTEM
MECHANICAL SUBMERSIBLE PUMP STATIONS
 DUPLEX LAYOUT - PLAN & SECTION

PROJECT NO. 42502-83120
FILE NAME: D-M-004
SHEET NO.
D-M-004

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- NOTES:
1. APPROXIMATE PG&E POWER FEED LOCATION
 2. CONTRACTOR SHALL PROVIDE 3" CO FROM PG&E PROVIDED POLE MOUNTED XFMR TO SERVICE PEDESTAL. CONTRACTOR MUST RECEIVE APPROVAL FROM PG&E PRIOR TO CONSTRUCTION. PG&E SHALL PROVIDE CONDUIT. FURNISH AND INSTALL CONDUIT PER PG&E SPECIFICATIONS.
 3. POWER/CONTROL DUCTBANK SHALL INCLUDE (3) [1" CONDUIT ONLY]
 4. FIBER OPTIC CONDUIT. REFER TO SPEC 16800.

REV. NO.	DATE	DRWN	CHKD	REMARKS
5/01/12	LLB	MDM		ADDENDUM #2

DESIGNED BY: CAL
 DRAWN BY: JAW
 CHECKED BY: GNM
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LOS OSOS WASTEWATER COLLECTION SYSTEM
 ELECTRICAL
 POCKET PUMP STATIONS
 09B, 09C & 15B
 ELECTRICAL SITE PLAN

PROJECT NO. 42502-83120
 FILE NAME: D-E-401
 SHEET NO.
D-E-401