City of San Diego

CONTRACTOR'S NAME:_____
ADDRESS:_____
TELEPHONE NO.:_____ **FAX NO.:**_____
CITY CONTACT: DAMIAN SINGLETON, CONTRACT SPECIALIST, dsingleton@sandiego.gov
PHONE NO.619-235-5272, FAX NO. 619-236-5904
C RITTER / NB / LS

CONTRACT DOCUMENTS

FOR

MEMORIAL POOL IMPROVEMENTS

VOLUME 1 OF 2

BID NO.:	**K-13-5286-DBB-3-A**
SAP NO. (WBS/IO/CC):	**S-00970**
CLIENT DEPARTMENT:	**1714**
COUNCIL DISTRICT:	**8**
PROJECT TYPE:	**BE**
CDBG #:	**B-12-MC-06-0542**

THIS CONTRACT IS SUBJECT TO THE FOLLOWING:

- FEDERAL EQUAL OPPORTUNITY CONTRACTING REQUIREMENTS.
- PREVAILING WAGE RATES: STATE ☒, FEDERAL ☒
- APPRENTICE REQUIREMENTS.
- THIS IS A COMMUNITY DEVELOPMENT BLOCK GRANT CONTRACT FUNDED THROUGH THE DEPARTMENT OF HOUSING URBAN DEVELOPMENT

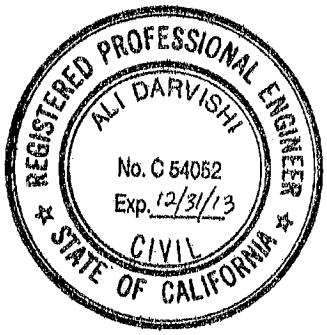
BID DUE DATE:

2:00 PM
DECEMBER 18th, 2012
CITY OF SAN DIEGO
PUBLIC WORKS DEPARTMENT
1010 SECOND AVENUE, SUITE 1400
SAN DIEGO, CA 92101

The engineering Specifications and Special Provisions contained herein have been prepared by or under the direction of the following Professional Engineer:

7/16/12

For City Engineer | Date | Seal:



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DESCRIPTION **PAGE NUMBER**

REQUIRED DOCUMENTS SCHEDULE

This table is intended to serve as a convenient tool for listing forms and documents required at different times. It is neither exhaustive nor must be considered a Contract Document by itself. Therefore, the users must review the entire Contract Documents and become familiar with the required documentation and the submittal schedule associated with each document.

Bidder's attention is directed to the City's Municipal Code §22.0807(e), (3)-(5) for important information regarding required documentation.

The specified EOC forms are all available for download from the EOC Program's web site at:

http://www.sandiego.gov/eoc/forms/index.shtml

ITEM	WHEN	BY	WHAT
1.	BID DUE DATE/TIME	ALL BIDDERS	Proposal (Bid)
2.	BID DUE DATE/TIME	ALL BIDDERS	Bid Bond
3.	BID DUE DATE/TIME	ALL BIDDERS	Non-collusion Affidavit to be Executed By Bidder and Submitted with Bid under 23 USC 112 and PCC 7106
4.	BID DUE DATE/TIME	ALL BIDDERS	Contractors Certification of Pending Actions
5.	BID DUE DATE/TIME	ALL BIDDERS	Equal Benefits Ordinance Certification of Compliance
6.	BID DUE DATE/TIME	ALL BIDDERS	Non-Lobbying Certification
7.	BID DUE DATE/TIME	ALL BIDDERS	Lobby Prohibition, Certification and Disclosure
8.	BID DUE DATE/TIME	ALL BIDDERS	Instructions for Completion of SF-LLL, Disclosure of Lobbying Activities
9.	BID DUE DATE/TIME	ALL BIDDERS	Disclosure of Lobbying Activities
10.	BID DUE DATE/TIME	ALL BIDDERS	Form AA35 - List of Subcontractors
11.	BID DUE DATE/TIME	ALL BIDDERS	Form AA40 - Named Equipment/Material Supplier List
12.	BID DUE DATE/TIME	ALL BIDDERS	Form AA45 – Subcontractors Additive/Deductive Alternate
13.	WITHIN 4 WORKING DAYS OF BID OPENING	ALL BIDDERS	Proof of Valid DBE-MBE-WBE-DVBE Certification Status e.g., Certs.
14.	WITHIN 4 WORKING DAYS OF BID OPENING	ALL BIDDERS	Federal Good Faith Documentations
15.	WITHIN 4 WORKING DAYS OF BID OPENING	ALL BIDDERS	Form AA61 – List of Work Made Available

REQUIRED DOCUMENTS SCHEDULE

ITEM	WHEN	BY	WHAT
16.	WITHIN 4 WORKING DAYS OF BID OPENING	ALL BIDDERS	Form AA62 – Summary of Bids Received
17.	WITHIN 4 WORKING DAYS OF BID OPENING	ALL BIDDERS	Form AA63 - DBE Good Faith Effort List of Subcontractors Solicited
18.	WITHIN 4 WORKING DAYS OF BID OPENING	3 APPARENT LOWEST BIDDERS	Contractor's Experience and Past Project Documentation per Section 13 11 00.
19.	WITHIN 4 WORKING DAYS OF BID OPENING	3 APPARENT LOWEST BIDDERS	Pool Deck Contractor's Experience and Past Project Documentation per Section 13 11 00.
20.	WITHIN 10 WORKING DAYS AFTER RECEIPT BY BIDDER OF CONTRACT FORMS	APPARENT LOW BIDDER	Names of the principle individual owners of the Apparent Low Bidder - In the event the firm is employee owned or publicly held, then the fact should be stated and the names of the firm's principals and officers shall be provided.
21.	WITHIN 10 WORKING DAYS AFTER RECEIPT BY BIDDER OF CONTRACT FORMS	APPARENT LOW BIDDER	If the Contractor is a Joint Venture, the following information must be submitted: o Joint Venture Agreement o Joint Venture License
22.	WITHIN 10 WORKING DAYS AFTER RECEIPT BY BIDDER OF CONTRACT FORMS	APPARENT LOW BIDDER	Form BB05 - Work Force Report
23.	WITHIN 10 WORKING DAYS AFTER RECEIPT BY BIDDER OF CONTRACT FORMS	APPARENT LOW BIDDER	Contract Forms - Agreement
24.	WITHIN 10 WORKING DAYS AFTER RECEIPT BY BIDDER OF CONTRACT FORMS	APPARENT LOW BIDDER	Contract Forms - Payment and Performance Bond
25.	WITHIN 10 WORKING DAYS AFTER RECEIPT BY BIDDER OF CONTRACT FORMS	APPARENT LOW BIDDER	Certificates of Insurance and Endorsements
26.	WITHIN 10 WORKING DAYS AFTER RECEIPT BY BIDDER OF CONTRACT FORMS	APPARENT LOW BIDDER	Contractor Certification - Drug-Free Workplace
27.	WITHIN 10 WORKING DAYS AFTER RECEIPT BY BIDDER OF CONTRACT FORMS	APPARENT LOW BIDDER	Contractor Certification - American with Disabilities Act
28.	WITHIN 10 WORKING DAYS AFTER RECEIPT BY BIDDER	APPARENT LOW BIDDER	Contractors Standards - Pledge of Compliance

REQUIRED DOCUMENTS SCHEDULE

ITEM	WHEN	BY	WHAT
	OF CONTRACT FORMS		
29.	BY 5th OF EACH MONTH	CONTRACTOR	Form CC20 - Monthly Employment Report
30.	BY 5th OF EACH MONTH	CONTRACTOR	Form CC25 - Monthly Invoicing Report
31.	PRIOR TO ACCEPTANCE	CONTRACTOR	Form CC10 - Contract Change Order (CCO)
32.	PRIOR TO ACCEPTANCE	CONTRACTOR	Form CC15 - Final Summary Report
33.	PRIOR TO ACCEPTANCE	CONTRACTOR	Affidavit of Disposal

SPECIAL NOTICE
DISADVANTAGED BUSINESS ENTERPRISES (DBE)

1. INTRODUCTION. The City affirms that in any contract entered into pursuant to this advertisement, DBE will be afforded full opportunity to submit Bids in response to this invitation.

1.1. This Federally assisted project includes subcontracting participation percentages for DBE participation. DBE goal commitments and Good Faith Efforts (GFE) shall be made prior to bidding. DBE commitments and GFE made after the Bid opening will not be considered for the Award of Contract.

1.2. The Bidder's attention is directed to the following:

1. City of San Diego's General Equal Opportunity Contracting Program incorporated in the "WHITEBOOK" which applies to all construction contracts except as amended in these specifications and specified in the "FUNDING AGENCY PROVISIONS FOR CONSTRUCTION CONTRACTS" incorporated in the Contract Documents.

2. Required Documents Schedule for submittals.

2. AMENDMENTS TO THE CITY'S STANDARD EOCP REQUIREMENTS.

III. Equal Employment Opportunity Outreach Program (A). DELETE in its entirety and SUBSTITUTE with the following:

A. Competitive Bids. If a contract is competitively solicited, the Apparent Low Bidder shall submit a *Work Force Report (Form BB05)* or an Equal Employment Opportunity (EEO) Plan, within 10 Working Days after receipt by the Bidder of Contract forms to the City for approval as specified in the Notice of Intent to Award letter from the City.

IX. Definitions. ADD the following for the purpose of these specifications:

Disadvantaged Business Enterprises (DBEs) are:

A. Entities owned and/or controlled by a socially and economically disadvantaged individuals as described by Title X of the Clean Air Act Amendments of 1990 (42 U.S.C. 7601 note) (10% statute), and Public Law 102-389 (42 U.S.C. 4370d) (8% statute), respectively

B. Historically Underutilized Business (HUB) Zone Small Business Concern (or a concern under a successor program)

C. Small Disadvantaged Business (SDB)

D. Women-Owned Business (WoSB)

E. Service Disabled Veteran-owned Small Business (SDVoSB)

For the purpose of these requirements terms "Bid" and "Proposal," "Bidder" and "Proposer," "Subcontractor" and "Subconsultant," "Contractor" and "Consultant," "Contractor" and "Prime Contractor," "Consultant" and "Professional Service Provider," "Suppliers" and "Vendors," "Suppliers" and Dealers," and "Suppliers" and "Manufacturers" may have been used interchangeably.

ADD:

XIII. Federal Equal Opportunity Requirements. All federally funded projects are subject to the federal equal opportunity regulations and the following requirements. The City reserves the right to audit Contractor's compliance with the federal requirements set forth below.

3. SUBCONTRACTING PARTICIPATION PERCENTAGES. Following are federally subcontracting participation percentages for this contract. For the purpose of achieving the mandatory subcontractor participation percentage, the City will not account for the Field Orders, Additive or Deductive, and Allowance Bid Items (when shown by the City as Allowance – Type II in the Bid and Proposal forms) in the calculation. Allowance – Type I Bid Items are part of the Base Bid integral to the SOW.

3.1. Department of Housing and Urban Development (HUD):

1. Small Disadvantaged Business (SDB): 5%
2. Women-Owned Small Business (WoSB): 5%
3. HUBZone Small Business (HubZone): 3%
4. Service Disabled Veteran-owned Small Business (SDVoSB): 3%

4. PRE-BID CONFERENCE. A mandatory Pre-Bid Conference is scheduled for this project as specified in the Invitation to Bids. The purpose of this meeting is to inform prospective Bidder(s) of the submittal requirements and provisions relative to the City requirements.

5. MANDATORY CONDITIONS. Bid will be declared **non-responsive** if the Bidder fails any of the following conditions:

5.1. Submission of GFE documentation, as specified in the Special Provisions.

5.2. Attending the Pre-Bid Conference.

5.3. Bidder's submission of GFE documentation demonstrating the Bidder made a good faith effort to outreach to and include DBE Subcontractors shall be submitted within **4 Working Days** of the Bid opening.

CITY OF SAN DIEGO, CALIFORNIA

INVITATION TO BIDS

1. **RECEIPT AND OPENING OF BIDS:** Bid(s) will be received at the Public Works Contracting Group at **location, time and date shown on the cover of these specificaions** for performing work on the following project (Project):

   MEMORIAL POOL IMPROVEMENTS

2. **DESCRIPTION OF WORK:** The Work involves furnishing all labor, materials, equipment, services, and other incidental works and appurtenances for the construction of the Project as described below:

   Demolish existing pool and equipment and replace with larger pool and equipment, childrens play area, shade structures, benches and picnic tables.

   The Work shall be performed in accordance with:

   - Bid No. **K-13-5286-DBB-3-A** and Plans numbered **36152-1-D** through **36152-39-D,** inclusive.

3. **ENGINEER'S ESTIMATE:** The Engineer's estimate of the most probable price for this contract is **$2,490,000.**

4. **LOCATION OF WORK:** The location of Work is as follows:

   Memorial Community Pool, 2902 Marcy Avenue, San Diego, CA 92113

5. **CONTRACT TIME:** The Contract Time for completion of the Work shall be **150 Working Days.**

6. **CONTRACTOR'S LICENSE CLASSIFICATION**: In accordance with the provisions of California Law, the Contractor shall possess valid appropriate license(s) at the time that the Bid is submitted. Failure to possess the specified license(s) shall render the Bid as non-responsive and shall act as a bar to award of the Contract to any Bidder not possessing required license(s) at the time of Bid.

   The City has determined the following licensing classification for this contract:

   - **CLASS C53**

7. **PRE-BID CONFERENCE:** There will be a Pre-Bid Conference to discuss the scope of the project, bidding requirements, and Equal Opportunity Contracting Program requirements and reporting procedures in the **Public Works Contracting Group, Conference Room at 1010 Second Avenue, Suite 1400, San Diego, CA 92101** at **10:00 A.M.,** on **NOVEMBER 29th, 2012.**

   The Pre-Bid Conference has been designated as MANDATORY. All potential bidders are required to attend. Bid will be declared **non-responsive** if the Bidder fails to attend the Pre-Bid Conference when specified to be mandatory. Attendance at the Pre-Bid Conference will be evidenced by the representative's signature on the attendance roster. It shall be the responsibility of the Bidder's representative to complete and sign the attendance roster. No Bidder will be admitted after the official start time of the mandatory Pre-Bid Conference.

   To request a copy of the agenda on an alternative format, or to request a sign language or oral interpreter for this meeting, call the Public Works Contracting Group at (619) 236-6000 at least 5 Working Days prior to the Pre-Bid Conference to ensure availability.

8. REFERENCE STANDARDS: Except as otherwise noted or specified, the Work shall be completed in accordance with the following standards:

1. STANDARD SPECIFICATIONS

Document No.	Filed	Description
PITS0504091	05-04-09	Standard Specifications for Public Works Construction (The GREENBOOK), 2009 Edition
PITS090110-1	09-01-10	City of San Diego Standard Specifications for Public Works Construction (The WHITEBOOK), 2010 Update *
AEC1231064	12-31-06	California Department of Transportation, Manual of Uniform Traffic Control Devices (MUTCD 2006)
769023	09-11-84	Standard Federal Equal Employment Opportunity Construction Contract Specifications and the Equal Opportunity Clause

NOTE: The City of San Diego Supplement, 2010 Update now consolidates various City Public Works Construction Standard Specifications which in the past were included in the Supplementary Special Provisions. The Bidders' attention is directed to this edition of the City Supplement for a close review to ensure no important information is missed for the preparation of the Bids.

2. STANDARD DRAWINGS

Document No.	Filed	Description
AEC1230163	12-31-06	City of San Diego Standard Drawings*
N/A	Varies	City Standard Drawings - Updates Approved For Use*
AEC0925061	09-25-06	Caltrans 2006 U.S. Customary Unit Standard Plans

NOTE: * Available online under Engineering Documents and References at: http://www.sandiego.gov/engineering-cip.

9. WAGE RATES: Prevailing wages are applicable to this project. See Funding Agency Provisions that follow this Invitation to Bid for more information.

10. ADDITIVE ALTERNATES: The additive alternates have been established to allow the City to compare the cost of specific portions of the Work with the Project's budget and enable the City to make decision prior to award. The award will be established as described in the Proposal. The City reserves the right to award the Contract for the Base Bid only or the Base Bid plus any combination of Additive Alternate(s). Refer to Section 2-6 for additional instructions.

Tony Heinrichs
Director
Public Works Department

INSTRUCTIONS TO BIDDERS

1. **PREQUALIFICATION OF CONTRACTORS:** The contractor(s) who intend to submit Bid or Proposal in response to this invitation to bid, or RFP's for GRC or As-Needed Design-Build Task Orders valued over $50,000, must be pre-qualified for the total amount proposed, inclusive of all alternate bid items or the specified Task Order limits prior to the date of Bid submittal.

   Bids from contractors who have not been pre-qualified as applicable, and Bids that exceed the maximum dollar amount at which contractors are pre-qualified, will be deemed **non-responsive** and ineligible for award or a Task Order authorization. Complete information and prequalification questionnaires are available at:

   http://www.sandiego.gov/engineering-cip/services/consultcontract/prequal.shtml

   The completed questionnaire, financial statement, and bond letter or a copy of the contractor's SLBE-ELBE certification and bond letter, must be submitted no later than 2 weeks prior to the bid opening to the Public Works Department - Engineering & Capital Projects Department Prequalification Program, 1010 Second Avenue, Suite 1200, San Diego, CA 92101. For additional information or the answer to questions about the prequalification program, please contact David Stucky at 619-533-3474 or dstucky@sandiego.gov.

2. **CONTRACTOR REGISTRATION:** Prospective bidder(s) as well as existing contractors and suppliers are required to register with the City's EOCP. Refer to 2-17, "CONTRACTOR REGISTRATION" for details.

3. **CITY'S RESPONSES AND ADDENDA:** The City at its option, may respond to any or all questions submitted in writing, via letter, or FAX in the form of an addendum. No oral comment shall be of any force or effect with respect to this solicitation. The changes to the Contract Documents through addendum are made effective as though originally issued with the Bid. The Bidders shall acknowledge the receipt of Addenda on the form provided for this purpose in the Bid.

4. **CITY'S RIGHTS RESERVED:** The City reserves the right to cancel the Invitation to Bids at any time, and further reserves the right to reject submitted Bids, without giving any reason for such action, at its sole discretion and without liability. Costs incurred by the Bidder(s) as a result of preparing Bids under the Invitation to Bid shall be the sole responsibility of each bidder. The Invitation to Bid creates or imposes no obligation upon the City to enter a contract.

5. **CONTRACT PRICING FORMAT:** This solicitation is for a Lump Sum contract with Unit Price provisions as set forth in the Bid Proposal Form(s), Volume 2 unless specified otherwise such as as-needed contracts e.g., GRC in the Contract Documents.

6. **SUBMITTAL OF "OR EQUAL" ITEMS:** See 4-1.6, "Trade Names or Equals."

7. **AWARD PROCESS:** The Award of this contract is contingent upon the Contractor's compliance with all conditions precedent to Award, including the submittal of acceptable insurance and surety bonds pursuant to San Diego Municipal Code § 22.3007. If the responsible Bid does not exceed the City's engineering estimate, the City will, in most cases, prepare contract documents for execution within 3 weeks of the date of the Bid opening and award the Contract within 5 Working Days of receipt of properly executed Contract, bond, and insurance documents.

This contract is deemed to be awarded, and effective, only upon the signing of the Contract by the Mayor or designee of the City.

8. **SUBCONTRACT LIMITATIONS:** The Bidder's attention is directed to Standard Specifications for Public Works Construction, Section 2-3, "SUBCONTRACTS" which requires the Contractor to perform not less than the amount therein stipulated with its own forces. Failure to comply with these requirements may render the Bid **non-responsive** and ineligible for award.

9. **AVAILABILITY OF PLANS AND SPECIFICATIONS:** Contract Documents may be obtained by visiting the City's website: http://www.sandiego.gov/cip/. Plans and Specifications for this contract are also available for review in the office of the City Clerk or Public Works Contracting Group.

10. **QUESTIONS:** The Director (or designee), of the Public Works Department is the officer responsible for opening, examining, and evaluating the competitive Bids submitted to the City for the acquisition, construction and completion of any public improvement except when otherwise set forth in these documents. All questions related to this procurement action shall be addressed to the Public Works Contracting Group, Attention Contract Specialist, 1010 Second Avenue, Suite 1400, San Diego, California, 92101, Telephone No. (619) 236-6000.

    Questions received less than 14 days prior to the date for opening of Bids may not be answered.

    Interpretations or clarifications considered necessary by the City in response to such questions will be issued by Addenda which will be uploaded to the City's online bidding service.

    Only questions answered by formal written addenda will be binding. Oral and other interpretations or clarifications will be without legal effect. It is the Bidder's responsibility to become informed of any Addenda that have been issued and to include all such information in its Bid.

11. **ELIGIBLE BIDDERS:** No person, firm, or corporation shall be allowed to make, file, or be interested in more than 1 Bid for the same work unless alternate Bids are called for. A person, firm or corporation who has submitted a sub-proposal to a Bidder, or who has quoted prices on materials to a Bidder, is not hereby disqualified from submitting a sub-proposal or quoting prices to other Bidders or from submitting a Bid in its own behalf.

12. **SAN DIEGO BUSINESS TAX CERTIFICATE:** All Contractors, including Subcontractors, not already having a City of San Diego Business Tax Certificate for the work contemplated shall secure the appropriate certificate from the City Treasurer, Civic Center Plaza, first floor, before the Contract can be executed.

13. **PROPOSAL FORMS:** Bid shall be made only upon the Bidding Documents i.e., Proposal form attached to and forming a part of the specifications. The signature of each person signing shall be in longhand.

    The entire specifications for the bid package do not need to be submitted with the bid. Bidder shall complete and submit, only, all pages in the "Bidding Document" Section (see Volume 2) as their Bid per the schedule given under "Required Documents Schedule," (see Volume 1). Bidder is requested to retain for their reference other portions of the Contract Documents that are not required to be submitted with the Bid.

The City may require any Bidder to furnish a statement of experience, financial responsibility, technical ability, equipment, and references.

Bids and certain other specified forms and documents shall be enclosed in a sealed envelope and shall bear the title of the work and name of the Bidder and the appropriate State Contractors License designation which the Bidder holds.

Bids may be withdrawn by the Bidder prior to, but not after, the time fixed for opening of Bids.

14. BIDDERS' GUARANTEE OF GOOD FAITH (BID SECURITY):

With the exception of the contracts valued $5,000 or less, GRC and Design-Build contracts, and contracts subject to the Small and Local Business Program of $250,000 or less e.g., ELBE contracts, each Bidder shall accompany its Bid with either a cashier's check upon some responsible bank, or a check upon such bank properly certified or an approved corporate surety bond payable to the City of San Diego, for an amount of not less than 10% of the aggregate sum of the Bid, which check or bond, and the monies represented thereby shall be held by the City as a guarantee that the Bidder, if awarded the contract, will in good faith enter into such contract and furnish the required final bonds.

The Bidder agrees that in case of Bidder's refusal or failure to execute this contract and give required final bonds, the money represented by a cashier's or certified check shall remain the property of the City, and if the Bidder shall fail to execute this contract, the Surety agrees that it will pay to the City damages which the City may suffer by reason of such failure, not exceeding the sum of 10% of the amount of the Bid.

A Bid received without the specified bid security will be rejected as being **non-responsive**.

15. AWARD OF CONTRACT OR REJECTION OF BIDS:

This contract may be awarded to the lowest responsible and reliable Bidder (for Design-Build contracts refer to the RFP for the selection and award information). Bidders shall complete the entire Bid schedule (e.g., schedule of prices). Incomplete price schedules will be rejected as being **non-responsive**.

The City reserves the right to reject any or all Bids, and to waive any informality or technicality in Bids received and any requirements of these specifications as to bidding procedure.

Bidders will not be released on account of their errors of judgment. Bidders may be released only upon receipt by the City from the Bidder within 3 Working Days, excluding Saturdays, Sundays, and state holidays, after the opening of Bids, of written notice which includes proof of honest, credible, clerical error of material nature, free from fraud or fraudulent intent, and of evidence that reasonable care was observed in the preparation of the Bid.

A non-selected Bidder may protest award of the Contract to the selected Bidder by submitting a written "Notice of Intent to Protest" including supporting documentation which shall be received by Public Works Contracting Group no later than 10 days after the City's announcement of the selected Bidder or no later than 10 days from the date that the City issues notice of designation of a Bidder as non-responsible in accordance with San Diego Municipal Code Chapter 2, § 22.3029, "Protests of Contract Award."

The City of San Diego will not discriminate with regard to race, religious creed, color, national origin, ancestry, physical handicap, marital status, sex or age, in the award of contracts.

Each Bid package properly executed as required by these specifications shall constitute a firm offer, which may be accepted by the City within the time specified in the Invitation to Bids.

The City reserves the right to evaluate all Bids and determine the lowest Bidder (or winner for Design-Build contracts) on the basis of any proposed alternates, additive items or options, at its discretion.

16. BID RESULTS: The Bid opening by the City shall constitute the public announcement of the Apparent Low Bidder (or Apparent Winner in case of Design-Build contracts). In the event that the Apparent Low Bidder (or Apparent Winner in case of Design-Build contracts) is subsequently deemed non-responsive or non-responsible, a public announcement will be posted in the City's web page, with the name of the newly designated Apparent Low Bidder (or Apparent Winner in case of Design-Build contracts).

To obtain Bid results, either attend Bid opening, review the results on the City's web site, or provide a self-addressed, stamped envelope, referencing Bid number, and Bid tabulation will be mailed to you upon verification of extensions. Due to time constraints, Bid results cannot be given out over the telephone.

17. THE CONTRACT: The Bidder to whom award is made shall execute a written contract with the City of San Diego and furnish good and approved bonds and insurance certificates specified by the City within 10 Working Days after receipt by Bidder of a form of contract for execution unless an extension of time is granted to the Bidder in writing.

If the Bidder takes longer than 10 Working Days to fulfill these requirements, then the additional time taken shall be added to the Bid guarantee. The Contract shall be made in the form adopted by the City, which includes the provision that no claim or suit whatsoever shall be made or brought by Contractor against any officer, agent, or employee of the City for or on account of anything done or omitted to be done in connection with this contract, nor shall any such officer, agent, or employee be liable hereunder.

If the Bidder to whom the award is made fails to enter into the contract as herein provided, the award may be annulled and the Bidder's Guarantee of Good Faith will be subject to forfeiture. An award may be made to the next lowest responsible and reliable Bidder who shall fulfill every stipulation embraced herein as if it were the party to whom the first award was made.

For contracts that are not Design-Build, pursuant to the San Diego City Charter section 94, the City may only award a public works contract to the lowest responsible and reliable Bidder. The City will require the Apparent Low Bidder to (i) submit information to determine the Bidder's responsibility and reliability, (ii) execute the Contract in form provided by the City, and (iii) furnish good and approved bonds and insurance certificates specified by the City within 10 Working Days, unless otherwise approved by the City, in writing after the Bidder receives notification from the City, designating the Bidder as the Apparent Low Bidder and formally requesting the above mentioned items.

The award of the Contract is contingent upon the satisfactory completion of the above mentioned items and becomes effective upon the signing of the Contract by the Mayor or designee. If the Apparent Low Bidder does not execute the Contract or submit required documents and information, the City may award the Contract to the next lowest responsible and reliable Bidder who shall fulfill every condition precedent to award. A corporation designated as the Apparent Low Bidder shall furnish evidence of its corporate existence and evidence that the officer signing the Contract and bond for the corporation is duly authorized to do so.

18. EXAMINATION OF PLANS, SPECIFICATIONS, AND SITE OF WORK: The Bidder shall examine carefully the Project Site, the Plans and Specifications, the GRC Unit Price Books if applicable, other materials as described in the Special Provisions, Section 2-7, and the proposal forms (e.g., Bidding Documents) therefore. The submission of a Bid or GRC Task Order Proposal shall be conclusive evidence that the Bidder has investigated and is satisfied as to the conditions to be encountered, as to the character, quality, and scope of Work, the quantities of materials to be furnished, and as to the requirements of the Bidding Documents Proposal, Plans, and Specifications.

19. DRUG-FREE WORKPLACE:

a) General:

City projects are subject to City of San Diego Resolution No. R-277952 adopted on May 20, 1991. Bidders shall become aware of the provisions of Council Policy 100-17 which was established by Resolution No. R-277952. The policy applies equally to the Contractor and Subcontractors. The elements of the policy are outlined below.

b) Definitions:

"Drug-free workplace" means a site for the performance of work done in connection with a contract let by City of San Diego for the construction, maintenance, or repair of any facility or public work by an entity at which employees of the entity are prohibited from engaging in the unlawful manufacture, distribution, dispensation, possession, or use of a controlled substance in accordance with the requirements of this section.

"Employee" means the employee of a contractor directly engaged in the performance of work pursuant to a contract as described in Section 3, "City Contractor Requirements."

"Controlled substance" means a controlled substance in schedules I through V of Section 202 of the Controlled Substances Act (21 U.S.C. Sec. 812).

"Contractor" means the department, division, or other unit of a person or organization responsible to the contractor for the performance of a portion of the work under the contract.

c) City Contractor Requirements:

Every person or organization awarded a contract or grant by the City of San Diego for the provision of services shall certify to the City that it will provide a drug-free workplace by doing all following:

a. Publishing a statement notifying employees that the unlawful manufacture, distribution, dispensation, possession, or use of a controlled substance is prohibited in the person's organization's workplace and specifying the actions that will be taken against employees for violations of the prohibition.

b. Establishing a drug-free awareness program to inform employees about all of the following:

i. The dangers of drug abuse in the workplace.

ii. The person's or organization's policy of maintaining a drug-free workplace.

iii. Any available drug counseling, rehabilitation, and employee assistance programs.

iv. The penalties that may be imposed upon employees for drug abuse violations.

c. Posting the statement required by subdivision (1) in a prominent place at contractor's main office. For projects large enough to necessitate a construction trailer at the job site, the required signage would also be posted at the Site.

The Contractor shall include in each subcontract agreement language which indicates the Subcontractor's agreement to abide by the provisions of subdivisions a) through c) above. The Contractors and Subcontractors shall be individually responsible for their own drug-free workplace programs.

Note: The requirements of a drug-free awareness program can be satisfied by periodic tailgate sessions covering the various aspects of drug-abuse education. Although an in-house employee assistance program is not required, contractors should be able to provide a listing of drug rehabilitation and counseling programs available in the community at large.

Questions about the City's Drug-free Workplace Policy shall be referred to the Contract Specialist, Public Works Contracting Group.

20. AMERICANS WITH DISABILITIES ACT:

a) General: City projects are subject to City of San Diego Resolution No. R-282153 adopted on June 14, 1993. The Bidders shall become aware of the provisions of Council Policy 100-04 which was established by Resolution No. R-282153. The policy applies equally to the Contractor and all Subcontractors. The elements of the policy are outlined below.

b) Definitions:

"Qualified individual with a disability" means an individual with a disability who satisfies the requisite skill, experience, education and other job-related requirements of the employment position such individual holds or desires, and who, with or without reasonable accommodation, can perform the essential functions of such position.

"Employee" means the employee of the Contractor directly engaged in the performance of Work.

c) The City Requirements: Every person or organization entering into a contractual agreement with or receiving a grant from the City of San Diego shall certify to the City of San Diego that it will comply with the ADA by adhering to all of the provisions of the ADA listed below.

i. The Contractor shall not discriminate against qualified persons with disabilities in any aspects of employment, including recruitment, hiring, promotions, conditions and privileges of employment, training, compensation, benefits, discipline, layoffs, and termination of employment.

ii. No qualified individual with a disability may be excluded on the basis of disability, from participation in, or be denied the benefits of services, programs, or activities by the Contractor or Subcontractors providing services for the City.

iii. The Contractor shall post a statement addressing the requirements of the ADA in a prominent place at the worksite. The Contractor shall include in each subcontract agreement, language which indicates the Subcontractor's agreement to abide by the provisions of subdivisions (a) through (c) inclusive of Section 3. The Contractor and Subcontractors shall be individually responsible for their own ADA employment programs. Questions about the City's ADA Policy should be referred to the Contract Administrator.

21. CONTRACTOR STANDARDS – PLEDGE OF COMPLIANCE: This contract is subject to City of San Diego Municipal Code §22.3224 as amended 11/24/08 by ordinance O-19808. Bidders shall become aware that the requirements apply to Contractors and Subcontractors for contracts greater than $50,000 in value.

Upon award, amendment, renewal, or extension of this contract, the Contractors shall complete a Pledge of Compliance attesting under penalty of perjury that they complied with the requirements of this section.

The Contractors shall ensure that their Subcontractors whose subcontracts are greater than $50,000 in value complete a Pledge of Compliance attesting under penalty of perjury that they complied with the requirements of this section. Subcontractors may access the Pledge of Compliance at:

http://www.sandiego.gov/purchasing/pdf/contractor_standards_questionnaire.pdf.

The Contractors shall include in each subcontract agreement, language which requires Subcontractors to abide by the provisions of City of San Diego Municipal Code §22.3224. A sample provision is as follows:

> "**Compliance with San Diego Municipal Code §22.3224**: Subcontractor acknowledges that it is familiar with the requirements of San Diego Municipal Code §22.3224 ("Contractor Standards"), and agrees to comply with requirements of that section. The Subcontractor further agrees to complete the Pledge of Compliance, incorporated herein by reference."

22. NOTICE OF LABOR COMPLIANCE PROGRAM APPROVAL: The City of San Diego received initial approval as a Labor Compliance Program on August 11, 2003. The Labor Compliance Program Manual is available at:

http://www.sandiego.gov/eoc/laborcompliance/#manual.

The limited exemption from prevailing wages pursuant to Labor Code §1771.5(a) does not apply to contracts under jurisdiction of the Labor Compliance Program. Inquiries, questions, or assistance about the Labor Compliance Program should be directed to: Equal Opportunity Contracting Program, 1010 Second Avenue, Suite 1400, San Diego, CA 92101, Tel. 619-236-6000.

23. PAYROLL RECORDS: The Contractor's attention is directed to the City of San Diego Labor Compliance Program, Section IV, pages 4-7, and the State of California Labor Code §§ 1771.5(b) and 1776 (Stats. 1978, Ch. 1249). These require, in part, that the Contractor and Subcontractors maintain and furnish to the City, at a designated time, a certified copy of each weekly payroll containing a statement of compliance signed under penalty of perjury.

The Contractor and Subcontractors shall submit weekly certified payrolls online via Prism® i.e., the City's web-based labor compliance program. Instructions on how to use the system will be provided to the Contractor after the award.

The Contractor shall be responsible for the compliance with these provisions by Subcontractors. The City shall withhold contract payments when payroll records are delinquent or inadequate, or when it is established after investigation that underpayment has occurred.

24. APPRENTICES ON PUBLIC WORKS: The Contractor shall abide by the requirements of §§1777.5, 1777.6, and 1777.7 of the State of California Labor Code concerning the employment of apprentices by contractors and subcontractors performing public works contracts.

25. EQUAL BENEFITS: This contract is subject to the City's Equal Benefits Ordinance (EBO), Chapter 2, Article 2, Division 43 of the San Diego Municipal Code (SDMC).

In accordance with the EBO, Bidders shall certify they will provide and maintain equal benefits as defined in SDMC §22.4302 for the duration of the Contract (SDMC §22.4304(f)). Failure to maintain equal benefits is a material breach of the Contract (SDMC §22.4304(e)). The Contractor shall notify employees of their equal benefits policy at the time of hire and during open enrollment periods and shall post a copy of the following statement in an area frequented by employees:

> "During the performance of a contract with the City of San Diego, this employer will provide equal benefits to its employees with spouses and its employees with domestic partners."

The Contractor shall give the City access to documents and records sufficient for the City to verify the contractors are providing Equal Benefits and otherwise complying with EBO requirements.

Full text of the EBO and the Rules Implementing the Equal Benefits Ordinance are posted on the City's website at www.sandiego.gov/purchasing/ or can be requested from the Equal Benefits Program at (619) 533-3948.

26. PRE-AWARD ACTIVITIES:

Pre-award Submittals - The Apparent Low Bidder (or winner in case of Design-Build contracts) shall provide the information required within the time specified in "Required Documents," of this bid package. Failure to provide the information within the time specified may result in the Bid being rejected as **non-responsive**.

If the Bid is rejected as non-responsive, the Apparent Low Bidder (or winner in case of Design-Build contracts) shall forfeit the Bid Security required under Invitation to Bids, of this bid package. The decision that the Apparent Low Bidder (or winner in case of Design-Build contracts) is non-responsive for failure to provide the information required within the time specified shall be at the sole discretion of the City.

FUNDING AGENCY PROVISIONS

IN THE EVENT THAT THESE REQUIREMENTS CONFLICT WITH THE CITY'S GENERAL EOC REQUIREMENTS, THE FUNDING AGENCY'S REQUIREMENTS WILL CONTROL.

1. NOTICE OF REQUIREMENT FOR AFFIRMATIVE ACTION TO ENSURE EQUAL EMPLOYMENT OPPORTUNITY (EXECUTIVE ORDER 11246).

1.1. The goal and timetables for minority and female participation, expressed in percentage terms for the Contractor's aggregate workforce in each trade on all construction work in the covered area, as follows:

		Goal
1.	Minority Participation:	16.9%
2.	Female Participation:	6.9%

1.2. These goals are applicable to all the Contractor's construction work (whether or not it is Federal or federally assisted) performed in the covered area. If the Contractor performs Work in a geographical area located outside of the covered area, it shall apply the goals established for such geographical area where the Work is actually performed. With regard to this second area, the Contractor also is subject to the goals for both federally involved and non-federally involved Work.

1.3. The Contractor's compliance with the Executive Order and the regulations in 41 CFR Part 60-4 shall be based on its implementation of the Equal Opportunity Clause, specific affirmative action obligations required by the specifications set forth in 41 CFR 60-4.3(a), and its efforts to meet the goals.

1.4. The hours of minority and female employment and training shall be substantially uniform throughout the length of the Contract, and in each trade, and the Contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from Contractor to Contractor or from project to project for the sole purpose of meeting the Contractor's goals shall be a violation of the Contract, the Executive Order, and the regulations in 41 CFR Part 60-4. Compliance with the goals will be measured against the total work hours performed.

1.5. The Contractor shall provide written notification to the Director the Office of Federal Contract Compliance Programs within 10 Working Days of award of any Subcontract in excess of $10,000 at any tier for Work under the Contract resulting from this solicitation. The notification shall list the name, address and telephone number of the Subcontractor; employer identification number of the Subcontractor; estimated dollar amount of the Subcontract; estimated starting and completion dates of the Subcontract; and the geographical area in which the subcontract is to be performed. The "covered area" is the City of San Diego.

2. NONDISCRIMINATION PROVISIONS FOR FEDERALLY ASSISTED CONSTRUCTION CONTRACTS AND PROJECTS:

2.1. During the performance of this contract, the Contractor agrees as follows:

1. The Contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, or national origin. The Contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race, color, religion, sex, or national origin. Such action shall include, but shall not be limited to, the following: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided setting forth the provisions of this nondiscrimination clause.

2. The Contractor will, in all solicitations or advertisements for employees placed by, on behalf of, the Contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, or national origin.

3. The Contractor will send to each labor union or representative of worker with which he has a collective bargaining agreement or other contract or understanding, a notice to be provided advertising the said labor union or workers' representatives of the Contractor's commitments under this section and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

4. The Contractor will comply with all provisions of Executive Order 11246 of September 24, 1965, or of the rules, regulations and relevant orders of the Secretary of Labor.

5. The Contractor will furnish all information and reports required by Executive Order 11246 of September 24, 1965, and by rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records, and accounts by the administering agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations and orders.

6. In the event of the Contractor's noncompliance with the nondiscrimination clauses of this contract or with any of the said rules, regulations, or orders, this contract may be canceled, terminated, or suspended, in whole or in part, and the Contractor may be declared ineligible for further government contracts or federally assisted construction contracts in accordance with procedures authorized in Executive Order 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order 11246 of September 24, 1965, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.

7. The Contractor will include the portion of the sentence immediately preceding Paragraph 1 and the provisions of Paragraphs 1 through 7 in every subcontract or purchase order unless exempted by rules, regulations, or

orders of the Secretary of Labor issued pursuant to Section 204 of Executive Order 11246 of September 24, 1965, so that such provisions will be binding upon each Subcontractor or Vendor. The Contractor will take such action with respect to any subcontract or purchase order as the administering agency may direct as a means of enforcing such provisions, including sanctions for noncompliance: Provided, however, that in the event a Contractor becomes involved in, or is threatened with, litigation with a Subcontractor or Vendor as a result of such direction by the administering agency, the Contractor may request the United States to enter into such litigation to protect the interests of the United States.

3. EQUAL OPPORTUNITY CLAUSES:

3.1. The following equal opportunity clauses are incorporated by reference herein:

1. The equal opportunity clause located 41 CFR 60.1.4(a), which specifies the obligations imposed under Executive Order 11246.
2. The equal opportunity clause located at 41 CFR 60-741.5, which contains the obligations imposed by Section 503 of the Rehabilitation Act of 1973.
3. The "Equal Opportunity Clause" (Resolution No. 765092) filed on December 4, 1978, in the Office of the City Clerk, San Diego, California and incorporated in the "Standard Federal Employment Opportunity Construction Contract Specifications (Executive Order 11246 - Document No. 769023, filed September 11, 1984, in the Office of the City Clerk, San Diego, California) is applicable to all non-exempt City construction contracts and subcontracts of $2,000 or more.
4. Age Discrimination Act of 1975, Pub. L. 94-135.
5. Title VI of the Civil Rights Act of 1964, Pub. L. 88-352.
6. Section 13 of the Federal Water Pollution Control Acts Amendments of 1972, Pub. L. 92-5200 (the Clean Water Act).
7. Section 504 of the Rehabilitation Act of 1973, Pub. L. 93-112 (Executive Orders 11914 and 11250).
8. Women's Minority Business Enterprises, Executive Orders 11625, 12138 and 12432.
9. Section 129 of the Small Business Administration Reauthorization and Amendment Act of 1988, Pub. L. 100-590.

4. STANDARD FEDERAL EQUAL EMPLOYMENT SPECIFICATIONS:

4.1. The Contractor is required to comply with the 16 "Standard Federal Equal Employment Specifications" located at 41 CFR 60-4.3 for federal and federally-assisted construction contracts in excess of $10,000, set forth below.

4.2. The Contractor shall take specific affirmative actions to ensure equal employment opportunity. The evaluation of Contractor's compliance with these specifications shall be based upon its effort to achieve maximum results from its actions The

Contractor shall document these efforts fully, and shall implement affirmative actions steps at least as extensive as the following:

1. Ensure and maintain a working environment free of harassment, intimidation, and coercion at all sites, and in all facilities at which the Contractor's employees are assigned to work. The Contractor, where possible, will assign 2 or more women to each construction project. The Contractor shall specifically ensure that all foremen, superintendents, and other on-site supervisory personnel are aware of and carry out the Contractor's obligation to maintain such a working environment, with specific attention to minority or female individuals working at such sites or in such facilities.

2. Establish and maintain a current list of minority and female recruitment sources, provide written notification to minority and female recruitment sources and to community organizations when the Contractor or its unions have employment opportunities available, and maintain a record of the organizations' responses.

3. Maintain a current file of the names, addresses and telephone numbers of each minority and female walk-in applicant and minority or female referral from a union, a recruitment source or community organization and of what action was taken with respect to each such individual. If such individual was sent to the union hiring hall for referral and was not referred back to the Contractor by the union or, if referred, not employed by the Contractor, this shall be documented in the file with the reason therefor, along with whatever additional actions the Contractor may have taken.

4. Provide immediate written notification to the Director when the union or unions with which the Contractor has a collective bargaining agreement has not referred to the Contractor a minority person or woman sent by the Contractor, or when the Contractor has other information that the union referral process has impeded the Contractor's efforts to meet its obligations.

5. Develop on-the-job training opportunities, participate in training programs for the area, or both which expressly include minorities and women, including upgrading programs and apprenticeship and trainee programs relevant to the Contractor's employment needs, especially those programs funded or approved by the Department of Labor. The Contractor shall provide notice of these programs to the sources compiled under C.1. above.

6. Disseminate the Contractor's EEO policy by providing notice of the policy to unions and training programs and requesting their cooperation in assisting the Contractor in meeting its EEO obligations; by including it in any policy manual and collective bargaining agreements; by publicizing it in the company newspaper, annual report, etc.; by specific review of the policy with all management personnel and with all minority and female employees at least once a year; and by posting the company EEO policy on bulletin boards accessible to all employees at each location where construction work is performed.

7. Review, at least annually, the company's EEO policy and affirmative action obligations under these specifications with all employees having any responsibility for hiring, assignments, layoff, termination or other employment decisions including specific review of these items with onsite

supervisory personnel such as superintendents, foreman, etc., prior to the initiation of Work at any job site. A written record shall be made and maintained identifying the time and place of these meetings, persons attending, subject matter discussed, and dispositions of the subject matter.

8. Disseminate the Contractor's EEO policy externally by including it in any advertising in the news media, specifically including minority and female news media, and providing written notification to and discussing the Contractor's EEO policy with other Contractors and Subcontractors with whom the Contractor does or anticipates doing business.

9. Direct its recruitment efforts, both oral and written, to minority, female and community organizations, to schools with minority and female students and to minority and female recruitment and training organizations serving the Contractor's recruitment area and employment needs. Not later than one month prior to the date for the acceptance of applications for apprenticeship or other training by any recruitment source, the Contractor shall send written notification to organizations such as the above, describing the openings, screening procedures, and tests to be used in the selection process.

10. Encourage present minority and female employees to recruit other minority persons and women and where reasonable, provide after school, summer and vacation employment to minority and female youth both on the site and in other areas of a Contractor's work force.

11. Validate all tests and other selection requirements where there is an obligation to do so under 41 CFR Part 60-3.

12. Conduct, at least annually, an inventory and evaluation at least of all minority and female personnel for promotional opportunities and encourage these employees to seek or to prepare for, through appropriate training, etc., such opportunities.

13. Ensure that seniority practices, job classifications, work assignments and other personnel practices do not have a discriminatory effect by continually monitoring all personnel and employment related activities to ensure that the EEO policy and the Contractor's obligations under these specifications are being carried out.

14. Ensure that all facilities and company activities are non-segregated except that separate or single-user toilet and necessary changing facilities shall be provided to assure privacy between the sexes.

15. Document and maintain a record of all solicitations of offers for subcontracts from minority and female construction contractors and suppliers, including circulation of solicitations to minority and female contractor associations and other business associations.

16. Conduct a review, at least annually, of all supervisors' adherence to and performance under the Contractor's EEO policies and affirmative action obligations.

5. VIOLATION OR BREACH OF REQUIREMENTS:

5.1. If at any time during the course of the Contract there is a violation of the Affirmative Action or Equal Employment Opportunity requirements by the Contractor, or the

Subcontractors, the City will notify the Contractor of the breach. The City may withhold any further progress payments to the Contractor until the City is satisfied that the Contractor and Subcontractors are in full compliance with these requirements.

6. MONTHLY EMPLOYMENT UTILIZATION REPORTS:

6.1. Refer to GENERAL EQUAL OPPORTUNITY CONTRACTING PROGRAM REQUIREMENTS, CONSTRUCTION CONTRACTOR REQUIREMENTS in The WHITEBOOK and the following:

1. State of California Department of Transportation Payroll Report. Due to the City weekly.
2. Federal and Non-Federal Work in San Diego County. Submit an updated list only if work is complete or new contracts have been awarded during the span of this project.

7. RECORDS OF PAYMENTS TO DBEs:

7.1. The Contractor shall maintain records and documents of payments to DBEs for 5 years following the NOC. These records shall be made available for inspection upon request by any authorized representative of the City, DOT, or both. The reporting requirement shall be extended to any certified DBE Subcontractor.

8. FEDERAL WAGE REQUIREMENTS FOR FEDERALLY FUNDED PROJECTS:

8.1. The successful Bidder's work shall be required to comply with Executive Order 11246, entitled "Equal Employment Opportunity," as amended by Executive Order 11375, and as supplemented in Department of Labor regulations (41 CFR chapter 60).

8.2. This Executive Order pertains to Equal Employment Opportunity regulations and contains significant changes to the regulations including new goals and timetables for women in construction and revised goals and time-tables for minorities in construction.

8.3. Minimum wage rates for this project have been predetermined by the Secretary of Labor and are set forth in the Decision of the Secretary and bound into the specifications book. Should there be any difference between the state or federal wage rates, including health and welfare funds for any given craft, mechanic, or similar classifications needed to execute the Work, it shall be mandatory upon the Contractor or subcontractor to pay the higher of the two rates.

8.4. The minimum wage rate to be paid by the Contractor and the Subcontractors shall be in accordance with the Federal Labor Standards Provisions (see pages 11 through 35 below) and Federal Wage Rates (see Wage Rates below) and General Prevailing Wage Determination made by the State of California, Director of Industrial Relations pursuant to California Labor Code Part 7, Chapter 1, Article 2, Sections 1770, 1773 and 1773.1, whichever is higher.

8.5. A Contractor having 50 or more employees and its Subcontractors having 50 or more employees and who may be awarded a contract of $50,000 or more will be required to maintain an affirmative action program, the standards for which are contained in the specifications.

8.6. To be eligible for award, each Bidder shall comply with the affirmative action requirements which are contained in the specifications.

8.7. Women will be afforded equal opportunity in all areas of employment. However, the employment of women shall not diminish the standards of requirements for the employment of minorities.

9. STATE REQUIREMENTS FOR CONTRACTS SUBJECT TO STATE PREVAILING WAGE REQUIREMENTS:

9.1. In accordance with the provisions of California Labor Code Sections 1770, et seq. as amended, the Director of the Department of Industrial Relations has determined the general prevailing rate of per diem wages in accordance with the standards set forth in such Sections for the locality in which the Work is to be performed. Copies of the prevailing rate of per diem wages may be found at http://www.dir.ca.gov/dlsr/statistics_research.html. The Contractor shall post a copy of the above determination of the prevailing rate of per diem wages at each job site and shall make them available to any interested party on request.

9.2. Pursuant to Sections 1720 et seq., and 1770 et seq., of the California Labor Code the Contractor any Subcontractor shall pay not less than said specified rates determined by the Director of the California Department of Industrial Relations to all workmen employed by them in the execution of the Work.

9.3. The wage rates determined by the Director of Industrial Relations and published in the Department of Transportation publication entitled, "General Prevailing Wage Rates", refer to expiration dates. If the published wage rate does not refer to a predetermined wage rate to be paid after the expiration date, said published rate of wage shall be in effect for the life of this contract. If the published wage rate refers to a predetermined wage rate to become effective upon expiration of the published wage rate and the predetermined wage rate is on file with the Department of Industrial Relations, such predetermined wage rate shall become effective on the date following the expiration date and shall apply to this contract in the same manner as if it had been published in said publication. If the predetermined wage rate refers to one or more additional expiration dates with additional predetermined wage rates, which expiration dates occur during the life of this contract, each successive predetermined wage rate shall apply to this contract on the date following the expiration date of the previous wage rate. If the last of such predetermined wage rates expires during the life of this contract, such wage rate shall apply to the balance of the contract.

The successful bidder intending to use a craft or classification not shown on the prevailing rate determinations may be required to pay the rate of the craft or classification most closely related to it.

10. WAGE RATES. This contract shall be subject to the following Davis-Bacon Wage Decisions:

- Wage Determination Number: **CA120001 CA1**
- Modification Number: **11**
- Publication Date: **11/02/2012**

The required wage information may be accessed and downloaded from: http://www.wdol.gov/

11. SECTION 3 OF THE HOUSING AND URBAN DEVELOPMENT ACT OF 1968:

11.1. The work to be performed under this contract is on a project assisted under a program providing direct Federal financial assistance from the Department of Housing and Urban Development and is subject to the requirements of Section 3 of the Housing and Urban Development Act of 1968, as amended, 12 U.S.C. 1701u. Section 3 requires that to the greatest extent feasible opportunities for training and employment be given lower income residents of the project area and contracts for work in connection with the project be awarded to business concerns which are located in or owned in substantial part by persons residing in the area of the project.

11.2. The parties to this contract will comply with the provisions of said Section 3 and the regulations issued pursuant thereto by the Secretary of Housing and Urban Development set forth in 24 CFR Part 135, and all applicable rules and orders of the Department issued thereunder prior to the execution of this contract. The parties to this contract certify and agree that they are under no contractual or other disability which would prevent them from complying with these requirements.

11.3. The Contractor will send to each labor organization or representative of workers with which he has a collective bargaining agreement or other contract or understanding, if any, a notice advising the said labor organization or workers' representative of his commitments under this Section 3 clause and shall post copies of the notice in conspicuous places available to employees and applicants for employment or training.

11.4. The Contractor will include this Section 3 clause in every subcontract for work in connection with the project and will, at the direction of the applicant for or recipient of Federal financial assistance, take appropriate action pursuant to the subcontract upon a finding that the Subcontractor is in violation of regulations issued by the Secretary of Housing and Urban Development, 24 CFR Part 135. The Contractor will not subcontract with any Subcontractor where it has notice or knowledge that the latter has been found in violation of regulations under 24 CFR Part 135 and will not let any subcontract unless the Subcontractor has first provided it with a preliminary statement of ability to comply with the requirements of these regulations.

11.5. Compliance with the provisions of Section 3, the regulations set forth in 24 CFR Part 135, and all applicable rules and orders of the Department issued thereunder prior to the execution of the contract, shall be a condition of the Federal financial assistance provided to the project, binding upon the applicant or recipient for such assistance, its successors and assigns. Failure to fulfill these requirements shall subject the applicant or recipient, its Contractors and Subcontractors, its successors, and assigns to those sanctions specified by the grant or loan agreement or contract through which Federal assistance is provided, and to such sanctions as are specified by 24 CFR Part 135.

12. FEDERAL LABOR STANDARDS PROVISIONS:

Federal Labor Standards Provisions

U.S. Department of Housing and Urban Development
Office of Labor Relations

Applicability
The Project or Program to which the construction work covered by this contract pertains is being assisted by the United States of America and the following Federal Labor Standards Provisions are included in this Contract pursuant to the provisions applicable to such Federal assistance.

A. 1. (i) Minimum Wages. All laborers and mechanics employed or working upon the site of the work, will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR Part 3), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics. Contributions made or costs reasonably anticipated for bona fide fringe benefits under Section l(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of 29 CFR 5.5(a)(1)(iv); also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs, which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period.

Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR 5.5(a)(4).

Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: Provided, that the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under 29 CFR 5.5(a)(1)(ii) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible, place where it can be easily seen by the workers.

(ii) (a) Any class of laborers or mechanics which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. HUD shall approve an additional classification and wage rate and fringe benefits therefor only when the following criteria have been met:

(1) The work to be performed by the classification requested is not performed by a classification in the wage determination; and

(2) The classification is utilized in the area by the construction industry; and

(3) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(b) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and HUD or its designee agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by HUD or its designee to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, D.C. 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise HUD or its designee or will notify HUD or its designee within the 30-day period that additional time is necessary. (Approved by the Office of Management and Budget under OMB control number 1215-0140.)

(c) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and HUD or its designee do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), HUD or its designee shall refer the questions, including the views of all interested parties and the recommendation of HUD or its designee, to the Administrator for determination. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise HUD or its designee or will notify HUD or its designee within the 30-day period that additional time is necessary. (Approved by the Office of Management and Budget under OMB Control Number 1215-0140.)

(d) The wage rate (including fringe benefits where appropriate) determined pursuant to subparagraphs (1)(ii)(b) or (c) of this paragraph, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

(iii) Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

(iv) If the contractor does not make payments to a trustee or other third person, the contractor may consider as part

of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, Provided, That the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program. (Approved by the Office of Management and Budget under OMB Control Number 1215-0140.)

2. Withholding. HUD or its designee shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld from the contractor under this contract or any other Federal contract with the same prime contractor, or any other Federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract In the event of failure to pay any laborer or mechanic, including any apprentice, trainee or helper, employed or working on the site of the work, all or part of the wages required by the contract, HUD or its designee may, after written notice to the contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased. HUD or its designee may, after written notice to the contractor, disburse such amounts withheld for and on account of the contractor or subcontractor to the respective employees to whom they are due. The Comptroller General shall make such disbursements in the case of direct Davis-Bacon Act contracts.

3. (i) Payrolls and basic records. Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work preserved for a period of 3 years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in Section l(b)(2)(B) of the Davis-bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5 (a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in Section l(b)(2)(B) of the Davis-Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits.

Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs. (Approved by the Office of Management and Budget under OMB Control Numbers 1215-0140 and 1215-0017.)

(ii) (a) The contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to HUD or its designee if the agency is a party to the contract, but if the agency is not such a party, the contractor will submit the payrolls to the applicant sponsor, or owner, as the case may be, for transmission to HUD or its designee. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR 5.5(a)(3)(i) except that full social security numbers and home addresses shall not be included on weekly transmittals. Instead the payrolls shall only need to include an individually identifying number for each employee (e.g., the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired.

Optional Form WH-347 is available for this purpose from the Wage and Hour Division Web site at

http://www.dol.gov/esa/whd/forms/wh347instr.htm

or its successor site. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors.

Contractors and subcontractors shall maintain the full social security number and current address of each covered worker, and shall provide them upon request to HUD or its designee if the agency is a party to the contract, but if the agency is not such a party, the contractor will submit the payrolls to the applicant sponsor, or owner, as the case may be, for transmission to HUD or its designee, the contractor, or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this subparagraph for a prime contractor to require a subcontractor to provide addresses and social security numbers to the prime contractor for its own records, without weekly submission to HUD or its designee. (Approved by the Office of Management and Budget under OMB Control Number 1215-0149.)

(b) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(1) That the payroll for the payroll period contains the information required to be provided under 29 CFR 5.5 (a)(3)(ii), the appropriate information is being maintained under 29 CFR 5.5(a)(3)(i), and that such information is correct and complete;

(2) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in 29 CFR Part 3;

(3) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(c) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by subparagraph A.3.(ii)(b).

(d) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under Section 1001 of Title 18 and Section 231 of Title 31 of the United States Code.

(iii) The contractor or subcontractor shall make the records required under subparagraph A.3.(i) available for inspection, copying, or transcription by authorized representatives of HUD or its designee or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, HUD or its designee may, after written notice to the contractor, sponsor, applicant or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

4. Apprentices and Trainees.

(i) Apprentices. Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship Training, Employer and Labor Services, or with a State Apprenticeship Agency recognized by the Office, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Office of Apprenticeship Training, Employer and Labor Services or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice. The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the contractor's or subcontractor's registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination.

Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination. In the event the Office of Apprenticeship Training, Employer and Labor Services, or a State Apprenticeship Agency recognized by the Office, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

The number of apprenticeship required on this contract is 4.

(ii) Trainees. Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant ',to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by

the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In the event the Employment and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(iii) Equal employment opportunity. The utilization of apprentices, trainees and journeymen under 29 CFR Part 5 shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR Part 30.

5. Compliance with Copeland Act requirements. The contractor shall comply with the requirements of 29 CFR Part 3 which are incorporated by reference in this contract **6. Subcontracts.** The contractor or subcontractor will insert in any subcontracts the clauses contained in subparagraphs 1 through 11 in this paragraph A and such other clauses as HUD or its designee may by appropriate instructions require, and a copy of the applicable prevailing wage decision, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in this paragraph.

7. Contract termination; debarment. A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

8. Compliance with Davis-Bacon and Related Act Requirements. All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR Parts 1, 3, and 5 are herein incorporated by reference in this contract.

9. Disputes concerning labor standards. Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR Parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and HUD or its designee, the U.S. Department of Labor, or the employees or their representatives.

10. (i) Certification of Eligibility. By entering into this contract the contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of Section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1) or to be awarded HUD contracts or participate in HUD programs pursuant to 24 CFR Part 24. **(ii)** No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of Section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1) or to be awarded HUD contracts or participate in HUD programs pursuant to 24 CFR Part 24.

(iii) The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001. Additionally, U.S. Criminal Code, Section 1 01 0, Title 18, U.S.C., "Federal Housing Administration transactions", provides in part: "Whoever, for the purpose of….influencing in any way the action of such Administration..... makes, utters or publishes any statement knowing the same to be false..... shall be fined not more than $5,000 or imprisoned not more than two years, or both".

11. Complaints, Proceedings, or Testimony by Employees. No laborer or mechanic to whom the wage, salary, or other labor standards provisions of this Contract are applicable shall be discharged or in any other manner discriminated against by the Contractor or any subcontractor because such employee has filed any complaint or instituted or caused to be instituted any proceeding or has testified or is about to testify in any proceeding under or relating to the labor standards applicable under this Contract to his employer.

B. Contract Work Hours and Safety Standards Act. The provisions of this paragraph B are applicable where the amount of the prime contract exceeds $100,000. As used in this paragraph, the terms "laborers" and "mechanics" include watchmen and guards.

(1) Overtime requirements. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which the individual is employed on such work to work in excess of 40 hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of 40 hours in such workweek.

(2) Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in subparagraph (1) of this paragraph, the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in subparagraph (1) of this paragraph, in the sum of $10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of 40 hours without payment of the overtime wages required by the clause set forth in sub paragraph (1) of this paragraph.

(3) Withholding for unpaid wages and liquidated damages. HUD or its designee shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contract, or any other Federally-assisted contract subject to the Contract Work Hours and Safety Standards Act which is held by the same prime contractor such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in subparagraph (2) of this paragraph.

(4) Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses set forth in subparagraph (1) through (4) of this paragraph and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in subparagraphs (1) through (4) of this paragraph.

C. Health and Safety. The provisions of this paragraph C are applicable where the amount of the prime contract exceeds $100,000.

(1) No laborer or mechanic shall be required to work in surroundings or under working conditions which are unsanitary, hazardous, or dangerous to his health and safety as determined under construction safety and health standards promulgated by the Secretary of Labor by regulation.

(2) The Contractor shall comply with all regulations issued by the Secretary of Labor pursuant to Title 29 Part 1926 and failure to comply may result in imposition of sanctions pursuant to the Contract Work Hours and Safety Standards Act, (Public Law 91-54, 83 Stat 96). 40 USC 3701 et seq.

(3) The contractor shall include the provisions of this paragraph in every subcontract so that such provisions will be binding on each subcontractor. The contractor shall take such action with respect to any subcontractor as the Secretary of Housing and Urban Development or the Secretary of Labor shall direct as a means of enforcing such provisions.

13. AGENCY SPECIFIC PROVISIONS:

Note: Failure to comply with these specifications e.g., taking the specified steps prior to Bid opening, and to submit the forms located in Volume 2 with the Bid will lead to the Bid being declared **non-responsive** and, therefore, shall be rejected.

13.1. HUD Requirements

13.1.1. Affirmative Good Faith Effort Steps shall include the steps listed at 24 CFR 85.36(e)(2), set forth below:

1. Placing qualified DBE business enterprises on solicitation lists;
2. Assuring that DBE business enterprises are solicited whenever they are potential sources;
3. Dividing total requirements, when economically feasible, into smaller tasks or quantities to permit maximum participation by DBE business enterprises;
4. Establishing delivery schedules, where the requirement permits, which encourage participation by DBE business enterprises;
5. Using the services and assistance of the Small Business Administration and the Minority Business Development Agency of the Department of Commerce; and
6. Requiring the Subcontractors to take the affirmative steps listed in this section.
7. See "DBE Potential Resources Centers" Section in a later part these specifications. Include with the GFE documentation a completed copy of the form AA61, "List of Work Made Available."

14. DBE POTENTIAL RESOURCES CENTERS:

14.1. Utilization of SBA and MBDA resources is required at no cost. These agencies offer several services, including Internet access to databases of DBEs.

14.2. For additional assistance, the recipient or contractor can telephone the local offices of both agencies in their area (SBA Minority Enterprise Development Offices and DOC MBDA Regional Centers). The Internet web sites also include names, addresses, and phone or fax numbers of local SBA and MBDA centers. Do not write to these sources

14.3. The Contractor shall provide documentation that the local SBA/MBDA offices or web sites were notified of the contracting bid opportunity at least 15 Working Days prior to Bid opening and solicitation to DBE subcontractors at least 10 Working Days prior to Bid opening. Documentation shall not only include the efforts to contact the information sources and list the Contract opportunity, but also the solicitation and response to the bid request.

14.4. Include qualified DBEs on solicitation lists and record the information on Form AA63. Solicitation shall be as broad as possible. The following web sites include a list of available sources for expanding the search for eligible DBEs:

1. http://www.sba.gov
2. http://www.ccr.gov
3. http://www.mbda.gov

14.5. If DBE sources are not located, explain why and describe the efforts made.

14.6. The Contractor shall send invitations to at least 3 (or all, if less than 3) DBE vendors for each item of work referred by sources contacted. The invitations shall adequately specify the items for which bids are requested. The record of "good faith" efforts shall indicate a real desire for a positive response, such as a certified mail receipt or a documented telephone conversation.

14.7. A regular letter or an unanswered telephone call is not an adequate "good faith" effort. A list of all sub-bidders, including the bidders not selected and non DBE Subcontractors, and bid amount for each item of the Work shall be submitted on Form AA62. If a low bid was not accepted, an explanation shall be provided.

14.8. Federal Agencies (must be contacted and solicitations posted on their websites):

Name and Address	Telephone and Web Site
U.S. Small Business Administration	(415) 744-6820 Extension 0
455 Market Street, Suite 600	PRO-Net Database: http://www.ccr.gov/[1]
San Francisco, CA 94105	Bid Notification: http://web.sba.gov/subnet/[2]
RE: Minority Enterprise Development Offices	
U.S. Department of Commerce	(415) 744-3001
Minority Business Development Agency	Phoenix/ Opportunity Database:
211 Main Street, Room 1280	http://www.mbda.gov[3]
San Francisco, CA 94105	RE: Business Development Centers

14.9. State Agencies (optional contacts):

Name and Address	Telephone and Web Site
California Department of Transportation	Mailing Address: PO Box 942874
(CALTRANS) Business Enterprise Program[4]	Sacramento, CA 94274-0015
1820 Alhambra Blvd.	(916) 227-9599
Sacramento, CA 95816	www.dot.ca.gov/hq/bep
CA Public Utilities Commission (CPUC)[5]	
505 Van Ness Avenue	http://www.cpuc.ca.gov/static/supplierdiversity
San Francisco, CA 94102-3298	

Notes:

1. PRO-Net new database is the SBA's electronic search engine that was put on line January 1, 2004, containing business profiles for nearly 200,000 businesses. The SBA requests Internet contact only for a list of potential DBE subcontractors that can be downloaded from PRO-Net: http://www.ccr.gov. Downloading will verify that the prime contractor made the required contact with the SBA.

2. The Contractor shall use SUB-Net to post subcontracting opportunities. The Contractor shall post Subcontractor opportunities at least 15 Working Days prior to bid opening. Small businesses can review this web site to identify opportunities in their areas of expertise. The web site is designed primarily as a place for large businesses to post solicitations and notices. Provide copy of the Display Solicitation Record with the GFE documentation.

3. The Contractors shall use MBDA web portal to post subcontracting opportunities. The Contractor shall post subcontractor opportunities at least 15 Working Days prior to Bid opening. Small businesses can review this web site to identify opportunities in their areas of expertise. The web site is designed primarily as a place for large businesses to post solicitations and notices. Provide copy of the Offer Overview with the GFE documentation.

4. Based on the federal DBE program, CALTRANS maintains a database and provides directories of minority and woman-owned firms.

5. CPUC maintains a database of DBE-owned business enterprises and serves to inform the public.

15. GOOD FAITH EFFORT DOCUMENTATION SUBMITTALS:

15.1. The affirmative GFE steps documentation shall be submitted **within 4 Working Day of the Bid** (no later than 4:00 p.m. on the **4th Working Day** after bid opening). If this documentation is not submitted when due, the City will declare the Bid **non-responsive** and reject it.

15.2. For information on adequate GFE to meet the Contract specified percentages refer to the document titled "GUIDANCE FOR BIDDERS COMPLETING THE GOOD FAITH EFFORT SUBMITTAL" incorporated in this contract for information. This document is available from the EOCP's web site.

15.3. The required documentation shall be submitted and logged in at the following address:

CITY OF SAN DIEGO
PUBLIC WORKS CONTRACTING GROUP
1010 Second Avenue, Suite 1400
SAN DIEGO, CA 92101

SUBJECT: AFFIRMATIVE GOOD FAITH EFFORTS DOCUMENTATION
BID NO. **K-13-5286-DBB-3-A**

15.4. The Contractor shall maintain the records documenting compliance with requirements including documentation of its GFE and data relied upon in formulating its fair share objectives.

16. ATTACHMENTS:

1. Form AA61 List of Work Made Available
2. Form AA62 Summary of Bids Received
3. Form AA63 DBE Good Faith Effort List of Subcontractors Solicited

LIST OF WORK MADE AVAILABLE

List items of the Work the Bidder made available to DBE firms. Identify those items of the Work the Bidder might otherwise perform with its own forces and those items that have been broken down into economically feasible units to facilitate DBE participation. For each item listed, show the dollar amount and percentage of the Base Bid. The Bidder must demonstrate that enough work to meet the goal was made available to DBE firms.

ITEM OF WORK MADE AVAILABLE	NAICS CODE	BIDDER NORMALLY PERFORMS ITEM (Y/N)	ITEM BROKEN DOWN TO FACILITATE PARTICIPATION (Y/N)	AMOUNT	PERCENTAGE OF BASE BID

SUMMARY OF BIDS RECEIVED

Type of Job	NAICS CODES	Company Name	Selected (Y/N)	Bid Amount	DBE	Non-DBE	Explanation for not Selecting

USE ADDITIONAL FORMS AS NECESSARY

DISADVANTAGE BUSINESS ENTERPRISE (DBE)
GOOD FAITH EFFORT LIST OF SUBCONTRACTORS SOLICITED

Contractor Name	Contractor Address	How Located	Date of Contact	Contact Method	Task Description	Response (Yes/No)

USE ADDITIONAL FORMS AS NECESSARY

CONTRACT FORMS
AGREEMENT

CONSTRUCTION CONTRACT

This contract is made and entered into between THE CITY OF SAN DIEGO, a municipal corporation, herein called "City", and **CALIFORNIA COMMERCIAL POOLS, INC.**, herein called "Contractor" for construction of **MEMORIAL POOL IMPROVEMENTS;** Bid No. **K-13-5286-DBB-3-A,** in the amount of **ONE MILLION NINE HUNDRED FORTY-FOUR THOUSAND DOLLARS AND 00/100 ($1,944,000.00)**, which is comprised of the Base Bid alone.

IN CONSIDERATION of the payments to be made hereunder and the mutual undertakings of the parties hereto, City and Contractor agree as follows:

1. The following are incorporated into this contract as though fully set forth herein:

   (a) The attached Faithful Performance and Payment Bonds.
   (b) The attached Proposal included in the Bid documents by the Contractor.
   (c) That certain documents entitled Memorial Pool Improvements, on file in the office of the City Clerk No. _____, as well as all matters referenced therein.

2. Contractor shall perform and be bound by all the terms and conditions of this contract and in strict conformity therewith shall perform and complete in a good and workmanlike manner Project Title, **MEMORIAL POOL IMPROVEMENTS;** Bid No. **K-13-5286-DBB-3-A,** San Diego, California.

3. For such performances, the City shall pay to Contractor the amounts set forth at the times and in the manner and with such additions or deductions as are provided for in this contract, and Contractor shall accept such payment in full satisfaction of all claims incident to such performances.

4. No claim or suit whatsoever shall be made or brought by Contractor against any officer, agent, or employee of the City for or on account of anything done or omitted to be done in connection with this contract, nor shall any such officer, agent, or employee be liable hereunder.

5. This contract is effective as of the date that the Mayor or designee signs the agreement.

CONTRACT FORMS (continued)
AGREEMENT

IN WITNESS WHEREOF, this agreement is signed by the City of San Diego, acting by and through its Mayor or designee, pursuant to Resolution No. R - 22.3102.

THE CITY OF SAN DIEGO

By _____

Print Name: _____
Mayor or designee

Date: 7/16/13

APPROVED AS TO FORM AND LEGALITY

Jan I. Goldsmith, City Attorney

By _____

Print Name: Mark M. Mercer
Deputy City Attorney

Date: 7/17/13

CONTRACTOR

By _____

Print Name: David E. Jackson

Title: Vice-President & Secretary

Date: 04/26/2013

City of San Diego License No.: 2013047259

State Contractor's License No.: 415172

ORIGINAL

THE PREMIUM IS PREDICATED ON THE FINAL CONTRACT PRICE AND IS SUBJECT TO ADJUSTMENT

ISSUED IN THREE ORIGINAL COUNTERPARTS
COUNTERPART NO. 1 OF 3

BOND NO. 1980614
PREMIUM: $16,647.00

CONTRACT FORMS (continued)
PERFORMANCE BOND AND LABOR AND MATERIALMEN'S BOND

FAITHFUL PERFORMANCE BOND AND LABOR AND MATERIALMEN'S BOND:

CALIFORNIA COMMERCIAL POOLS, INC., a corporation, as principal, and The Hanover Insurance Company, a corporation authorized to do business in the State of California, as Surety, hereby obligate themselves, their successors and assigns, jointly and severally, to The City of San Diego a municipal corporation in the sum of ONE MILLION NINE HUNDRED FORTY-FOUR THOUSAND DOLLARS AND 00/100 ($1,944,000.00) for the faithful performance of the annexed contract, and in the sum of ONE MILLION NINE HUNDRED FORTY-FOUR THOUSAND DOLLARS AND 00/100 ($1,944,000.00) for the benefit of laborers and materialmen designated below.

Conditions:

If the Principal shall faithfully perform the annexed contract MEMORIAL POOL IMPROVEMENTS; Bid No. K-13-5286-DBB-3-A, San Diego, California then the obligation herein with respect to a faithful performance shall be void; otherwise it shall remain in full force.

If the Principal shall promptly pay all persons, firms and corporations furnishing materials for or performing labor in the execution of this contract, and shall pay all amounts due under the California Unemployment Insurance Act then the obligation herein with respect to laborers and materialmen shall be void; otherwise it shall remain in full force.

The obligation herein with respect to laborers and materialmen shall inure to the benefit of all persons, firms and corporations entitled to file claims under the provisions of Chapter 3 of Division 5 of Title I of the Government Code of the State of California or under the provisions of Section 3082 et seq. of the Civil Code of the State of California.

Changes in the terms of the annexed contract or specifications accompanying same or referred to therein shall not affect the Surety's obligation on this bond, and the Surety hereby waives notice of same.

The Surety shall pay reasonable attorney's fees should suit be brought to enforce the provisions of this bond.

Dated April 26, 2013

Approved as to Form and Legality

Jan I. Goldsmith, City Attorney

By _____
Deputy City Attorney

California Commercial Pools, Inc.
Principal

By _____

David E. Jackson, V-President
Printed Name of Person Signing for Principal

The Hanover Insurance Company
Surety

By _____
Kenneth A. Coate Attorney-in-fact

Approved:

_____
Mayor or Designee,

2 MacArthur Place, 2nd Floor
Local Address of Surety

Santa Ana, CA 92707
Local Address (City, State) of Surety

(714)415-3800
Local Telephone No. of Surety

Premium $ 16,647.00

Bond No. 1980614

THE HANOVER INSURANCE COMPANY
MASSACHUSETTS BAY INSURANCE COMPANY
CITIZENS INSURANCE COMPANY OF AMERICA

ISSUED IN THREE ORIGINAL COUNTERPARTS
COUNTERPART NO. 1 OF 3

POWERS OF ATTORNEY
CERTIFIED COPY

BOND NO. 1980614

KNOW ALL MEN BY THESE PRESENTS: That THE HANOVER INSURANCE COMPANY and MASSACHUSETTS BAY INSURANCE COMPANY, both being corporations organized and existing under the laws of the State of New Hampshire, and CITIZENS INSURANCE COMPANY OF AMERICA, a corporation organized and existing under the laws of the State of Michigan, do hereby constitute and appoint

Kenneth A. Coate and/or Julia B. Gladding

of **Riverside, CA** and each is a true and lawful Attorney(s)-in-fact to sign, execute, seal, acknowledge and deliver for, and on its behalf, and as its act and deed any place within the United States, or, if the following line be filled in, only within the area therein designated any and all bonds, recognizances, undertakings, contracts of indemnity or other writings obligatory in the nature thereof, as follows:

Any such obligations in the United States, not to exceed Twenty Five Million and No/100 ($25,000,000) in any single instance

and said companies hereby ratify and confirm all and whatsoever said Attorney(s)-in-fact may lawfully do in the premises by virtue of these presents. These appointments are made under and by authority of the following Resolution passed by the Board of Directors of said Companies which resolutions are still in effect:

"RESOLVED, That the President or any Vice President, in conjunction with any Vice President, be and they are hereby authorized and empowered to appoint Attorneys-in-fact of the Company, in its name and as its acts, to execute and acknowledge for and on its behalf as Surety any and all bonds, recognizances, contracts of indemnity, waivers of citation and all other writings obligatory in the nature thereof, with power to attach thereto the seal of the Company. Any such writings so executed by such Attorneys-in-fact shall be as binding upon the Company as if they had been duly executed and acknowledged by the regularly elected officers of the Company in their own proper persons." (Adopted October 7, 1981 - The Hanover Insurance Company; Adopted April 14, 1982 - Massachusetts Bay Insurance Company; Adopted September 7, 2001 - Citizens Insurance Company of America)

IN WITNESS WHEREOF, THE HANOVER INSURANCE COMPANY, MASSACHUSETTS BAY INSURANCE COMPANY and CITIZENS INSURANCE COMPANY OF AMERICA have caused these presents to be sealed with their respective corporate seals, duly attested by two Vice Presidents, this **29th** day of **March 2013**.

THE HANOVER INSURANCE COMPANY
MASSACHUSETTS BAY INSURANCE COMPANY
CITIZENS INSURANCE COMPANY OF AMERICA

Robert Thomas, Vice President

Joe Brenstrom, Vice President

THE COMMONWEALTH OF MASSACHUSETTS)
COUNTY OF WORCESTER) ss.

On this **29th** day of **March 2013** before me came the above named Vice Presidents of The Hanover Insurance Company, Massachusetts Bay Insurance Company and Citizens Insurance Company of America, to me personally known to be the individuals and officers described herein, and acknowledged that the seals affixed to the preceding instrument are the corporate seals of The Hanover Insurance Company, Massachusetts Bay Insurance Company and Citizens Insurance Company of America, respectively, and that the said corporate seals and their signatures as officers were duly affixed and subscribed to said instrument by the authority and direction of said Corporations.

BARBARA A. GARLICK
Notary Public
Commonwealth of Massachusetts
My Commission Expires Sept. 21, 2018

Barbara A. Garlick, Notary Public
My Commission Expires September 21, 2018

I, the undersigned Vice President of The Hanover Insurance Company, Massachusetts Bay Insurance Company and Citizens Insurance Company of America, hereby certify that the above and foregoing is a full, true and correct copy of the Original Power of Attorney issued by said Companies, and do hereby further certify that the said Powers of Attorney are still in force and effect.

This Certificate may be signed by facsimile under and by authority of the following resolution of the Board of Directors of The Hanover Insurance Company, Massachusetts Bay Insurance Company and Citizens Insurance Company of America.

"RESOLVED, That any and all Powers of Attorney and Certified Copies of such Powers of Attorney and certification in respect thereto, granted and executed by the President or any Vice President in conjunction with any Vice President of the Company, shall be binding on the Company to the same extent as if all signatures therein were manually affixed, even though one or more of any such signatures thereon may be facsimile." (Adopted October 7, 1981 - The Hanover Insurance Company; Adopted April 14, 1982 - Massachusetts Bay Insurance Company; Adopted September 7, 2001 - Citizens Insurance Company of America)

GIVEN under my hand and the seals of said Companies, at Worcester, Massachusetts, this 26th day of April 2013.

THE HANOVER INSURANCE COMPANY
MASSACHUSETTS BAY INSURANCE COMPANY
CITIZENS INSURANCE COMPANY OF AMERICA

J. Michael Pete, Vice President

CALIFORNIA ALL-PURPOSE ACKNOWLEDGMENT

State of California

County of Los Angeles }

On April 29, 2013 (Date) before me, ----------Karla R. Stone, Notary Public---------- (Here Insert Name and Title of the Officer),

personally appeared ----------David E. Jackson---------- (Name(s) of Signer(s))

---

who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature _____ (Signature of Notary Public)

KARLA R. STONE
Commission # 2014354
Notary Public - California
Los Angeles County
My Comm. Expires Apr 20, 2017

Place Notary Seal Above

OPTIONAL

Though the information below is not required by law, it may prove valuable to persons relying on the document and could prevent fraudulent removal and reattachment of this form to another document.

Description of Attached Document For the City of San Diego (3 originals)

Title or Type of Document: Performance Bond and Labor and Materialmen's Bond: Memorial Pool Improvements

Document Date: Apirl 26, 2013 Number of Pages: Two

Signer(s) Other Than Named Above: None

Capacity(lies) Claimed by Signer(s)

Signer's Name: David E. Jackson	Signer's Name: N/A
☐ Individual	☐ Individual
☒ Corporate Officer — Title(s): Vice-President	☐ Corporate Officer — Title(s):
☐ Partner - ☐ Limited ☐ General	☐ Partner - ☐ Limited ☐ General
☐ Attorney in Fact	☐ Attorney in Fact
☐ Trustee	☐ Trustee
☐ Guardian or Conservator	☐ Guardian or Conservator
☐ Other:	☐ Other:
Signer Is Representing: California Commercial Pools Inc.	Signer Is Representing: N/A
RIGHT THUMBPRINT OF SIGNER — Top of thumb here	RIGHT THUMBPRINT OF SIGNER — Top of thumb here

CALIFORNIA ALL-PURPOSE ACKNOWLEDGMENT

State of California

County of Riverside

On APR 26 2013 (Date) before me, Stephanie D. Montague, Notary Public (Here Insert Name and Title of the Officer),

personally appeared Kenneth A. Coate (Name(s) of Signer(s)),

who proved to me on the basis of satisfactory evidence to be the person~~(s)~~ whose name~~(s)~~ is/~~are~~ subscribed to the within instrument and acknowledged to me that he/~~she~~/~~they~~ executed the same in his/~~her~~/~~their~~ authorized capacity~~(ies)~~, and that by his/~~her~~/~~their~~ signature~~(s)~~ on the instrument the person~~(s)~~, or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature _____ (Signature of Notary Public)

STEPHANIE D. MONTAGUE
COMM. #1854652
NOTARY PUBLIC - CALIFORNIA
RIVERSIDE COUNTY
My Comm. Expires June 18, 2013

Place Notary Seal Above

OPTIONAL

Though the information below is not required by law, it may prove valuable to persons relying on the document and could prevent fraudulent removal and reattachment of this form to another document.

Description of Attached Document

Title or Type of Document: _____

Document Date: _____ Number of Pages: _____

Signer(s) Other Than Named Above: none

Capacity(ies) Claimed by Signer(s)

Signer's Name: Kenneth A. Coate

- ☐ Individual
- ☐ Corporate Officer — Title(s): _____
- ☐ Partner — ☐ Limited ☐ General
- ☒ Attorney in Fact
- ☐ Trustee
- ☐ Guardian or Conservator
- ☐ Other: _____

Signer Is Representing: _____

RIGHT THUMBPRINT OF SIGNER
Top of thumb here

Signer's Name: _____

- ☐ Individual
- ☐ Corporate Officer — Title(s): _____
- ☐ Partner — ☐ Limited ☐ General
- ☐ Attorney in Fact
- ☐ Trustee
- ☐ Guardian or Conservator
- ☐ Other: _____

Signer Is Representing: _____

RIGHT THUMBPRINT OF SIGNER
Top of thumb here

CONTRACTOR CERTIFICATION

DRUG-FREE WORKPLACE

PROJECT TITLE: **MEMORIAL POOL IMPROVEMENTS**

I hereby certify that I am familiar with the requirements of San Diego City Council Policy No. 100-17 regarding Drug-Free Workplace as outlined in INSTRUCTION TO BIDDERS, "Drug-Free Workplace", of the project specifications, and that;

California Commercial Pools Inc.
(Name under which business is conducted)

has in place a drug-free workplace program that complies with said policy. I further certify that each subcontract agreement for this project contains language which indicates the subcontractor's agreement to abide by the provisions of subdivisions a) through c) of the policy as outlined.

Signed 

Printed Name David E. Jackson

Title Vice-President & Secretary

CONTRACTOR CERTIFICATION

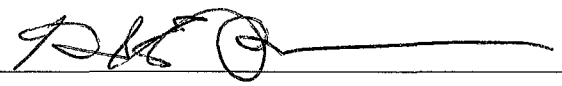
AMERICAN WITH DISABILITIES ACT (ADA) COMPLIANCE CERTIFICATION

PROJECT TITLE: MEMORIAL POOL IMPROVEMENTS

I hereby certify that I am familiar with the requirements of San Diego City Council Policy No. 100-4 regarding the American With Disabilities Act (ADA) outlined in the INSTRUCTION TO BIDDERS, "American With Disabilities Act", of the project specifications, and that;

California Commercial Pools Inc.
(Name under which business is conducted)

has in place workplace program that complies with said policy. I further certify that each subcontract agreement for this project contains language which indicates the subcontractor's agreement to abide by the provisions of the policy as outlined.

Signed 

Printed Name David E. Jackson

Title Vice-President & Secretary

CONTRACTOR CERTIFICATION

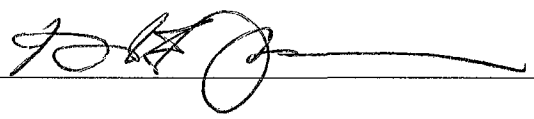
CONTRACTOR STANDARDS – PLEDGE OF COMPLIANCE

PROJECT TITLE: MEMORIAL POOL IMPROVEMENTS

I declare under penalty of perjury that I am authorized to make this certification on behalf of California Commercial Pools Inc., as Contractor, that I am familiar with the requirements of City of San Diego Municipal Code § 22.3224 regarding Contractor Standards as outlined in INSTRUCTION TO BIDDERS ("Contractor Standards"), of the project specifications, and that Contractor has complied with those requirements.

I further certify that each of the Contractor's subcontractors whose subcontracts are greater than $50,000 in value has completed a Pledge of Compliance attesting under penalty of perjury of having complied with City of San Diego Municipal Code § 22.3224.

Dated this 26th Day of April, 2013.

Signed 

Printed Name David E. Jackson

Title Vice President & Secretary

AFFIDAVIT OF DISPOSAL

WHEREAS, on the _____ DAY OF _____, 2____, the undersigned entered into and executed a contract with the City of San Diego, a municipal corporation, for:

MEMORIAL POOL IMPROVEMENTS
(Name of Project)

as particularly described in said contract and identified as Bid No. **K-13-5286-DBB-3-A;** SAP (WBS) No. **S-00970,** and **WHEREAS**, the specifications of said contract requires the Contractor to affirm that "all brush, trash, debris, and surplus materials resulting from this project have been disposed of in a legal manner"; and **WHEREAS**, said contract has been completed and all surplus materials disposed of:

_____

_____

_____

NOW, THEREFORE, in consideration of the final payment by the City of San Diego to said Contractor under the terms of said contract, the undersigned Contractor, does hereby affirm that all surplus materials as described in said contract have been disposed of at the following location(s)

_____

_____

_____

and that they have been disposed of according to all applicable laws and regulations.

Dated this _____ DAY OF _____, 2_____.

_____Contractor
by

ATTEST:

State of _____
County of _____

On this _____ DAY OF _____, 2____, before the undersigned, a Notary Public in and for said County and State, duly commissioned and sworn, personally appeared_____ _____ known to me to be the _____ Contractor named in the foregoing Release, and whose name is subscribed thereto, and acknowledged to me that said Contractor executed the said Release.

Notary Public in and for said County and State

SUPPLEMENTARY SPECIAL PROVISIONS (SSP)

THESE SUPPLEMENTARY SPECIAL PROVISIONS CONFORM TO THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION (THE GREENBOOK) CURRENTLY ADOPTED BY THE CITY, INCLUDING ITS CURRENT SUPPLEMENT AMENDMENTS (CITY SUPPLEMENTS INCLUDED IN THE WHITEBOOK), EXCEPT FOR THE FOLLOWING:

PART 1 – GENERAL PROVISIONS

SECTION 1 – TERMS, DEFINITIONS, ABBREVIATIONS, UNITS OF MEASURE, AND SYMBOLS

1-2 TERMS AND DEFINITIONS.

Agency – ADD the following:

Regulatory activities handled by the City of San Diego Developmental Services, Fire and Planning Departments, or any other City Department are not subject to the responsibilities of the City under this contract.

Certificate of Compliance – To the City Supplement, DELETE in its entirety and SUBSTITUTE with the following:

Certificate of Compliance – A written document signed and submitted by a supplier or manufacturer that certifies that the material or assembled material supplied to the Work site complies with the requirements of the Contract Documents.

Contract Documents – To the City Supplement, DELETE in its entirety and SUBSTITUTE with the following:

The Agreement, Addendum, Invitation to Bid, Instructions to Bidders, special notice page, funding agency provisions, Bid and documentation accompanying the Bid and any post-bid documentation submitted prior to the Notice of Award when attached as an exhibit to the Contract, Bonds, permits from jurisdictional regulatory agencies, Supplementary Special Provisions (SSP), City's EOCP Requirements, City Supplement, Plans, Standard Plans, Construction Documents, Reference Specifications listed in the Invitation to Bid or the RFP for Design-Build contracts, Request for Qualifications (RFQ), Statement of Qualifications (SOQ), Request for Proposals (RFP), modifications issued after the execution of the Contract e.g., Change Orders, Construction Manager At Risk's Guaranteed Maximum Price including written qualifications, assumptions and conditions thereto and Pre-construction Services Agreement.

ADD: **Limited Notice to Proceed** – A written notice given from the City to the Contractor that authorizes the Contractor to start a limited amount of work that is not Construction Work, such as finalizing subcontract agreements, ordering materials, mobilization, furnishing a field office, and any

Normal Working Hours - To the City Supplement, ADD the following:

The Normal Working Hours shall be 8:30 AM to 3:30 PM

Notice of Completion (NOC) – ADD the following:

See California Civil Code section 9204.

Samples - Physical examples which illustrate materials, equipment or workmanship and establish standards by which the Work will be evaluated.

SECTION 2 - SCOPE AND CONTROL OF WORK

2-1.2.2 Joint Venture Contractors. To the City Supplement, last paragraph, DELETE in its entirety and SUBSTITUTE with the following:

The Joint Venture shall designate an on-site representative and an alternate in writing. The on-site representative and the alternate shall have the full authority to bind all Joint Venture partners.

The Joint Venture shall provide a copy of the Joint Venture agreement and the Joint Venture license to the City within 10 Working Days after receipt by the Bidder of Contract forms.

2-3.1.2 Subcontractor List. ADD the following:

For Extra Work, the Contractor shall submit Form CC10, "CONTRACT CHANGE ORDER (CCO)" with each CCO proposal. Form CC10 is available for download from the EOCP site at: http://www.sandiego.gov/eoc/pdf/cc10.pdf

2-3.2 Self Performance.

DELETE in its entirety and SUBSTITUTE with the following:

The Contractor shall perform, with its own organization, Contract work amounting to at least 35 percent of the base bid alone or base bid and any additive or deductive alternate(s) that together when added or deducted form the basis of determining the Apparent Low Bidder as specified.

2-3.3 Status of Subcontractors. ADD the following:

With every request for payment, the Contractor shall submit to the Engineer a breakdown showing monthly and cumulative amounts of the Work performed under Change Order by the Contractor and the Subcontractors. The reporting format shall be approved by the Engineer.

2-3.4 Subcontract Requirements. To the City Supplement, ADD the following paragraph:

The Contractor shall ensure that all of its Subcontractors are licensed at the time of the execution of their subcontract agreements. In the event a Subcontractor is not properly licensed, the Contractor shall cease payment to Subcontractor for all work performed when the Subcontractor was improperly licensed. Any payment made by the Contractor to a Subcontractor for work performed when the Subcontractor was unlicensed shall be returned to the City.

Where the Contract Documents require that a particular product be installed or applied by an applicator approved by the manufacturer, it is the Contractor's responsibility to ensure the Subcontractor or Supplier employed for such work is approved by the manufacturer.

2-5.2 Precedence of Contract Documents. To the Cit Supplement, DELETE in its entirety and SUBSTITUTE with the following:

2-5.2 Precedence of Contract Documents. If there is a conflict between any of the Contract Documents, the document highest in the order of precedence shall control. The order of precedence, from highest to lowest, shall be as follows:

1) Permits (i.e., issued by jurisdictional regulatory agencies)
2) Change Orders and Supplemental Agreements; whichever occurs last
3) Contract and Agreement
4) Addenda
5) Bid (e.g., price Proposal for Design-Build contracts)
6) Request for Proposal (RFP)
7) Invitation to Bid
8) Instruction to Bidders
9) Request for Qualifications (RFQ)
10) Special Provisions (i.e., City's EOCP Requirements, City Supplement, and Supplementary Special Provisions (SSP))
11) Plans
12) Construction Documents (for Design-Build contracts)
13) Standard Drawings
14) Reference Specifications (e.g., GREENBOOK)
15) Technical Proposal (for Design-Build contracts)
16) Statement of Qualifications (SOQ)

When additional requirements by the funding sources are physically or by reference incorporated in the Contract Documents, the funding source's requirements shall govern **unless specified otherwise**.

Figured dimensions shall take precedence over scaled dimensions. Detailed drawings shall take precedence over general drawings.

2-5.3.1 General. DELETE in its entirety and SUBSTITUTE with the following:

When required by the Contract Documents or when requested by the Engineer, the Contractor shall provide the submittals as specified in 2-5.3.2, 2-5.3.3, and 2-5.3.4 to the Engineer. Materials shall neither be furnished nor fabricated, nor shall any work for which submittals are required be performed before the required submittals have been reviewed and accepted by the Engineer. The payment for the submittals shall be included in the various Bid items. Neither review nor acceptance of submittals by the Engineer shall relieve the Contractor from responsibility for errors, omissions, or deviations from the Contract Documents, unless such deviations were specifically called to the attention of the Engineer in the letter of transmittal. The Contractor shall be responsible for the correctness of the submittals.

The Contractor shall allow a minimum of 20 working days for review of submittals unless otherwise specified in the Special Provisions. Each submittal shall be accompanied by a letter of transmittal.

2-5.4.1 General. ADD the following:

Source Identification e.g., RFI numbers and Change Order numbers as required to identify the source of the change to the Contract Documents shall be noted.

2-5.4.2 Asset Specific Red-lines (d). ADD the following:

- Dimensional changes to the drawings.
- Revisions to details shown on drawings.
- Depths of foundations below first floor.
- Locations and depths of underground utilities.
- Revisions to routing of piping and conduits.
- Revisions to electrical circuitry.
- Actual equipment locations.
- Duct size and routing.
- Locations of concealed internal utilities.
- Changes made by Change Order.
- Details not on original Plans.

2-6 WORK TO BE DONE. ADD the following:

In accordance with the provisions of California Law, the Contractor shall possess or require the Subcontractor(s) to possess valid appropriate license(s) for the Work being performed.

ADDITIVE ALTERNATE #A: Wet Play complete, including wet play equipment, wet play mechanical equipment, colored concrete, balance tank and valve box. If this alternate is not accepted, install artificial turf in its place and stub all associated piping from mechanical room to balance tank and valve box.

ADDITIVE ALTERNATE #B: Provide and install shade structures as called out on drawing DP-4 including two (2) joined 4 point sails, three (3) joined full cantilever and seven (7) single post pyramid structures.

ADDITIVE ALTERNATE #C: Provide and install three (3) 5 tier bleachers, 15' long 'Southern Bleacher Co' or approved equal, see detail 3/DP-7. Provide and install 'Quick Crete' Classic # Q2CLS 72B 18" wide x 72" long benches. Seven (7) total, and 'Quik Crete' #QLBT72PT 72" long picnic tables, six (6) total.

2-7 SUBSURFACE DATA. ADD the following:

In preparation of the Contract Documents, the designer has relied upon the following reports of explorations and tests of subsurface conditions at the Work Site:

1. Geotechnical Evaluation, Memorial Community Park Pool Improvements, 2902 Marcy Street, San Diego, CA, Project No. 106656001, August 28, 2009, by Ninyo & Moore.

The report listed above is available for review by contacting the Contract Specialist.

2-9.1 Permanent Survey Markers. DELETE in its entirety and SUBSTITUTE with the following:

The Contractor shall notify the Engineer or the owner on a Private Contract, at least 7 days before starting the Work to allow for the preservation of survey markers, survey monuments, lot stakes (tagged), and benchmarks. The Engineer or the owner on a Private Contract, will, at its cost, file a Corner Record Form referencing survey monuments subject to disturbance in the Office of the County Surveyor prior to the start of construction and also prior to the completion of construction for the replacement of survey monuments. The Contractor shall not disturb or permanently cover survey markers, survey monuments, lot stakes (tagged), or benchmarks without the consent of the Engineer or the owner on a Private Contract. The Contractor shall bear the expense of uncovering and replacing any that may be disturbed without permission. Replacement shall be done only under the direction of the Engineer by a Registered Land Surveyor or a Registered Civil Engineer authorized to practice land surveying within the State of California. When a change is made in the finished elevation of the pavement of any roadway in which a permanent survey monument is located, the Contractor shall adjust the monument cover to the new grade within 7 days of finished paving unless otherwise specified in the Special Provisions.

2-9.2 Survey Services. DELETE in its entirety and SUBSTITUTE with the following:

The Contractor shall be responsible for all surveying services or as may be specified in these special provisions.

The payment for survey services shall be included in the various Bid items unless a Bid item for Survey Service has been provided.

2-10 AUTHORITY OF BOARD AND ENGINEER. ADD the following:

Regulating agencies of the City, such as Developmental Services, Fire and Planning Departments, enforce Legal Requirements and standards. These enforcement activities are not subject to the responsibilities of the Engineer under this Agreement.

2-11 INSPECTION. ADD the following:

The City may utilize field inspectors to assist the Engineer during construction in observing performance of the Contractor. The inspector is for the purpose of assisting the Engineer and shall not be confused with an inspector with a City regulatory agency or with a Special Inspector.

Code compliance testing (including all Geotechnical requirements) and inspections required by codes or ordinances, or by a plan approval authority, shall be the responsibility of and shall be paid by the Contractor, unless otherwise provided in the Contract Documents.

The Contractor's quality control testing and inspections shall be the sole responsibility of the Contractor and paid by the Contractor included in the Bid price.

ADD: 2-17 CONTRACTOR REGISTRATION.

Prior to the Award of the Contract or each Task Order, you and your Subcontractors and Suppliers must register with the City's web-based contract compliance i.e., Prism® portal at: https://pro.prismcompliance.com/default.aspx

Following NTP, you must use Prism® for EOCP reporting purposes e.g., The Weekly Certified Payroll, Monthly Employment Utilization, and Monthly Payments. Online tutorials are available at: http://stage.prismcompliance.com/etc/vendortutorials.htm

SECTION 3 – CHANGES IN WORK

3-3.2.2 Basis for Establishing Costs (a) Labor, City Supplement, first and second paragraphs, DELETE in entirety and SUBSTITUTE with the following:

The City reserves the right to request financial records of salaries for an employee, wages, bonuses and deductions to substantiate the actual cost of labor certified by a California licensed Certified Public Accountant. The Contractor shall use the City provided form i.e., "PUBLIC WORKS PAYROLL REPORTING FORM" which is available at http://www.sandiego.gov/eoc/pdf/payrollreport.pdf to list the labor rates of its personnel and Subcontractors who work on this Project. An initial submittal shall be made prior to NTP.

The payment for payroll records shall be included in the various Bid item unless a separate Bid item has been provided.

SECTION 4 - CONTROL OF MATERIALS

4-1.3.1 General. First paragraph, ADD the following:

Other standard items or materials typically accepted by Certificate of Compliance shall not require inspection at the source unless specified in the Special Provisions. For a list of these items or materials, the Contractor may refer to the Contract Documents.

4-1.3.5 Special Inspections. To the City Supplement, ADD the following:

Special Inspection and testing by the Special Inspectors shall meet the minimum requirements of the prevailing Codes and by the City's Development Services Department (DSD) and reference in http://www.sandiego.gov/development-services/industry/special.shtml

4-1.5 Certificates of Compliance. To the City Supplement, DELETE in its entirety and SUBSTITUTE with the following:

4-1.5 Certificates of Compliance. DELETE in its entirety and SUBSTITUTE with the following:

Certificates of Compliance shall be furnished to the Engineer prior to the use of any material or assembled material for which these Specifications so require or if so required by the Engineer.

The Engineer may waive the materials testing requirements of the Specifications and accept a Certificate of Compliance. Manufacturing test data may be required by the Engineer to be included with the submittal.

Materials used on the basis of a Certificate of Compliance may be sampled and tested at any time. The submission of a Certificate of Compliance shall not relieve the Contractor of responsibility for incorporating material in the Work which conforms to the requirements of the Contract Documents, and any material not conforming to the requirements will be subject to rejection whether in place or not.

When professional certification of performance criteria of materials, systems or equipment is required by the Contract Documents, the City shall be entitled to rely upon the accuracy and completeness of such calculations and certifications.

4-1.6 Trade Names or Equals. To the City Supplement, DELETE in its entirety and SUBSTITUTE with the following:

ADD the following:

Whenever materials or equipment are indicated in the Contract Documents by using the name of a proprietary item or the name of a particular Supplier, the naming of the item is intended to establish the type, function, and quality required. Unless stated otherwise, materials or equipment of other Suppliers may be accepted if sufficient information is submitted to the Engineer for review to determine whether the material or equipment proposed is equivalent or equal to that named.

a) The Contractor shall submit its list of proposed substitutions for "an equal" ("or equal") item(s) **no less than 15 Working Days prior to Bid due date** and on a City form when provided by the City.

   i. The City will respond to the Contractor's substitution proposal by at least 3 Working Days prior to the Bid due date. If the City fails to respond to the Contractor's substitution proposal within the specified time period, the substitution proposal will be deemed denied.

   ii. The Contractor may bring forward a substitution proposal after Award that was denied based on the City's failure to respond by submitting a "Cost Reduction Proposal" in accordance with 3-1.3.

b) The request for substitution shall include the following information:

   i. Whether or not acceptance of the substitute for use in the Work will require a change in any of the Contract Documents to adopt the design to the proposed substitute.

   ii. Whether or not incorporation or use of the substitute in connection with the Work is subject to payment of any license fee or royalty.

   iii. All variations of the proposed substitute from the items originally specified will be identified.

   iv. Available maintenance, repair, and replacement service requirements. The manufacturer shall have a local service agency within 50 miles of the site which maintains properly trained personnel and adequate spare parts and is able to respond and complete repairs within 24 hours.

   v. Certification that the proposed substitute will perform adequately the functions and achieve the results called for by the general design, and be similar and of equal substance to that indicated, and be suited to the same use as that specified.

c) There is no guaranteed time frame for the City's review of the substitution requests.

d) The burden of proof as to the type, function, and quality of any such substitute product, material or equipment shall be upon the Contractor. The Engineer may require at the Contractor's expense additional data about the proposed substitute.

e) If the Engineer takes no exceptions to the proposed substitution, it shall not relieve the Contractor from responsibility for the efficiency, sufficiency, quality, and performance of the substitute material or equipment, in the same manner and degree as the material and equipment specified by name.

f) The lack of action(s) on the Engineer's side within the Contractor's requested time shall not constitute acceptance of the substitution.

g) Acceptance by the Engineer of a substitute item shall not relieve the Contractor of the responsibility for full compliance with the Contract Documents.

h) For the substitution review process or to have materials listed on the AML, refer to the AML standard review process.

i) The Bid submittal shall be based on the material and equipment specified by name in the Contract. If the proposal is rejected by the Engineer, the Contractor shall not be entitled to either an extension in Contract Time, increase in the Contract Price, or both.

j) As applicable, no Shop Drawing or Working Drawing submittals shall be made for a substitute item nor shall any substitute item be ordered, installed, or utilized without the Engineer's prior written.

k) The Contractor shall reimburse the City for the charges of the Engineer for evaluating each proposed substitute.

l) For Design-Build contracts, one copy of all designer reviewed submittals shall be provided to the Engineer.

SECTION 6 - PROSECUTION, PROGRESS AND ACCEPTANCE OF WORK

6-1.2 Commencement of Work.

To the GREENBOOK and the City Supplement, DELETE in its entirety and SUBSTITUTE with the following:

Unless specified otherwise, construction shall start within 5 Working Days after NTP and be diligently prosecuted to completion within the Contract Time. The Contractor shall not start any construction activity at the Site until the Pre-construction Meeting is held and the NTP has been issued by the Engineer.

Upon the Contractor's written request, the City may delay the NTP as follows:

a) Up to 5 Working Days from the Pre-construction Meeting, or

b) Up to 40 Working Days from the Limited NTP for the preparation, submittal, obtaining approval for and filing of the PRDs in accordance with 801, "STORM WATER POLLUTION CONTROL," or

c) Up to 60 Working Days from the Limited NTP for the preparation, submittal, and approval of the TCP on "D-sheets" when specified in 7-10.2, "Traffic Control."

The Contractor shall notify SDG&E at least 10 Working Days prior to excavating within 10' of SDG&E Underground High Voltage Transmission Power Lines (i.e., 69 KV and higher).

For areas that do not require engineered TCP on D-sheets, the Contractor may at any time after the Pre-construction Meeting obtain a TCP Permit via Working Drawings or the City's over the counter process and start the Work. If the Contractor decides to commence the construction work before the

completion of the D-sheet TCPs, the Contractor shall forfeit the 60 Working Days specified here. The D-sheet TCP shall be done concurrently and no additional time will be granted.

For paving Work, the Contractor shall coordinate the Work to facilitate the installation and protection of the new curb ramps and associated concrete work prior to commencing the asphalt overlay operations. The Work at a specific location shall not commence until all layouts and measurements are agreed upon by both the Contractor and the Engineer.

ADD: 6-1.8 Pre-construction Meeting. Within 20 Working Days from the Limited NTP the Engineer will schedule a mandatory pre-construction meeting (Pre-construction Meeting) with the Contractor. The agenda will include items such as NTP, design services and submittal and review process for Design-Build contracts, critical elements of the work schedule, submittal schedule, cost breakdown of major lump sum items, payment requests and processing, environmental and community concerns, coordination with the involved utility firms, the level of record project documents required and emergency telephone numbers for all representatives involved in the course of construction.

ADD: 6-8.1 Completion. To the City Supplement, DELETE in its entirety and SUBSTITUTE with the following:

6-8.1 Completion. The Contractor shall submit a written assertion that the Work has been completed. If, in the Engineer's judgment, the Work has been completed in accordance with the Contract Documents, the Engineer will set forth in writing the date the Work was completed. This will be the date when the Contractor is relieved from responsibility to protect and maintain the Work.

6-8.2 Acceptance. To the City Supplement, DELETE in its entirety and SUBSTITUTE with the following:

6-8.2 Acceptance. Acceptance will occur after all of the requirements contained in the Contract Documents have been fulfilled. If, in the Engineer's judgment, the Contractor has fully performed the Contract, the Engineer will accept the Contractor's performance of the Contract.

6-8.3 Warranty. To the City Supplement, DELETE in its entirety and SUBSTITUTE with the following:

6-8.3 Warranty. Unless specified otherwise, the Work shall be warranted by the Contractor against defective workmanship and materials for a period of 1 year.

a) The warranty period shall start on the date of completion of the Work as determined by the Engineer.

b) The Contractor shall provide an unconditional warranty on all installed fiber optic cable for a minimum period of 2 years.

c) The warranty period for the following items of the Work shall be 3 years:

    1. Work under Section 500 (requires Long Term Warranty Contract (LTWC))

    2. DWT Construction (requires manufacturer's warranty)

    3. LED signal modules (requires manufacturer's warranty)

d) Private sewer pumps including the alarm panel and all other accessories. The Contractor shall provide the City and property owner a copy of the warranty. (requires manufacturer's warranty).

e) The Contractor shall involve the manufacturer in the installation and startup as needed to secure any extended warranty required.

f) The warranty period for specific items covered under manufacturers' or suppliers' warranties shall commence on the date they are placed into service at the direction of or as approved by the Engineer in writing.

g) All warranties, express or implied, from Subcontractors or Suppliers, of any tier, for the work performed and materials furnished shall be assigned, in writing, to the City, and such warranties shall be delivered to the Engineer prior to acceptance of the Contractor's performance of the Contract.

h) The Contractor shall replace or repair defective Work in a manner satisfactory to the Engineer, after notice to do so from the Engineer, and within the time specified in the notice. If the Contractor fails to make such replacement or repairs within the time specified in the notice, the City may perform the replacement or repairs at the Contractor's expense. If the Contractor fails to reimburse the City for the actual costs, the Contractor's Surety shall be liable for the cost thereof.

i) Nothing in this warranty is intended to limit any manufacturer's warranty which provides the City with greater warranty rights than set forth in this section or the Contract Documents.

j) These specifications are not intended to constitute a period of limitations or waiver of any other rights or remedies City may have regarding the Contractor's other obligations under the Contract Documents or federal or state law.

k) The Contractor shall respond and initiate corrective action within 24 hours of notice of nonconforming Work that poses an imminent threat to person or property.

6-9 LIQUIDATED DAMAGES. To the City Supplement, DELETE in its entirety and SUBSTITUTE with the following:

MODIFY to increase the daily value from $250 to $1,000 for contracts with a value of over $100,000.

SECTION 7 - RESPONSIBILITIES OF THE CONTRACTOR

7-3 LIABILITY INSURANCE. DELETE in its entirety and SUBSTITUTE with the following:

The insurance provisions herein must not be construed to limit your indemnity obligations contained in this contract.

ADD: 7-3.1 Policies and Procedures.

a) You must procure the insurance described below, at your sole cost and expense, to provide coverage against claims for loss including injuries to persons or damage to property, which may arise out of or in connection with the performance of the Work by you, your agents, representatives, officers, employees or subcontractors.

b) Insurance coverage for property damage resulting from your operations is on a replacement cost valuation. The market value will not be accepted.

c) You must maintain this insurance for the duration of this contract and at all times thereafter when you are correcting, removing, or replacing Work in accordance with this contract. Your liabilities under this contract, e.g., your indemnity obligations, will is not deemed limited to the insurance coverage required by this contract.

d) Payment for insurance is included in the various items of Work as bid by you, and except as specifically agreed to by the City in writing, you are not entitled to any additional payment. Do not begin any work under this contract until you have provided and the City has approved all required insurance.

e) Policies of insurance must provide that the City is entitled to 30 days (10 days for cancellation due to non-payment of premium) prior written notice of cancellation or non-renewal of the policy. Maintenance of specified insurance coverage is a material element of this contract. Your failure to maintain or renew coverage or to provide evidence of renewal during the term of this contract may be treated by the City as a material breach of contract.

ADD: 7-3.2 Types of Insurance.

7-3.2.1 Commercial General Liability Insurance.

a) Commercial General Liability Insurance must be written on the current version of the ISO Occurrence form CG 00 01 07 98 or an equivalent form providing coverage at least as broad.

b) The policy must cover liability arising from premises and operations, XCU (explosions, underground, and collapse), independent contractors, products/completed operations, personal injury and advertising injury, bodily injury, property damage, and liability assumed under an insured's contract (including the tort liability of another assumed in a business contract).

c) There must be no endorsement or modification limiting the scope of coverage for either "insured vs. insured" claims or contractual liability. You must maintain the same or equivalent insurance for at least 10 years following completion of the Work.

d) All costs of defense must be outside the policy limits. Policy coverage must be in liability limits of not less than the following:

General Annual Aggregate Limit	Limits of Liability
Other than Products/Completed Operations	$2,000,000
Products/Completed Operations Aggregate Limit	$2,000,000
Personal Injury Limit	$1,000,000
Each Occurrence	$1,000,000

7-3.2.2 Commercial Automobile Liability Insurance.

a) You must provide a policy or policies of Commercial Automobile Liability Insurance written on the current version of the ISO form CA 00 01 12 90 or later version or equivalent form providing coverage at least as broad in the amount of $1,000,000 combined single limit per accident, covering bodily injury and property damage for owned, non-owned, and hired automobiles ("Any Auto").

b) All costs of defense must be outside the limits of the policy.

ADD: 7-3.3 Rating Requirements. Except for the State Compensation Insurance Fund, all insurance required by this contract as described herein must be carried only by responsible insurance companies with a rating of, or equivalent to, at least "A-, VI" by A.M. Best Company, that are authorized by the California Insurance Commissioner to do business in the State, and that have been approved by the City.

7-3.3.1 Non-Admitted Carriers. The City will accept insurance provided by non-admitted, "surplus lines" carriers only if the carrier is authorized to do business in the State and is included on the List of Eligible Surplus Lines Insurers (LESLI list).

All policies of insurance carried by non-admitted carriers must be subject to all of the requirements for policies of insurance provided by admitted carriers described herein.

ADD: 7-3.4 Evidence of Insurance. Furnish to the City documents e.g., certificates of insurance and endorsements evidencing the insurance required herein, and furnish renewal documentation prior to expiration of this insurance. Each required document must be signed by the insurer or a person authorized by the insurer to bind coverage on its behalf. We reserve the right to require complete, certified copies of all insurance policies required herein.

ADD: 7-3.5 Policy Endorsements.

7-3.5.1 Commercial General Liability Insurance

7-3.5.1.1 Additional Insured.

a) You must provide at your expense policy endorsement written on the current version of the ISO Occurrence form CG 20 10 11 85 or an equivalent form providing coverage at least as broad.

b) To the fullest extent allowed by law e.g., California Insurance Code §11580.04, the policy must be endorsed to include the City and its respective elected officials, officers, employees, agents, and representatives as additional insured.

    1. The additional insured coverage for projects for which the Engineer's Estimate is $1,000,000 or more must include liability arising out of: (a) Ongoing operations performed by you or on your behalf, (b) Your products, (c) Your work, e.g., your completed operations performed by you or on your behalf, or (d) premises owned, leased, controlled, or used by you.

    2. The additional insured coverage for projects for which the Engineer's Estimate is less than $1,000,000 must include liability arising out of: (a) Ongoing operations performed by you or on your behalf, (b) Your products, or (c) premises owned, leased, controlled, or used by you.

7-3.5.1.2 Primary and Non-Contributory Coverage. The policy must be endorsed to provide that the coverage with respect to operations, including the completed operations, if appropriate, of the Named Insured is primary to any insurance or self-insurance of the City and its elected officials, officers, employees, agents and representatives. Further, it must provide that any insurance maintained by the City and its elected officials, officers, employees, agents and representatives must be in excess of the Contractor's insurance and must not contribute to it.

7-3.5.1.3 Project General Aggregate Limit. The policy or policies must be endorsed to provide a Designated Construction Project General Aggregate Limit that will apply only to the Work. Only claims payments which arise from the Work must reduce the Designated Construction Project General Aggregate Limit. The Designated Construction Project General Aggregate Limit must be in addition to the aggregate limit provided for the products-completed operations hazard.

7-3.5.2 Commercial Automobile Liability Insurance.

7-3.5.2.1 Additional Insured. Unless the policy or policies of Commercial Auto Liability Insurance are written on an ISO form CA 00 01 12 90 or a later version of this form or equivalent form providing coverage at least as broad, the policy must be endorsed to include the City and its respective elected officials, officers, employees, agents, and representatives as additional insured, with respect to liability arising out of automobiles owned, leased, hired or borrowed by you or on your behalf. This endorsement is limited to the obligations permitted by California Insurance Code §11580.04.

ADD: 7-3.6 Deductibles and Self-Insured Retentions. You are responsible for the payment of all deductibles and self-insured retentions. Disclose deductibles and self-insured retentions to the City at the time the evidence of insurance is provided.

ADD: 7-3.7 Reservation of Rights. We reserve the right, from time to time, to review your insurance coverage, limits, deductibles and self-insured retentions to determine if they are acceptable to the City. We will reimburse you, without overhead, profit, or any other markup, for the cost of additional premium for any coverage requested by the Engineer but not required by this contract.

ADD: 7-3.8 Notice of Changes to Insurance. You must notify the City 30 days prior to any material change to the policies of insurance provided under this contract.

ADD: 7-3.9 Excess Insurance. Policies providing excess coverage must follow the form of the primary policy or policies e.g., all endorsements.

7-4 WORKERS' COMPENSATION INSURANCE. DELETE in its entirety and SUBSTITUTE with the following:

7-4.1 Workers' Compensation Insurance and Employers Liability Insurance.

a) In accordance with the provisions of §3700 of the California Labor Code, you must provide at its expense Workers' Compensation Insurance and Employers Liability Insurance to protect you against all claims under applicable state workers compensation laws. The City, its elected officials, and employees will not be responsible for any claims in law or equity occasioned by your failure to comply with the requirements of this section.

b) Limits for this insurance must be not less than the following:

Workers' Compensation	Statutory Employers Liability
Bodily Injury by Accident	$1,000,000 each accident
Bodily Injury by Disease	$1,000,000 each employee
Bodily Injury by Disease	$1,000,000 policy limit

c) By signing and returning this contract you certify that you are aware of the provisions of §3700 of the Labor Code which require every employer to be insured against liability for worker's

compensation or to undertake self-insurance in accordance with the provisions of that code and you will comply with such provisions before commencing the Work as required by § 1861 of the California Labor Code.

7-4.1.1 Waiver of Subrogation. The policy or policies must be endorsed to provide that the insurer will waive all rights of subrogation against the City, and its respective elected officials, officers, employees, agents, and representatives for losses paid under the terms of the policy or policies and which arise from work performed by the Named Insured for the City.

7-5 PERMITS, FEES, AND NOTICES. To the City Supplement, DELETE item e) in its entirety.

7-8.6 Water Pollution Control. ADD the following:

a) The Project is subject to the Storm Water Pollution control requirements listed on the Plans or as specified in these specifications.

b) For contracts subject to Construction General Permit (CGP), the Contractor's QSD shall verify the City's assessment prior to submittal through SMARTS.

c) The Contractor's attention is directed to Section 801, "WATER POLLUTION CONTROL" of these specifications for more information.

Based on a preliminary assessment by the City, this contract is subject to Water Pollution Control Program WPCP.

7-9 PROTECTION AND RESTORATION OF EXISTING IMPROVEMENTS. ADD the following:

In any emergency affecting the safety of persons or property, the Contractor shall act, at its discretion, to prevent threatened damage, injury or loss. Any change in Contract Price or Contract Time resulting from emergency work shall be determined as provided in SECTION 3, "CHANGES IN WORK."

7-10.1 Traffic and Access. To the City Supplement, DELETE the agency notification listing in its entirety and SUBSTITUTE with the following:

The Contractor shall notify Metropolitan Transit System (MTS), a minimum of 5 Working Days prior to excavation, construction, or traffic control affecting bus stops. The Contractor shall notify the remaining agencies a minimum of two 2 Working Days prior to construction activities affecting the agencies:

Fire Department Dispatch	(Street or alley closure)	(858) 573-1300
Police Department Traffic	(Street or alley closure)	(858) 495-7800
Street Division/Electrical	(Traffic signals)	(619) 527-7500
U.S. Navy	(32nd Street Naval Station)	(619) 556-1319
Underground Service Alert	(Any excavation)	(800) 422-4133
MTS	(Street Closure and Bus Stops)	(619) 238-0100 Ext 6451

7-15 INDEMNIFICATION AND HOLD HARMLESS AGREEMENT. To the City Supplement, DELETE in its entirety and SUBSTITUTE with the following:

ADD: 7-15 INDEMNIFICATION AND HOLD HARMLESS AGREEMENT.

The Contractor shall defend, indemnify, protect, and hold harmless the City, its agents, officers, and employees, from and against all claims asserted, or liability established for damages or injuries to any person or property resulting from the Contractor's action or failure to take the necessary measures to prevent such damages and injuries.

The Contractor shall be responsible for payment of any fines resulting from citations issued to the City by either the federal, state, or local environmental and safety enforcement agencies due to the Contractor's failure to abide by applicable safety, health, and environmental standards.

SECTION 8 - FACILITIES FOR AGENCY PERSONNEL

8-2 FIELD OFFICE FACILITIES. To the City Supplement, DELETE in its entirety.

PART 2 - CONSTRUCTION MATERIALS

SECTION 207 – PIPE

207-17.1 General. ADD the following:

All House Connection Sewer Laterals shall use acceptable stainless steel shielded couplings manufactured by Mission, Fernco or approved equal.

ADD: 207-17.2.3 Pipe Manufacturer. Pipe, fittings, couplings, and joints as manufactured or distributed by J-M Manufacturing Company shall not be used on this contract.

207-26.1.1 Polymer Concrete Water Meter Boxes. To the City Supplement, DELETE in its entirety and SUBSTITUTE with the following:

Boxes and covers to be installed in traffic areas shall have a reinforced polymer concrete frame and cover designed for AASHTO H-20 traffic loading. Boxes and covers to be installed in non-traffic areas shall have reinforced polymer concrete reader lids designed for A-10 traffic loading in accordance with ASTM-C857. Traffic areas are defined as any location in which vehicular traffic is evident or highly likely under normal conditions. Non-traffic areas are locations with no vehicular traffic. Covers shall have a logo reading "PUD WATER" as well as the manufacturer's name or logo cast in the polymer concrete surface. A cover and lid selected at random shall be tested. The cover and lid shall support without failure a total vertical load of at least 1,000 pounds, when supported in a horizontal position in the meter box. The load shall be applied to the center of the lid by a cylindrical pin, 1,952" in diameter, supported on a 2-thick rubber pad.

Unless provided for as a separate Bid item, payment for Polymer Concrete Box shall be included in the Bid item for water services.

207-26.1.5 Polyvinyl Chloride Pipe 2" Only. To the City Supplement, DELETE in its entirety.

SECTION 210 – PAINT AND PROTECTIVE COATINGS

ADD: 210-6 Anti-graffiti Coating. Anti-graffiti coating shall be as manufactured by Monopole, Inc. (or approved equal).

Materials shall be applied as specified below:

a) 1st Coat: Aquaseal ME12 (Item 5200)

b) 2nd Coat: Permashield Base (Item 6100)

c) 3rd Coat: Permashield Premium (Item 5600 for matte finish or Item 5650 for gloss finish)

d) 4th Coat: Permashield Premium (Item 5600 for matte finish or Item 5650 for gloss finish)

SECTION 216 – DETECTABLE WARNING TILES

216-1.2 Materials. To the City Supplement, DELETE in its entirety and SUBSTITUTE with the following:

Materials for DWT specified herein shall be per the City's Approved Materials List (AML). The tiles shall have the manufacturer's logo stamped permanently on the product with identifying information such as model number and type.

a) The Stainless Steel Cast in Place DWT shall be of 16 gauge Type 304L with an integral micro-texture non-slip surface stamped into the stainless steel plate on the top of the domes and in the field surface between the domes. It shall have an ultra violet stabilized coating.

b) Vitrified Polymer Composite (VPC) Cast in Place DWT shall be an epoxy polymer composition with an ultra violet stabilized coating employing aluminum oxide particles in the truncated domes. VPC Product shall be provided with a 5-year manufacturer written warranty form materials and installation.

c) For others materials and a complete listing of material physical property requirements refer to the City's AML.

END OF SUPPLEMENTARY SPECIAL PROVISIONS (SSP)

TECHNICAL SPECIFICATIONS

MEMORIAL POOL

2902 MARCY ROAD
SAN DIEGO, CALIFORNIA

PROJECT MANUAL
MARCH 2012

PREPARED BY:

AQUATIC DESIGN GROUP
2226 FARADAY AVENUE
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CONSTRUCTION SPECIFICATIONS
MEMORIAL PARK AQUATIC FACILITY

SECTION 13 11 00

SWIMMING POOL GENERAL CONDITIONS

PART 1 - GENERAL

1.01 WORK INCLUDED

A. The scope of the work included under this Section of the Specifications shall include swimming pool(s) as illustrated on the Drawings and specified herein. The General and Supplementary Conditions of the Specifications shall form a part and be included under this Section of the Specifications. The Swimming Pool Contractor shall provide all supervision, labor, material, equipment, machinery, plant and any and all other items necessary to complete the work. All of the work in Section 13 11 01 through 13 11 08 shall be the work of a Contractor that has, in the last five(5) years, constructed at least one (1) commercially designed municipal and public-use swimming pool with a minimum size of 6,000 square feet of water surface area, with a concrete and ceramic tile perimeter overflow gutter and self-modulating balance tank, and a wet childrens play area. The Swimming Pool Contractor shall furnish and install the swimming pool structures, finishes, cantilever forming, swimming pool mechanical and electrical systems, and all accessories necessary for a complete, functional swimming pool system, as herein described. Work shall include start-up, instruction of Owner's personnel, as-built plans, and warranties as required.

1.02 CODES, RULES, PERMITS, FEES

A. The swimming pools shall be constructed in strict accordance with the applicable provisions set forth by authorities having jurisdiction over swimming pool construction and operation in the State of California.

B. The Swimming Pool Contractor shall give all necessary notices, obtain all permits, and pay all government sales taxes, fees, and other costs in connection with his work; file all necessary plans, prepare all documents and obtain all necessary approvals of governmental departments having jurisdiction; obtain all required certificates of inspection for his work and deliver same to the Designated Representative before request for acceptance and final payment for the work.

C. The Swimming Pool Contractor shall include in the work any labor, materials, services, apparatus, or drawings in order to comply with all applicable laws, ordinances, rules and regulations, whether or not shown on Drawings and/or specified.

D. The Contractor shall submit all required documents and materials to all Governmental Departments having jurisdiction for any deferred approval items or substituted materials or products to obtain final approval to installation.

1.03 DESCRIPTION OF WORK

A. Furnish and perform supervision, coordination, all layout, formwork, excavation, hand trim, disposing off-site of all unused material or debris to complete the swimming pool excavation to the dimensions shown on the plans.

B. Furnish and install complete swimming pool structures, including reinforcing steel and cast-in-place or pneumatically placed concrete walls and floors.

C. Furnish and install swimming pool finishes, including ceramic tile and marble plaster or other waterproof finishes.

D. Furnish and install complete swimming pool mechanical system(s), including, but not limited to, circulation systems, filtration systems, pool water heating systems, water chemistry control systems, domestic water fill line systems, booster pump and special effects systems, and all pumps, piping, valves, and connections between system(s) and swimming pool(s).

E. Furnish and install complete swimming pool electrical system(s) from P.O.C. in Mechanical Room, including, but not limited to, underwater lighting systems, water level control systems, timing systems, scoreboards, special effects systems, control circuitry, motor starters, time clocks, bonding, and all conduits, conductors, contactors, and switches between the system(s) and swimming pool(s).

F. Furnish and install all swimming pool cantilever forming, deck equipment and required anchors and inserts for the specified equipment as required by code, shown on the Drawings and specified herein.

G. After the initial filling of the swimming pool system(s), should any repairs, continuing work, or other Subcontractor responsibility require drainage or partial drainage of the swimming pool systems, the Swimming Pool Contractor shall be responsible for any subsequent refilling and shall complete the project with the swimming pool system(s) full of water, water in chemical balance, complete in every way, and in full operation.

1.04 ASSIGNED RESPONSIBILITIES AND RELATED WORK

A. It is the intent of this section of the Specifications to clarify Work responsibilities of the trades directly and indirectly involved in construction of the pool systems. All labor, equipment, materials and supplies furnished by the Swimming Pool Contractor and other Subcontractors shall be as directed by the Owner through his Designated Representative.

B. **THE SWIMMING POOL CONTRACTOR SHALL NOT SUBCONTRACT ANY PORTION OF THE SWIMMING POOL CONSTRUCTION OR SWIMMING POOL EQUIPMENT INSTALLATION TO ANYONE OTHER THAN A SUBSUBCONTRACTOR THAT SATISFIES THE REQUIREMENTS OF SECTION 13 11 00.**

C. References to “swimming pool systems” shall include the swimming pools, equipment, and accessories.

D. The Owner will provide one complete water filling of the swimming pool(s), but will not assume any responsibility for the swimming pool system(s) until they have been proved fully operational, complete in every way and accepted by the Designated Representative.

1.05 RESPONSIBILITIES OF THE CONTRACTOR

A. The Contractor shall grade the swimming pool site(s), establish benchmarks, cut and fill as necessary to provide as level an area as possible at swimming pool deck elevation before swimming pool layout.

B. The Contractor shall be responsible for horizontal dimensions and grade elevations accurately from established lines and benchmarks (as indicated on the Drawings) and be responsible for those grades.

C. The Contractor shall provide adequate temporary light, electric power, heat and ventilation per Federal and State OSHA requirements to construct the swimming pool system(s).

D. The Contractor shall not permit any heavy equipment activity over any area or within five (5) feet of any area under which swimming pool piping is buried. There shall be no exceptions to this requirement.

E. The Contractor shall keep the swimming pool excavation(s) and swimming pool structure(s) free of construction residue and waste materials of his workmen or Subcontractors, removing said material from the swimming pools as required.

F. The Contractor shall protect the swimming pool(s) from damage caused by his construction equipment and /or workmen and Subcontractors.

G. The Contractor shall provide a representative at time of swimming pool start-up to coordinate all trades related to swimming pool system(s).

1.06 RESPONSIBILITIES OF THE MECHANICAL SUBCONTRACTOR

A. The Mechanical Subcontractor shall be licensed in the State of California and provide written notifications to Swimming Pool Contractor and contractor when necessary to excavate and backfill within the swimming pool construction site.

B. The Mechanical Subcontractor shall not utilize any swimming pool piping trench for installation of any sanitary sewer, storm sewer, domestic water, hot water, chilled water or natural gas line.

C. The Mechanical Subcontractor shall furnish and install all sanitary sewer piping, including vent stacks (if necessary), for backwash pits, floor drains and floor sinks as required by code, shown on Drawings, and herein specified.

D. The Mechanical Subcontractor shall furnish and install all storm sewer piping and site drainage systems as required by code, shown on the Drawings, and herein specified.

E. The Mechanical Subcontractor shall provide a minimum 75 psi water supply for swimming pool construction work within fifty (50) feet of the swimming pool construction site(s).

F. The Mechanical Subcontractor shall furnish and install reduced pressure backflow protected domestic water lines to P.O.C. within swimming pool Mechanical Room as required by code, shown on the Drawings, and herein specified.

G. The Mechanical Subcontractor shall furnish and install natural gas piping, pressure regulation and valving to P.O.C. within swimming pool Mechanical Room as required by code, shown on the drawings, and herein specified.

H. The Mechanical Subcontractor shall furnish and install all ductwork, louvers, and all HVAC equipment within swimming pool Mechanical Room as required by code, shown on the Drawings, and herein specified.

I. The Mechanical Subcontractor shall provide a representative at time of swimming pool start-up to coordinate work related to swimming pool system(s).

1.07 RESPONSIBILITIES OF THE ELECTRICAL SUBCONTRACTOR

A. The Electrical Subcontractor shall be licensed in the State of California and shall furnish and install electrical service to swimming pool Mechanical Room sized to accommodate all necessary swimming pool equipment as shown on the Drawings and herein specified.

B. The Electrical Subcontractor shall furnish any temporary power needed by the Swimming Pool Contractor within fifty (50) feet of the swimming pool construction site(s).

C. The Electrical Subcontractor shall furnish and install all conduits, conductors, starters/disconnects, panels, circuits, switches and equipment as required for lighting, ventilation and HVAC equipment within swimming pool Mechanical Room as required by code, shown on the Drawings, and herein specified.

D. The Electrical Subcontractor shall furnish and install all conduits, conductors, panels, circuits, switches and equipment for area lighting as required by code, shown on the Drawings, and herein specified.

E. All equipment, material and installation shall be as required under Division 16 of the Specifications and shall conform to NEC Article 680 (latest revision), State and Local Codes, and as may be required by all authorities having jurisdiction over swimming pool construction within the State of California.

F. The Electrical Subcontractor shall provide a representative at time of swimming pool start-up to coordinate work related to swimming pool system(s).

1.08 INTENT

A. It is the intention of these specifications and Drawings to call for finished work, tested and ready for operation. Wherever the work “provide” is used, it shall mean “furnish and install complete and ready for use.”

B. Minor details not usually shown or specified, but necessary for proper installation and operation, shall be included in the work, the same as if herein specified or shown.

1.09 PRE-AWARD SUBMITTALS

A. Within 4 Working Days of Bid Opening, the 3 apparent low bidders shall submit the following required information:

1. Swimming Pool Contractor's Experience and Past Project Documentation.

a. The Contractor shall submit documentation that comparable swimming pool projects similar in scope and size has been successfully installed within the last 5 years and constructed 5 commercially designed municipal and public-use swimming pools, each of which have incorporated a minimum size of 6,000 square feet of water surface area with a concrete and ceramic tile perimeter overflow gutter and self-modulating balance tank.

b. The Contractor has derived 50% of its annual revenue from public-use swimming pool construction for each of the last 5 years.

c. See the Contract attachments for the required format for the submittal.

2. Pool Deck Contractor's Experience and Past Project Documentation.

a. The Contractor shall submit documentation that comparable swimming pool deck projects similar in scope and size has been successfully installed within the last 5 years and constructed at least 5 commercially designed cantilevered pool decks over perimeter gutters, each of which have incorporated a minimum size of 6,000 square feet of water surface area of the swimming pool.

b. See the Contract attachments for the required format for the submittal.

1.10 SUBSTITUTIONS

A. To obtain approval to use unspecified products, bidders shall submit requests for substitution **no less than 15 Working Days prior to Bid due date**. Requests shall only be considered if they clearly describe the product for which approval is asked, including all data necessary to demonstrate acceptability. All unspecified products and equipment will be considered on an "or equal" basis at the discretion of the Designated Representative. Requests for substitution received after the specified deadline will not be considered.

B. Where the Swimming Pool Contractor proposes to use an item of equipment other than that specified or detailed on the Drawings which requires any redesign of the structure, partitions, foundations, piping, wiring, or any other part of the architectural, mechanical, or electrical layout, all such redesign and all new drawings (stamped by California Licensed Engineer) and detailing required shall be prepared by the Swimming Pool Contractor, at his own expense, submitted for review and approval by the Designated Representative prior to bid.

C. Where such approved deviation requires a different quantity and arrangement of piping, supports and anchors, wiring, conduit, and equipment from that specified or

indicated on the Drawings, the Swimming Pool Contractor shall furnish and install any such piping, structural supports, controllers, motors, starters, electrical wiring and conduit, and any other additional equipment required by the system, at no additional cost to the Owner.

1.11 SURVEYS AND MEASUREMENTS

A. The Swimming Pool Contractor shall base all measurements, both horizontal and vertical, from benchmarks established by the Contractor. All work shall agree with these established lines and levels. The mechanical Drawings do not give exact details as to elevations of piping, exact locations, etc. and do not show all offsets, control lines, pilot lines and other installation details. Verify all measurements at site and check the correctness of same as related to the work.

1.12 NOT USED

1.13 NOT USED

1.14 OPERATING INSTRUCTIONS

A. The Swimming Pool Contractor shall determine from actual samples of pool water supplied by the Owner, the proper water management program necessary for maximum operating efficiency and comfort. The Swimming Pool Contractor shall provide the services of experienced personnel familiar with this type of pool system operation, in conformance with Section 13 11 05 of the Specifications.

1.15 MAINTENANCE MANUALS

A. The Swimming Pool Contractor shall provide six (6) bound sets for delivery to the Designated Representative of instructions for operating and maintaining all systems and equipment included in this Contract. Manufacturer's advertising literature or catalog pictures will not be acceptable for operating and maintenance instructions.

B. Bound in ring binders shall be all parts lists, periodic maintenance instructions and troubleshooting guidelines for all pool equipment, including but not limited to filters, pumps, controllers, water chemistry control equipment, etc.

1.16 SECURE FROM THE OWNER

A. A complete Owner-furnished filling of the swimming pools.

B. The Owner's assistance, as specified herein, from the time of start-up until final written acceptance of the swimming pool system(s).

C. Chemicals as required for swimming pool operation after Swimming Pool Contractor completes initial water chemistry balance and water treatment during the maintenance period described in Section 13 11 05 of the Specifications.

1.17 WARRANTY

A. The Swimming Pool Contractor shall warrant all swimming pool structures, finishes and systems against defects in material and workmanship for a period of one year after the date of acceptance by the Owner. Any repair or replacement required due to defective material or workmanship will be promptly corrected by the Swimming Pool Contractor.

PART 2 - PRODUCTS

A. NOT USED

PART 3 - EXECUTION

A. NOT USED

END OF SECTION

ATTACHMENT TO SECTION 13 11 00

SWIMMING POOL CONTRACTOR EXPERIENCE

A. The swimming pool construction work as herein described and specified in Division 13 of the Project Manual , shall be the complete responsibility of a qualified and specifically licensed (C-53 license classification within the State of California) Swimming Pool Contractor with extensive experience in commercial public use swimming pool installations.

B. Contractor certifies that it meets the qualifications and experience requirements established in Swimming Pool General Conditions, Section 13 11 00, Project Manual, as follows:

1. Contractor has derived 50% of its annual revenue from public-use swimming pool construction for each of the last five (5) years.

2. Contractor has, in the last five (5) years, constructed at least one (1) commercially designed municipal and public-use swimming pools, each of which have incorporated a minimum size of 6,000 square feet of water surface area with a concrete and ceramic tile perimeter overflow gutter and self-modulating balance tank.

3. The following list of projects meet the requirements of section (B) above and the contact as reference by the Contractor, the Awarding Authority of their agent or designee.

a. Owner: _____

Scope of Project: _____

Contact Person: _____

Phone Number: _____

Architect for Project: _____

b. Owner: _____

Scope of Project: _____

Contact Person: _____

Phone Number: _____

Architect for Project: _____

c. Owner: _____

Scope of Project: _____

Contact Person: _____

Phone Number: _____

Architect for Project: _____

d. Owner: _____

Scope of Project: _____

Contact Person: _____

Phone Number: _____

Architect for Project: _____

e. Owner: _____

Scope of Project: _____

Contact Person: _____

Phone Number: _____

Architect for Project: _____

C. Swimming Pool Deck Subcontractor other than the Swimming Pool Contractor certifies that it meets the qualifications and experience requirements established in Swimming Pool General Conditions, Section 13150, as follows:

1. Subcontract has, in the last five (5) years, constructed at least one (1) commercially designed cantilevered pool decks over perimeter gutters, each of which have incorporated a minimum size of 6,000 square feet of water surface area of the swimming pool.

2. The following list of projects meet the requirements of section (C) above and the contact as reference by the Contractor, the Awarding Authority of their agent or designee.

SWIMMING POOL DECK SUBCONTRACTOR EXPERIENCE

a. Owner: _____

Scope of Project: _____

Contact Person: _____

Phone Number: _____

Architect for Project: _____

b. Owner: _____

Scope of Project: _____

Contact Person: _____

Phone Number: _____

Architect for Project: _____

c. Owner: _____

Scope of Project: _____

Contact Person: _____

Phone Number: _____

Architect for Project: _____

d. Owner: _____

Scope of Project: _____

Contact Person: _____

Phone Number: _____

Architect for Project: _____

e. Owner: _____

Scope of Project: _____

Contact Person: _____

Phone Number: _____

Architect for Project: _____

SECTION 13 11 01

SWIMMING POOL EXCAVATION

PART 1 - GENERAL

1.01 DESCRIPTION

A. Finish and fine grading to bring the surface of the ground to the required grades and elevations as indicated on the Drawings.

B. Subgrade improvements and placing of compacted fills.

C. Excavation and backfill for all swimming pool, pool deck and surge chamber structural, including footings, foundations, slabs and walls.

1.02 QUALITY ASSURANCE

A. Requirements of Regulatory Agencies: Conform with requirements of the General Conditions, and more specifically the following:

1. Comply with California Building Code, latest edition.

2. Comply with applicable construction safety orders, latest edition, Federal and State OSHA.

3. Comply with applicable trench safety provisions, latest edition, Federal and State OSHA.

B. Qualifications of Workers:

1. The entity performing the work of this Section shall have been successfully engaged in the respective trade for at least five (5) years immediately prior to commencement of the Work.

2. For actual construction operations, use only trained and experienced workers with a minimum of three (3) years experience with the materials and methods specified.

3. Provide at least one person who shall be present at all times during execution of the work of this Section, with a minimum of five (5) years experience with the type of materials being installed, the referenced standards, and who shall direct all Work performed under this Section.

C. Project/Site Conditions:

1. Be familiar with site and subsurface conditions.

2. Excavation is unclassified and includes excavation to sub-grade elevations indicated or necessary, regardless of character of materials and obstructions encountered.

3. Provisions for mitigation of wet soils due to seepage or rain shall be made during excavation and throughout construction. If wet soils are encountered within the swimming pool excavations, de-watering shall be provided and the Geotechnical Engineer shall make recommendations for moist soil mitigation.

4. Where slope instability is encountered, all excavations within those areas shall be 1:1 or flatter. Forming of vertical walls may be necessary, and all soil conditions shall be field verified by the Geotechnical Engineer.

5. Contractor shall review the Geotechnical Investigation Report as furnished by the Owner's Representative to determine the suitability of the soils.

D. Adverse Weather Conditions:

1. During the periods when site soil moisture content is substantially in excess of moisture content required for optimum compaction, do not perform fill compaction.

2. When unfavorable weather conditions necessitate interrupting filling and grading operations, prepare areas by compaction of surface and grading to avoid collection of water. Provide adequate temporary drainage to prevent erosion.

1.03 SUBMITTALS AND SUBSTITUTIONS

A. Provide submittals in conformance with requirements of the Standard Specifications for Public Works Construction (Greenbook) and the City Standard Specifications for Public Works Construction (Whitebook).

B. Required submittals include:

1. Offsite fill material, if applicable.

C. Submit proof of qualifications as specified in Article 1.02.A of this Section

1.04 EXCAVATING & TRENCHING, GENERAL REQUIREMENTS

A. Refer to Section 01 20 00, Temporary Facilities and Controls.

B. All trenches, holes, etc. are to be completely protected using solid barricades, steel plates, and plywood both during construction and during off hours, including night time.

C. Flashing warning light barricades are required on sidewalks, roads, and any other critical areas that require night time protection.

D. Roads, paths and sidewalks shall not be blocked at any time or in any way. Trenching across roads, paths or sidewalks involves special instructions and review of the construction procedure by the Owner's Representative at least three (3) days prior to the Work actually being started.

E. Construction equipment, including all trucks, cars, etc. shall not be parked or driven on roads, paths or sidewalks. Items not allowed on roads, paths or sidewalks include hoses, power cords, ropes, construction materials, dirt and debris, etc.

F. All roads, paths and sidewalks must remain clear and the Contractor shall maintain temporary safe and effective pedestrian access at all times.

G. Drawings show existing major underground utilities using the best information available. The Contractor shall also fully check public works reference drawings prior to excavation. Call local Dig Alert to locate utilities to ensure safety.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Fill Material, General: All material shall be subject to the review of the Geotechnical Engineer to determine acceptability.

B. On-site soils with an organic content of less than approximately 3 percent by volume (or 1 percent by weight) are suitable for reuse as fill. In general, fill material shall not contain rocks or lumps over approximately 4 inches, and not more than approximately 30 percent larger than ¾-inch. Larger chunks, if generated during excavation, may be broken into acceptably sized pieces or disposed of off site. Imported fill material, if needed for the project, shall be granular soils with a very low to low expansion potential (i.e., an expansion index [EI] of 50 or less) as evaluated in accordance with ASTM D 4829. Import material shall also be non-corrosive in accordance with the Caltrans (2003) corrosion guidelines. Materials for use as fill shall be evaluated by Ninyo & Moore's representative prior to filling or importing.

PART 3 - EXECUTION

3.01 INSPECTION

A. Verify drawing dimensions and elevations with actual field conditions. Inspect related Work and adjacent surfaces and report discrepancies and conditions which prevent proper execution of the Work to the Owner's Representative.

3.02 SUBGRADE IMPROVEMENTS

A. Site preparation shall begin with the removal of existing asphalt concrete, concrete, swimming pool, utility lines and other deleterious debris from project areas. Vegetation shall be removed to such depth that organic material is generally not present. Clearing and grubbing shall extend to the outside of the proposed excavation and fill areas. The debris and unsuitable material generated during clearing and grubbing shall be removed from the project area and disposed of at a legal dumpsite away from the project area.

B. In the area of the proposed new pool, the existing fill shall be removed to the depth of competent materials (old paralic deposits). In general, this depth is anticipated to be approximately 9 feet or more. Due to the relative proximity of the bathhouse/pool

administration and recreation center buildings, grading removals shall set back from an imaginary plane extending from the top of the foundation down and away at a 2:1 gradient. The exposed soil subgrade, where fill placement or architectural flatwork is planned, shall be scarified to a depth of 12 inches, moisture conditioned near the optimum moisture content, and compacted to 90 percent relative compaction as evaluated in accordance with American Society for Testing and Materials (ASTM) Test Method D 1557.

C. It is anticipated that the proposed removals will result in a cut/fill transition across the pool site. If a cut/fill transition is created, the cut portion shall be overexcavated to a depth of H/3 below the bottom of pool elevation (where H is the maximum depth of fill underlying the pool) or 3 feet, whichever is greater. The overexcavated area shall then be rebuilt to pool bottom grade with compacted fill soils to create a relatively smooth fill transition beneath the pool.

D. In order to reduce the potential for shrinkage cracking, the pool decking shall be 6 inches thick and shall be underlain with at least 4 inches of clean sand. As a further measure to reduce cracking of pool decking, the subgrade soils to a depth of approximately 12 inches below the decking shall be compacted to a relative compaction of 90 percent or more in accordance with the latest edition of ASTM D 1557 at moisture contents generally above the laboratory optimum.

3.03 EXCAVATION

A. Checking Layout: Contractor shall, before commencing the excavation work, check all lines, stakes and levels for dimensions, angles, elevations and grades with the survey.

B. In areas where proposed swimming pool decking is anticipated, the subgrade shall be scarified to a depth of 8 inches, moisture conditioned to within 2% of optimum moisture content and compacted to 90%.

C. Except where extra excavation is directed by the Owner's Representative or Geotechnical Engineer, excavations made to a greater depth or size than indicated or required shall be filled with concrete or shotcrete as specified in Sections 13 11 02 / 13 11 03.

D. Dimensions: Excavate to proper dimensions as shown, cut square and smooth with firm level bottoms. Prepared excavations shall be approved by Geotechnical Engineer. Excavations shall be free of loose or disturbed materials.

E. Excess Water Control: Keep all excavations free from standing water by pumping, draining or providing proper protection against water intrusion. If soil becomes soft, soggy or saturated, perform additional excavation to firm soil not affected by water.

F. Form Removal: Make all excavations of sufficient size to permit installation and removal of forms and all other required work.

G. Alternate Forming: Sides of structures may be formed by neat excavations where banks will stand without caving. If banks cave, provide forming as required and

widen excavation to permit forming, bracing and inspection. Provide forming in conformance with Section 13 11 02 and all recognized safety standards.

3.04 BACKFILLING

A. Method: After concrete has been placed, forms removed and concrete work approved, backfill the excavations with earth to indicated or required grades. Carry on backfilling simultaneously on each side of walls or grade beams. Remove all rubbish and wood from the excavations before placing backfill.

B. Concrete Protection: Prior to placing any backfill, adequately cure all concrete and provide any bracing required to ensure the stability of the structure. Protect waterproofing and dampproofing against damage in a manner acceptable to the Owner's Representative. Remove bracing as backfill operations progress.

C. Material: Use the material from the excavations for backfilling, subject to approval by Soils Testing Agency. The earth shall be free from debris, large clods or stones.

D. Lifts: Place backfill in six (6) inch loose layers, bring to optimum moisture content and compact to ninety percent (90%) of maximum density, sloping down and away from the structures being backfilled.

E. Moisture: Rigidly control the amount of water used to insure optimum moisture conditions for the type of fill material used. Excessive amounts of water causing saturation of earth will not be permitted. Compaction by flooding or jetting is prohibited.

3.05 CLEAN-UP

A. Disposal: Haul away rubbish, debris, and rocks from site promptly and dispose of legally. Burning rubbish on site is prohibited.

B. Dust and Noise Abatement: During entire period of construction keep area and material being loaded sprinkled to reduce dust in air and annoyance to premises and surrounding property.

END OF SECTION

SECTION 13 11 02

SWIMMING POOL CONCRETE

PART 1 - GENERAL

1.01 WORK INCLUDED

A. Forming for cast-in-place concrete and shotcrete associated with swimming pools and pool decks.

B. Reinforcement for cast-in-place concrete and shotcrete associated with swimming pools and pool decks.

C. Cast-in-place concrete for swimming pool structures and pool decks.

D. Provide labor, materials and equipment as required to install sealant for all pool deck expansion joints, or any other caulking, as indicated on the aquatic Drawings and herein specified.

1.02 QUALITY ASSURANCE

A. Qualifications of Workers:

1. The entity performing the work of this Section shall have been successfully engaged in the respective trade for at least five (5) years immediately prior to commencement of the Work.

2. For actual construction operations, use only trained and experienced workers with a minimum of three (3) years experience with the materials and methods specified.

3. Provide at least one person who shall be present at all times during execution of the work of this Section, with a minimum of five (5) years experience with the type of materials being installed, the referenced standards, and who shall direct all Work performed under this Section.

B. Standards:

1. In addition to complying with the California Building Code (latest edition), comply with all pertinent recommendations contained in "Recommended Practice for Concrete Formwork," Publication ACI 347-78 of the American Concrete Institute.

2. In addition to complying with California Building Code (latest edition), comply with all pertinent recommendations contained in “Manual of Standard Practice for Detailing Reinforced Concrete Structures,” Publication ACI 315-74 of the American Concrete Institute.

3. In addition to comply with all local codes and regulations, comply with all pertinent recommendations contained in American Society for Testing and Materials (ASTM); ASTM C 920 “Standard Specification for Elastomeric Joint Sealants.”

4. Where provisions of applicable codes and standards conflict with the requirements of this Section, the more stringent provisions shall govern.

C. Tolerances: Construct all swimming pool concrete straight, true, plumb and square within a tolerance horizontally of one in 200 and vertically of one in 2000.

1.03 SUBMITTAL AND SUBSTITUTIONS

A. Provide submittals in conformance with the requirements of the Standard Specifications for Public Works Construction (Greenbook) and the City Standard Specifications for Public Works Construction (Whitebook).

B. Samples and Certificates, Concrete Reinforcement:

1. Provide all data and access required for testing.

2. All material shall bear mill tags with heat number identification. Mill analysis and report shall be made available upon request.

3. Material not so labeled and identifiable may be required by the Owner’s Representative to be tested by the testing laboratory selected by the Owner’s Representative and at no additional cost to the Owner, in which case random samples will be taken for one series of tests from each 2-1/2 tons or fraction thereof of each size and kind of reinforcing steel.

C. Submit proof of qualifications as specified in Article 1.02.A of this Section.

1.04 PRODUCT HANDLING

A. Delivery: Deliver materials to the Project Site in the manufacturer's original unopened containers with all labels intact and legible.

B. Storage: Store materials under cover in a manner to prevent damage and contamination, and store only the specified materials at the Project Site.

C. Protection: Use all means necessary to protect the swimming pool concrete before, during, and after installation and to protect the installed Work specified in other Sections.

D. Replacements: In the event of damage, immediately make all repairs and replacements necessary to the approval of the Owner’s Representative.

PART 2 - PRODUCTS

2.01 CONCRETE FORMWORK

A. Form Materials:

1. Form Lumber: All form lumber in contact with exposed concrete shall be new except as allowed for reuse of forms in Part 3 of this Section, and all form lumber shall be one of the following, a combination thereof, or an equal approved in advance by the Owner's Representative.

   a. "Plyform," Class I or II, bearing the label of the Douglas Fir Plywood Association; "Inner-Seal" Form as manufactured by Louisiana-Pacific, or approved equal.

   b. Douglas Fir-Larch, number two grade, seasoned, surfaced four sides.

2. Form Release Agent: Colorless, non-staining, free from oils; chemically reactive agent that shall not impair bonding of paint or other coatings intended for use.

B. Ties and Spreaders:

1. Type: All form ties shall be a type which do not leave an open hole through the concrete and which permits neat and solid patching at every hole.

2. Design: When forms are removed, all metal reinforcement shall be not less than two (2) inches from the finished concrete surface.

3. Wire Ties and Wood Spreaders: Do not use wire ties or wood spreaders.

C. Alternate Forming Systems: Alternate forming systems may be used subject to the advance approval of the Owner's Representative.

2.02 CONCRETE REINFORCEMENT

A. Bars: Bars for reinforcement shall conform to "Specifications for Deformed Billet-Steel Bars for Concrete Reinforcement," ASTM A-615, Grade 60.

B. Wire Fabric: Wire fabric shall conform to "Specifications for Wire Fabric for Concrete Reinforcement," ASTM A-185.

C. Tie Wire: Tie wire for reinforcement shall conform to "Specifications for Cold-drawn Steel Wire for Concrete Reinforcement," ASTM A-82 black annealed 16 gauge tie wire.

2.03 CAST-IN-PLACE CONCRETE

A. Concrete:

1. All concrete, unless otherwise specifically permitted by the Owner's Representative, shall be transit-mixed in accordance with ASTM C94. Concrete for water retaining structures that do not receive a waterproofing finish such as

ceramic tile or swimming pool plaster shall contain an integral waterproofing admixture.

2. The control of concrete production shall be under the supervision of a recognized testing agency, selected by the Owner in accordance with Section 01400 of the Specifications.

3. Quality: All concrete shall have the following minimum compressive strengths at twenty-eight (28) days and shall be proportioned within the following limits:

   a. 3,000 psi minimum compressive strength.

   b. 1” maximum size aggregate.

   c. 6.0 minimum sacks of cement per cubic yard.*

   d. 4” maximum slump.

   *For estimate only: to be determined by mix design.

4. Cement: All cement shall be Portland Cement conforming to ASTM C-150, Type V with 0.45 water-cement ratio, and shall be the product of one manufacturer.

5. Aggregates:

   a. Shall conform to “Standard Specifications for Concrete Aggregates,” ASTM C33, except as modified herein.

   b. Coarse Aggregate: Clean sound washed gravel or crushed rock. Crushing may constitute not more than 30% of the total coarse aggregate volume. Not more than 5% flat, thin, elongated or laminated material nor more than 1% deleterious material shall be present. 1" aggregate graded from 1/4” to 1”, fineness modulus 6.90 to 7.40. 1-1/2” graded from ½” to 1-1/2”, fineness modulus 7.80 to 8.20.

   c. Fine Aggregate: Washed natural sand of hard, strong particles and shall contain not more than 1% of deleterious material, fineness modulus 2.65 to 3.05.

6. Water: Clean, fresh, free from acid, alkali, organic matter or other impurities liable to be detrimental to the concrete (potable).

7. Admixtures: Admixtures shall be used upon approval of the Owner's Representative.

   a. Air-entraining admixture: Conform to ASTM C260.

   b. Water-reducing admixture: Conform to ASTM C494.

   c. Waterproofing admixture: Conform to ASTM C494.

B. Construction Joints: Use keyform for slab pour joints. Either preformed galvanized or PVC construction joint forms of a standard manufacturer may be used. Install per manufacturer's recommendations and tool edges of slabs.

C. Waterstops: PVC bulb-type for use between concrete pours / lifts, conforming with ASTM D 570, D 624, and D 638. Provide in configuration(s) as recommended by manufacturer for specific application. Greenstreak, W.R. Meadows, or approved equal.

D. Curing Materials:

1. Liquid Membrane (covered slab): Chlorinated rubber membrane forming, curing-sealing compound conforming to ASTM C309.

2. Liquid Membrane (exposed slab): Clear methyl and butyl methacrylate non-staining, membrane forming, curing-sealing compound conforming to ASTM C309.

E. Cement Grout and Drypack:

1. Cement Grout: Mix 1 part by volume of Portland Cement, 1/2 part by volume of water and fine aggregate enough to make mixture flow under its' own weight.

2. Drypack: Mix 1 part by volume of Portland Cement, 1/2 part by volume of water and fine aggregate enough to make a stiff mix that will mold into a ball. Mix no more than can be used in 30 minutes.

2.04 JOINT SEALANT MATERIALS

A. Caulking: Multipart, non-sag gun grade polyurethane based sealant meeting the requirements of ASTM C920-02, Type S or M, Mamemco International, Pecora, Sika Corp., Sonneborn Building Products, Tremco or approved equal.

B. Primer: Non-staining type, recommended by sealant manufacturer to suit application.

C. Joint Cleaner: Non-corrosive and non-staining type, recommended by sealant manufacturer; compatible with joint forming materials.

D. Sealant Backer Rod: Provide compressible polyethylene or polyurethane backer rod as recommended by the sealant manufacturer.

E. Bond Breaker Tape: Provide polyethylene tape or other plastic tape as recommended by sealant manufacturer, to be applied to sealant-contact surfaces where bond to substrate or joint filler must be avoided for proper performance of sealant.

F. Sand: Cover the surface of the caulking with #30 silica sand.

2.05 OTHER MATERIALS

A. All other materials, not specifically described, but required for proper completion of the work of this Section, shall be as selected by the Contractor subject to the advance review by the Owner's Representative.

PART 3 - EXECUTION

3.01 SURFACE CONDITIONS

A. Inspection:

1. Prior to all Work of this Section, carefully inspect the installed Work of other trades and verify that all such Work is complete to the point where this installation may properly commence.

2. Verify that all Work may be constructed in accordance with all applicable codes and regulations, the referenced standards, and the original design.

B. Discrepancies:

1. In the event of discrepancy, immediately notify the Owner's Representative.

2. Do not proceed with installation in areas of discrepancy until all such discrepancies have been fully resolved.

3. Failure to notify the Owner's Representative and give written notice of discrepancies shall constitute acceptance by the Contractor of existing conditions as fit and proper to receive work.

3.02 CONCRETE FORMWORK

A. Construction of Forms:

1. General: Construct all required forms to be substantial, sufficiently tight to prevent leakage of concrete paste, and able to withstand excessive deflection when filled with wet concrete.

2. Layout:

a. Form for all required cast-in-place concrete to the shapes, sizes, lines and dimensions indicated on the Drawings.

b. Exercise particular care in the layout of forms to avoid necessity for cutting concrete after placement.

c. Make proper provisions for all openings, offsets, recesses, anchorages, blocking and other features of the Work as shown or required.

d. Perform all forming required for Work of other trades and do all cutting and repairing of forms required to permit such installation.

e. Carefully examine the Drawings and Specifications and consult with other trades as required relative to providing for pipe and conduit penetrations, reglets, chases and other items in the forms.

3. Imbedded Items: Set all required steel frames, angles, bolts, inserts and other such items required to be anchored in the concrete prior to concrete being placed.

4. Bracings:

a. Properly brace and tie the forms together so as to maintain position and shape and to ensure safety to workmen.

b. Construct all bracing, supporting members and centering of ample size and strength to safely carry, without excessive deflection, all dead and live loads to which they may be subjected.

c. Properly space the forms apart and securely tie them together, using metal spreader ties that give positive tying and accurate spreading.

5. Wetting: Keep forms sufficiently wetted to prevent joints from opening up before concrete is placed.

B. Plywood Forms:

1. Design: Nail the plywood panels directly to studs and apply in a manner to minimize the number of joints.

2. Joints: Make all panel joints tight butt joints with all edges true and square.

C. Footing Forms:

1. Wood Forms: All footing forms shall be wood unless otherwise specifically approved by the Owner's Representative, or as specified in paragraph 3.02(C)(2).

2. Earth Forms:

a. Side walls for footings may be of earth provided the soil will stand without caving and the sides of the bank are made with a neat cut to the minimum dimensions indicated on the Drawings.

b. For excavation and backfill of earth forms, conform with applicable provisions of Section 13 11 01.

D. Reuse of Forms:

1. Reuse of forms shall be subject to advance approval of the Owner's Representative.

2. Except as specifically approved in advance by the Owner's Representative, reuse of forms shall in no way delay or change the schedule for placement of concrete from the schedule obtainable if all forms were new.

3. Except as specifically approved in advance by the Owner's Representative, reuse of forms shall in no way impart less structural stability to the forms nor less acceptable appearance to finished concrete.

E. Removal of Forms:

1. General:

a. In general, side forms of footings may be removed seven (7) days after placement of concrete, but time may be extended if deemed necessary by the Owner's Representative.

b. Forms for footings, foundations, grade beams, slabs, walls, and other formed concrete may be removed fourteen (14) days after placement of concrete.

2. Removal:

a. Use all means necessary to protect workers, passersby, the installed Work of other trades and the complete safety of the structure.

b. Cut nails and tie wires or form ties off flush, and leave all surfaces smooth and clean.

c. Remove metal spreader ties on exposed concrete by removing or snapping off inside the wall surface and pointing up and rubbing the resulting pockets to match the surrounding areas.

d. Flush all holes resulting from the use of spreader ties and sleeve nuts using water, and then solidly pack throughout the wall thickness with cement grout applied under pressure by means of a grouting gun; grout shall be one part Portland Cement to 2-1/2 parts sand; apply grout immediately after removing forms.

3.03 CONCRETE REINFORCEMENT

A. Bending:

1. General:

a. Fabricate all reinforcement in strict accordance with the Drawings.

b. Do not use bars with kinks or bends not shown on the Drawings.

c. Do not bend or straighten steel in a manner that will injure the material. (When opposite end is already encased in concrete.)

2. Design:

a. Bend all bars cold.

b. Make bends for stirrups and ties around a pin having a diameter of not less than two (2) times the minimum thickness of the bar.

c. Make bends for other bars, including hooks, around a pin having a diameter of not less than six (6) times the minimum thickness of the bar.

B. Placing:

1. General: Before the start of concrete placement, accurately place all concrete reinforcement, positively securing and supporting by concrete blocks, metal chairs or spacers, or by metal hangers.

2. Clearance:

a. Preserve clear space between bars of not less than one and one-half (1-1/2) times the nominal diameter of the round bars.

b. In no case let the clear space be less than one and one-half (1-1/2) inches nor less than one and one-third (1-1/3) times the maximum size of the aggregate.

c. Provide the following minimum concrete covering of reinforcement:

1) Concrete deposited against earth: three (3) inches.

2) Concrete below grade deposited against forms: two (2) inches.

3) Concrete elsewhere: As indicated on Drawings or otherwise approved by the Owner's Representative.

3. Splicing:

a. Horizontal Bars:

1) Place bars in horizontal members with minimum lap at splices sufficient to develop the strength of the bars.

2) Bars may be wired together at laps except at points of support of the member, at which points preserve clear space described above.

3) Whenever possible, stagger the splices of adjacent bars.

4) Splice forty (40) bar diameters minimum.

5) Provide non-contact lap slices for shotcrete.

b. Wire Fabric: Make all splices in wire fabric at least one and one-half (1-1/2) meshes wide.

c. Other Splices: Make only those other splices that are indicated on the Drawings or specifically approved by the Owner's Representative.

4. Dowels: Place all required steel dowels and securely anchor them into position before concrete is placed.

5. Obstructions: In the event conduits, piping, inserts, sleeves and other items interfere with placing reinforcement as indicated on the Drawings or otherwise required, immediately consult with the Owner's Representative and obtain approval of a new procedure prior to placing concrete.

C. Cleaning Reinforcement: Steel reinforcement, at the time concrete is placed around it, shall be free from rust scale, loose mill scale, oil, paint and all other coatings which will destroy or reduce the bond between steel and concrete.

3.04 SHOTCRETE REINFORCEMENT

A. The maximum size of reinforcement shall be No. 5 bars unless it can be demonstrated by preconstruction tests that adequate encasement of larger bars can be achieved. When No. 5 or smaller bars are used, there shall be a minimum clearance between parallel reinforcement bars of 2-1/2 inches (64 mm). When bars larger than No. 5 are permitted, there shall be a minimum clearance between parallel bars equal to six diameters of the bars uses. When two curtains of steel are provided, the curtain nearest the nozzle shall have a minimum spacing equal to 12 bar diameters and the remaining curtain shall have a minimum spacing of six bar diameters.

B. Lap splices in reinforcing bars shall be by the non-contact lap splice method with at least 2 inches clearance between bars. The enforcement agency may permit the use of contact lap splices when necessary for the support of the reinforcing provided it can be demonstrated by means of preconstruction testing, that adequate encasement of the bars at the splice can be achieved, and provided that the splices are placed so that a line through the center of the two spliced bars is perpendicular to the surface of the shotcrete work.

3.05 CAST-IN-PLACE CONCRETE

A. Conveying and Placing Concrete:

1. Before placing concrete, mixing and conveying equipment shall be well cleaned, and the forms and space to be occupied by concrete shall be thoroughly cleaned and wetted. Ground water shall be removed until the completion of the work.

2. No concrete shall be placed in any unit of work until all formwork has been completely constructed, all reinforcement has been secured in place, all items to be built into concrete are in place, and form ties at construction joints tightened.

3. Concrete shall be conveyed from mixer to place of final deposit in such a way to prevent the separation or loss of ingredients. It shall be placed as nearly as practicable in its' final position to avoid rehandling or flowing. Concrete shall not be dropped freely where reinforcing bars will cause segregation, nor shall it

be dropped freely more than six (6) feet. Use tremies, spouts and dump boxes in deep sections. Vibrators are not acceptable for facilitating concrete transport.

4. Concrete shall be tamped and spaded to insure proper compaction into all parts of forms and around reinfocement. A mechanical vibrator shall be used to thoroughly compact the concrete. Vibration must be by direct action in the concrete and not against forms or reinforcement.

B. Construction Joints / Expansion Joints: Construction joints and expansion joints shall be provided at locations and in the manner shown on the Drawings. With exception of existing concrete / new shotcrete joints, use PVC bulb-type waterstops appropriate for design condition between all concrete pours / lifts to avoid cold joints. Waterstops shall be placed in such a way to protect reinforcing steel from rust and oxidation.

C. Slab Finishes: Concrete slabs shall be compacted and screeded uniformly to grades shown. Push large aggregates below the surface with a screen tamper, screed and bull float. As soon as the surface becomes workable, it shall be wood floated, then finished as indicated on the Drawings to a uniform smooth, true surface in a neat and workmanlike manner. Carefully coordinate slab finish requirements with other trades (ceramic tile, pool plaster) to insure concrete finish is appropriate substrate for final finish material.

1. Contractor shall provide three mock-up deck samples, minimum 3'x 3', with a wedge anchor installed in one sample. These three (3) samples shall be constructed; one with a light broom finish, one (1) with a medium broom finish and one (1) with a heavy broom finish for determination and selection of an appropriate deck finish. Each sample shall be edged on all four sides to demonstrate a 3/4" radius edge. Anchor installation shall demonstrate acceptable interface between anchor and the top of deck. Deck samples shall remain on job site through final inspection for reference.

2. Pool Floor Slab: Heavy Wire Broom Finish.

D. Protection and Curing:

1. Concrete shall be protected from injurious action of the elements and defacement of any nature during construction.

2. All forms must be kept wet to prevent drying out of the concrete.

3. All concrete surfaces including footings must be kept wet for at least seven (7) days after concrete is placed.

4. Apply the appropriate curing materials, as specified in 2.03 of this Section, immediately after finishing slabs. Application shall be as specified by the manufacturer.

E. Form Removal:

1. Take care in removing forms so that surfaces are not marred or gouged and that corners are true, sharp and unbroken.

2. No steel spreaders, ties or other metal shall project from or be visible on any concrete surfaces.

F. Defective Work:

1. Cut out, remove and replace, or repair to the satisfaction of the Owner's Representative, concrete not meeting minimum strength, not formed as indicated, not true, plumb or level, not to required elevations, containing cracks detrimental to performance or appearance, containing shavings, debris or with honeycombs or voids.

2. Promptly perform work required to repair, patch, replace, render properly cleaned surfaces (by sandblasting if necessary) or otherwise make good any defective concrete, at Contractor's expense, including all expense of additional inspection, tests, or supervision made necessary as a result of defective concrete.

3.06 EXPANSION JOINTS

A. Temperatures: Do not install sealants when air temperature is less than 40°F.

B. Tooling: Tool exposed joints to a slightly concave surface using slicking materials recommended by the manufacturer. The tooling procedure shall press sealant against the sides of the joint. No materials shall be left "feathered" out or smeared on the abutting materials. Completed joints shall have a uniform professional appearance.

C. Joint Construction: Sealant joint width, thickness and cross-sectional profile to be constructed in strict accordance with the sealant manufacturer's recommendations.

D. Sand: At the appropriate time cover the sealant with sand to provide a sanded finish.

3.07 CLEAN-UP

A. Upon completion of the Work of this Section, immediately remove all swimming pool concrete materials, debris and rubbish occasioned by this Work to the approval of the Owner's Representative.

END OF SECTION

SECTION 13 11 03

SWIMMING POOL SHOTCRETE

PART 1 – GENERAL

1.01 WORK INCLUDED

A. Provide labor, materials and equipment as required to install wet mix shotcrete for swimming pool structures as indicated on the Drawings and herein specified.

1.02 QUALITY ASSURANCE

A. Qualifications of Workers:

1. The entity performing the work of this Section shall have been successfully engaged in the respective trade for at least five (5) years immediately prior to commencement of the Work.

2. For actual construction operations, use only trained and experienced workers with a minimum of three (3) years experience with the materials and methods specified.

3. Provide at least one person who shall be present at all times during execution of the work of this Section, with a minimum of five (5) years experience with the type of materials being installed, the referenced standards, and who shall direct all Work performed under this Section.

B. Standards: Except as otherwise indicated, provide shotcrete per American Concrete Institute Standard ACI 506. In addition, conform to recommendations contained in "Shotcrete," Brochure G-84 as published by the Gunite Contractors Association, Sylmar, California and the California Building Code (latest edition).

C. Mix Design: The Contractor shall submit a mix design for approval by the Owner's Representative prior to any placement of shotcrete. Mix design shall indicate source of aggregate and brands of cement and admixtures used. All mix designs shall take character of locally available aggregate into consideration and make adjustments as necessary to conform with specified design criteria.

D. Testing and Inspection: One test panel shall be provided for each 50 yards (or portion thereof) of shotcrete placed. The size of the strength test panel shall be per the direction of the Special Shotcrete Inspector. At least three (3) cores shall be taken from each test panel. (At least three (3) cores shall be taken from the completed work for each day of shotcrete operation.) Testing shall be performed by the Owner's designated Testing Lab and comply with Section 1913A, California Building Code. Continuous inspection of the shotcrete operation by a deputy inspector provided by the Owner shall be required. Inspection of shotcrete work shall comply with Section 1913A of California Building Code, and coring, sampling, soaking and testing per 1913A.5 and 1913A.10 of California Building Code. Contractor shall provide test panels for all required tests.

E. Tolerances: Construct all swimming pool shotcrete straight, true, plumb and square within a tolerance horizontally of one in 200 and a tolerance vertically of one in 2000.

1.03 SUBMITTALS AND SUBSTITUTIONS

A. Provide submittals in conformance with the requirements of the Standard Specifications for Public Works Construction (Greenbook) and the City Standard Specifications for Public Works Construction (Whitebook).

B. Materials List: Within thirty (30) days after issuance of Notice to Proceed, and before shotcrete materials are delivered to the project site, submit to the Owner's Representative a complete list of materials proposed to be used in this portion of the Work, showing manufacturer's name and catalog number of all items such as admixtures and curing membranes, and the name and address of the supplier of cement and aggregate to be used.

C. Submit proof of qualifications as specified in Article 1.02.A of this Section.

1.04 PRODUCT HANDLING

A. Protection: Use all means necessary to protect shotcrete materials before, during and after installation and to protect the installed Work specified in other Sections.

B. Replacements: In the event of damage, immediately make all repairs and replacements necessary to the approval of the Owner's Representative and at no additional cost to the Owner.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Cement: Cement shall be Type V Portland Cement with 0.45 water-concrete ratio conforming to ASTM C150. Cement type shall be the same for all shotcrete work.

B. Aggregate: ASTM C33, washed hard dense durable clean sharp sand from approved pit, free of organic matter and opaline, feldspar, or silicous magnesium substances and containing not more than 3% by weight of deleterious substances. When tested for organic impurities by ASTM C40 method, fine aggregate color not darker than reference standard color. When tested for soundness by ASTM C88 method, loss after 5 cycles not over 10% of fine aggregate.

C. Water: Potable, clean, fresh, free from acid, alkali, organic matter or other impurities liable to be detrimental to the shotcrete.

D. Admixtures: Admixtures shall only be used upon approval of the Owner's Representative.

PART 3 - EXECUTION

3.01 EXECUTION

A. Inspection:

1. Prior to all Work of this Section carefully inspect the installed Work of other trades and verify that all such Work is complete to the point where this installation may properly commence.

2. Verify that items to be imbedded in shotcrete are in place and that shotcrete may be placed to the lines and elevations shown on the Drawings, with all required clearance from reinforcement.

B. Discrepancies:

1. In the event of discrepancy, immediately notify the Owner's Representative.

2. Do not proceed with installation in areas of discrepancy until all such discrepancies have been fully resolved.

3. Failure to notify the Owner's Representative and give written notice of discrepancies shall constitute acceptance by the Contractor of existing conditions as fit and proper to receive the Work.

3.02 PREPARATION

A. General:

1. Thoroughly clean all areas where shotcrete is to be placed to insure proper bonding of shotcrete.

2. Where shotcrete is to be placed against smooth surfaces (i.e., cast-in-place concrete), sandblast surfaces to receive shotcrete to provide clean aggregate surface, thereby insuring proper bond between materials.

B. Ground Wires: Adequate ground wires, to be used as screeds, shall be installed to establish the thickness and surface planes of the shotcrete work. Ground wires shall be placed so that they are tight and true to line and grade and in such a manner that they can be easily tightened.

3.03 PROPORTIONING AND MIXING

A. Accurately control proportion of water to Portland cement to produce thorough and uniform hydration of the shotcrete that, when shot, forms a homogeneous mass containing neither sags nor dry sand formation.

B. Strength: Minimum 3,000 psi 28-day compressive strength unless otherwise indicated.

C. Discontinue shotcrete work if the time between the addition of mixing water to cement and aggregate, or cement to aggregates, and placement of shotcrete exceeds

ninety (90) minutes when the ambient temperature is below 85 degrees Fahrenheit, or exceeds sixty (60) minutes when the ambient temperature is above 85 degrees Fahrenheit.

3.04 SHOTCRETE PLACING, FINISHING, AND CURING

A. Operations: Utilize a standard type of air compressor, capable of providing a minimum of 250 cubic feet of air per minute per nozzle.

B. Placing: Except when shooting reinforcing, hold the nozzle perpendicular to and 2-1/2 to 3 feet from surface. At reinforcing bars, hold the nozzle so as to direct shotcrete behind the bars, and shoot each side of each bars separately. A nozzleman's helper equipped with an air jet shall precede the nozzle and blow out rebound or sand lodged behind bars, on forms, or placed shotcrete. Placing shotcrete horizontal members from the top is not allowed unless approved methods are employed to eliminate all rebound. Material shall emerge from the nozzle in a uniform flow. If flow becomes intermittent for any reason, direct the nozzle away from the surface until the flow is again steady and constant. Do not reuse rebound or loose sand for any purpose.

C. Puddled Shotcrete: Use of "puddled shotcrete" in which the air pressure is reduced and the water content is increased to facilitate placing in difficult locations is not allowed. Do not place shotcrete where nozzle stream cannot impinge directly on the involved surface. Where difficult shooting conditions occur, obtain proper results by maintaining correct air pressure and water ratio and reduce supply of material.

D. Construction Joints: Form joints with sloping beveled edges. Clean and dampen the hardened joint surfaces before placing additional shotcrete. Square edged construction joints are not allowed. The film of laitance which forms on the surface of the shotcrete shall be removed within approximately two hours after application by brushing with a stiff broom. If this film is not removed within two hours, it shall be removed by thorough wire brushing or sand blasting. Construction joints over eight hours old shall be thoroughly cleaned with air and water prior to receiving shotcrete.

E. Finishing: Rod exposed surfaces to true planes and lines on reaching the thickness and plane established by forms and ground wires. Tamp and wood float surfaces level and provide a rough raked finish. Carefully coordinate finish requirements with other trades (ceramic tile, pool plaster) to insure shotcrete finish is appropriate substrate for final finish material.

F. Curing: Keep shotcrete continuously damp for not less than seven (7) days after placing. Use sealed curing sheeting or other approved curing method where water curing is not feasible. Do not use curing compound of any kind.

3.05 DEFECTIVE WORK

A. Cut out, remove and replace, or repair to the satisfaction of the Owner's Representative, shotcrete not meeting minimum strength, not true, plumb or level, not to required elevations, containing cracks detrimental to performance or appearance, containing shavings, debris or with honeycombs or voids.

B. Promptly perform Work required to repair, patch, replace, render properly cleaned surfaces (by sandblasting if necessary) or otherwise make good any defective shotcrete at Contractor's expense, including all expense of additional inspection, tests, or supervision made necessary as a result of defective shotcrete.

3.06 CLEAN-UP

A. Upon completion of the Work of this Section, immediately remove all swimming pool shotcrete materials, debris and rubbish occasioned by this work to the approval of the Owner's Representative.

END OF SECTION

SECTION 13 11 04

SWIMMING POOL CERAMIC TILE

PART 1 – GENERAL

1.01 WORK INCLUDED

A. Furnish and install all swimming pool ceramic tile detailed on the Drawings, including, but not limited to, the following:

1. Gutter Bullnose Tile (Rim Flow Pool)

2. Bond Beam / Waterline tile (Rim Flow Pool)

3. Lane Line / Target Tile / 4’-6” Depth Tile

4. Depth / Caution Marker Tile (Rim Flow Pool)

5. Trim Tile (at Underwater Steps)

1.02 QUALITY ASSURANCE

A. All Work of this Section shall be performed or supervised by the Swimming Pool Subcontractor.

B. Qualifications of Workers:

1. The contractor / subcontractor for this portion of the Work shall have been successfully engaged in the respective trade for at least five (5) years immediately prior to commencement of this work, and shall demonstrate to the approval of the Owner’s Representative that his record of workmanship is satisfactory.

2. For actual construction operations, use only thoroughly trained and experienced workers completely familiar with the materials and methods specified.

3. Provide at least one person who shall be present at all times during execution of this portion of the Work and who shall be thoroughly familiar with the type of materials being installed, the referenced standards, and the requirements of this Work, and who shall direct all Work performed under this Section.

C. Standards: In addition to complying with all pertinent codes and regulations:

1. Manufacture of all tile shall be in accordance with ANSI A-137.1

2. Install ceramic tile in accordance with the recommendations contained in 2010 Handbook for Ceramic Tile Installation of the Tile Council of America, Inc.

D. Tolerances: Install all swimming pool ceramic tile straight, true, plumb and square within a tolerance horizontally of one in 200 and a tolerance vertically of one in 500. Waterline and gutter bullnose tile shall be level to 1/8" (+/- 1/16") around entire perimeter of swimming pool(s).

1.03 SUBMITTALS AND SUBSTITUTIONS

A. Provide submittals in accordance with the requirements of the Standard Specifications for Public Works Construction (Greenbook) and the City Standard Specifications for Public Works Construction (Whitebook).

B. Samples: Submit five (5) samples of each color and pattern in the specified groups. Character samples can be representative for review prior to screening of actual tile.

C. Master Grade Certificate: Prior to opening ceramic tile containers, submit a Master Grade Certificate, signed by the manufacturer of the tile used and issued when the shipment is made, stating the grade, kind of tile, identification marks for the tile containers, and the name and location of the Project.

D. Specifications: Submit five (5) copies of manufacturer's recommended installation specifications for this Work.

1.04 PRODUCT HANDLING

A. Delivery: Deliver all materials to the Project Site in the manufacturer's original unopened containers with all labels intact and legible.

B. Storage: Store all materials under cover in a manner to prevent damage and contamination, and store only the specified materials at the Project site.

C. Protection: Use all means necessary to protect swimming pool ceramic tile before, during and after installation and to protect the installed Work of all other trades.

D. Replacements: In the event of damage, immediately make all repairs and replacements necessary to the approval of the Owner's Representative.

PART 2 – PRODUCTS

2.01 TILE

A. Gutter Bullnose Tile (Rim Flow Pool):

1. Material: All gutter bullnose tile shall be unglazed ceramic mosaic tile with absorption rate of less than 1% as manufactured by Dal-Tile or approved equal. Contact Scott Chouinard at scott.chouinard@daltile.com (951) 757-4919.

2. Size: 1 x 2 inches (#C-701).

3. Color: Blue throughout the body of the tile #DK-353 "Iris".

B. Bond Beam / Waterline Tile (Rim Flow Pool):

1. Material: All bond beam tile shall be unglazed ceramic mosaic tile with absorption rate of less than 1% as manufactured by Dal-Tile or approved equal.

2. Size: 1 x 1 inches.

3. Color: Blue throughout the body of the tile #DK-353 “Iris”.

C. Lane Line / Target Tile / 4’- 6” Depth Tile:

1. Material: Group 3 quality, frost proof unglazed ceramic mosaic tile with absorption rate of less than 1% as manufactured by Dal-Tile or approved equal.

2. Size: 1 x 1 inches.

3. Color: Dal-Tile #D-311, ' Ebony' in 25 yard direction.

D. Depth / Caution Marker Tile (on Deck Surface and Waterline at Rim Flow Pool):

1. Material: All depth/caution markers tile shall be unglazed, ceramic mosaic tile with absorption rate of less than 1% as manufactured by Dal-Tile or approved equal.

2. Size: 1x1 inches.

3. Color: Integral color throughout the body of the tile #D-104 ‘Light Gray’ numbers and letters on ‘Blue’ field of #DK-353 “Iris”.

E. Trim Tile (on Underwater Steps):

1. Material: Group 3 quality, frost proof unglazed ceramic mosaic tile with absorption rate of less than 1% as manufactured by Dal-Tile or approved equal.

2. Size: 1 x 1 inches with S-812 quarter round. Color: Dal-Tile #D-311, ' Ebony'

3. Size: 2 x 6 inches with integral quarter round. Color: Black, non-slip. Inlays#CPC00022.

2.02 MORTAR

A. Sand for Mortar: Comply with requirements of fine aggregate for concrete.

B. Cement: Type I Portland Cement, conforming to ASTM C150.

C. Hydrated Lime: Conforming to ASTM C206 or 207, Type S.

D. Water: From a potable source.

2.03 GROUT

A. All tile grout shall be waterproof grout complying with the recommendations of referenced standards. Grout color shall be grey for dark backgrounds, white for light backgrounds (verify colors with Architect).

PART 3 – EXECUTION

3.01 SURFACE CONDITIONS

A. Inspection:

1. Prior to all Work of this Section, carefully inspect the installed Work of other trades and verify that all such Work is complete to the point where this installation may properly commence.

2. Verify that ceramic tile can be installed in accordance with the original design and all referenced standards.

B. Discrepancies:

1. In the event of discrepancy, immediately notify the Owner's Representative.

2. Do not proceed with installation in areas of discrepancy until all such discrepancies have been fully resolved.

3. Failure to notify the Owner's Representative and give written notice of discrepancies shall constitute acceptance by the Contractor of existing conditions as fit and proper to receive its Work.

3.02 INSTALLATION

A. Method:

1. Install all ceramic tile in strict accordance with installation method P601-90 of the 2010 Handbook for Ceramic Tile Installation of the Tile Council of America, Inc.

2. Be certain to install all ceramic tile perfectly level, flush, plumb, and to the finish grades and elevations indicated on the Drawings.

B. Interface:

1. Carefully establish and follow the required horizontal and vertical elevations to insure proper and adequate space for the work and materials of other trades.

2. Coordinate and cooperate as required with other trades to insure proper and adequate interface of ceramic tile Work with the Work of other trades.

3.03 GROUTING

A. Follow grout manufacturer's recommendations as to grouting procedures and precautions.

B. Remove all grout haze, observing grout manufacturer's recommendations as to use of acid and chemical cleaners.

3.04 CLEAN-UP

A. Upon completion of the swimming pool ceramic tile installation, thoroughly clean and polish the exposed surfaces of tile work. Completely clean work area of debris and rubbish occasioned by this Work and dispose of to the approval of the Owner's Representative.

END OF SECTION

SECTION 13 11 05

SWIMMING POOL PLASTER

PART 1 - GENERAL

1.01 WORK INCLUDED

A. Swimming pool plaster and waterproofing of swimming pool structures as indicated on the Drawings and herein specified.

B. Start-up and operation instructions to Owner's operations and maintenance personnel and properly balance swimming pool water chemistry until the Owner takes occupancy.

1.02 QUALITY ASSURANCE

A. Qualifications of Workers:

1. The entity performing the work of this Section shall have been successfully engaged in the respective trade for at least five (5) years immediately prior to commencement of the Work.

2. For actual construction operations, use only trained and experienced workers with a minimum of three (3) years experience with the materials and methods specified.

3. Provide at least one person who shall be present at all times during execution of the work of this Section, with a minimum of five (5) years experience with the type of materials being installed, the referenced standards, and who shall direct all Work performed under this Section.

B. Standards: Swimming pool plaster shall conform with requirements of Chapter 31B of California Building Code, latest edition. In addition, meet requirements of applicable portions of most current edition of the "Technical Manual," National Plasterers Council, Mission Viejo, California.

C. Start-up:

1. Furnish a swimming pool water chemistry consultant, with a minimum of five (5) years experience, possessing either AFO (Aquatic Facility Operator) or CPO (Certified Pool Operator) certification(s), to supervise and properly balance swimming pool water chemistry.

2. Demonstrate to the Owner's Representative that all systems are fully operational and that calcium hardness, total alkalinity, chlorine residual and pH levels are within specified limits.

3. Standards: Furnish labor and chemicals as required to condition the water properly to the following specifications:

a. Calcium Hardness: 150 to 300 parts per million (PPM)

b. Total Alkalinity: 100 PPM, minimum

c. Chlorine Residual: 1.00 to 1.50 PPM

d. pH Factor: 7.2 to 7.6

1.03 SUBMITTALS AND SUBSTITUTIONS

A. Provide submittals in conformance with the requirements of the Standard Specifications for Public Works Construction (Greenbook) and the City Standard Specifications for Public Works Construction (Whitebook).

B. Submit proof of qualifications as specified in Article 1.02.A and 1.02.C.1 of this Section.

1.04 PRODUCT HANDLING

A. Delivery: Deliver materials to the Project Site in the manufacturer's original unopened containers with all labels intact and legible.

B. Storage: Store materials under cover in a manner to prevent damage and contamination, and store only the specified materials at the Project Site.

C. Protection: Use all means necessary to protect the swimming pool plaster before, during, and after installation and to protect the installed Work specified in other Sections.

D. Replacements: In the event of damage, immediately make all repairs and replacements necessary to the approval of the Owner’s Representative.

1.05 ENVIRONMENTAL CONDITIONS

A. No plastering shall be done under unsuitable conditions of weather or temperature. No plastering shall be done when prevailing temperature is 40 degrees Fahrenheit or less.

B. Do not install plaster during rain and, if rain commences after plastering has begun, immediately protect the plaster from rain by all means necessary until the plaster has set.

C. Do not install plaster during wind greater than 10 mph and, if wind commences after plastering has begun, immediately protect the plaster from wind by all means necessary until the plaster has set.

PART 2 - PRODUCTS

2.01 CEMENT

A. Swimming pool plaster cement shall be white Portland cement conforming to ASTM C-150 as manufactured by Riverside Cement, Lehigh Cement, or approved equal.

2.02 AGGREGATE

A. Swimming pool aggregate shall be Georgia Marble Pool Aggregate, Riverside Premium Pool Aggregate, or approved equal. Mix per manufacturer's recommendations for specific application.

2.03 COLOR

A. All swimming pool plaster shall be white in color.

2.04 WATER

A. Water for swimming pool plaster shall be clean and free from injurious amounts of acid, alkali, and organics.

2.05 GUTTER, BALANCE TANK & SURGE CHAMBER WATERPROOFING

A. Xypex, Aquafin 2K/M, or approved equal. Mix and apply per manufacturer's recommendations for specific application. Color shall be Gray.

PART 3 - EXECUTION

3.01 SURFACE CONDITIONS

A. Inspection:

1. Prior to Work of this Section, carefully inspect the installed Work of other trades and verify that all such Work is complete to the point where this installation can properly commence.

2. Verify that swimming pool plaster can be installed in accordance with the original design and all referenced standards.

B. Discrepancies:

1. In the event of discrepancy, immediately notify the Owner's Representative.

2. Do not proceed with installation in areas of discrepancy until all such discrepancies have been fully resolved.

3. Failure to notify the Owner's Representative and give written notice of discrepancies shall constitute acceptance by the Contractor of existing conditions as fit and proper to receive the Work.

3.02 INSTALLATION OF GUTTER, BALANCE TANK & SURGE CHAMBER WATERPROOFING

A. Provide two (2) coats of the specified gutter and surge chamber waterproofing prior to plastering the swimming pool. Prepare surfaces to receive waterproofing and cure in conformance with manufacturer's recommendations. Provide steel trowel application method to ensure uniform smooth, dense surface finish.

3.03 INSTALLATION OF POOL PLASTER

A. Outdoor Pools or Spas:

1. Completion of other work: DO NOT commence plastering of swimming pool(s) or spa(s) until the following conditions have been met:

   a. The Health Department and/or other governing agencies have approved the pool(s) and/or spas) for plaster.

   b. All concrete pool deck construction is complete and the pool decks have been thoroughly cleaned.

   c. All landscaping in areas adjacent to the pool(s) or spa(s) is complete and the landscape irrigation system is operable.

   d. All painting in the pool area is complete.

   e. All welding and grinding in locations adjacent to the pool area are complete.

   f. The backwash sewer connection is complete.

   g. Pool(s) and/or spa(s) area(s) perimeter fencing installation is complete.

   h. All trash and debris have been removed from areas adjacent to the pool(s) or spa(s), particularly those areas that are normally upwind from the pool(s) or spa(s).

   i. All dust raising construction and/or activities in areas adjacent to the pool(s) or spa(s) are complete or mitigated.

   j. The circulation pump(s) is/are operational.

   k. The mechanical system has been flushed sufficiently to remove all dirt and debris from the piping system.

   l. All necessary chemicals (Chorine, pH adjuster, Sodium Bicarbonate and Calcium Chloride or any other required chemicals) are on site and ready for use.

   m. Obtain written approval from the Owner's Representative and the Architect.

B. Indoor Pools or Spas:

1. Completion of Other Work: DO NOT commence plastering of swimming pool(s) or spa(s) until the following conditions have been met:

   a. The Health Department has approved the pool(s) and/or spa(s) for plaster.

b. All work above the pool(s) and/or spa(s) is complete.

c. All painting in the pool area is complete.

d. All welding and grinding in locations adjacent to the pool area are complete.

e. The backwash sewer connection is complete.

f. All concrete pool deck construction is complete and the pool decks have been thoroughly cleaned.

g. The circulation pump(s) is/are operation.

h. The mechanical system has been flushed sufficiently to remove all dirt and debris from the piping system.

i. All necessary chemicals (Chlorine, Acid, Sodium Bicarbonate and Calcium Chloride) are on site and ready to use.

j. Obtain written approval from the Owner's Representative and the Architect.

C. Contractor accepts all liability from damage done to the pool plaster if the pool(s) or spa(s) is (are) plaster before the completion of the above listed items or without the written approval of the Owner's Representative and the Architect.

D. POOL PLASTER AUTHORIZATION FORM:

1. The pool(s) and or spa(s) at Memorial Pool is/are herby approved for the installation of the pool plaster. Pursuant to the requirements of specification section 13 11 05, paragraph 3.03.

Owner	Date
Architect / Project Manager	Date

E. Preparation:

1. Do not apply plaster over dirt, rust, scale, grease, moisture, scuffed surfaces or conditions otherwise detrimental to the formation of a durable plaster finish.

2. Consult with manufacturer on application to specific surfaces being treated. Follow manufacturer's recommendation for curing of cast-in-place concrete or shotcrete surfaces prior to application of plaster.

3. Protect ceramic tile, decking, deck equipment, gratings, fittings and other items by suitable covering or masking.

4. Mask or remove all hardware, hardware accessories, machined surfaces, plates, lighting fixtures and similar items in place not to receive pool plaster. Following completion of plaster for each space or area remove masking. Re-install all removed items utilizing workers skilled in the trades involved.

F. Application:

1. Into the parging coat of the concrete surfaces, trowel a finish coat of the specified marble plaster to a thickness between 1/4" and 3/8" maximum. If leveling coat is required, use a brown coat application of one part cement to three parts clean, washed sand.

2. Float the plaster to a uniform plane and trowel to a smooth, dense, impervious surface using extreme care to avoid stains.

3. Take special care in finishing around pool fittings, making sure to mask off or plug openings so as not to fill such openings with excess plaster. Be certain to completely enclose pool fittings with plaster to insure a leak-proof seal around pipes, fittings, lights, anchors, etc.

4. Accurately interface with the finish planes of items installed by other trades.

3.04 CURING

A. Preparation: Anticipate the need for required equipment and have all such equipment immediately available for use upon completion of pool plastering.

B. Pool Filling:

1. After the plaster has sufficiently dried and before drying has proceeded to a damaging point, cure the plaster by gradually filling the pool with water, preventing all damage to finished plaster surfaces.

2. Flow the water continuously until the pool is filled.

3. When the weather is hot and/or water pressure is low, keep the pool walls damp while the pool is filling.

4. Coordinate with Contractor to ensure that the pool is continuously monitored while filling to prevent overfill.

3.05 EQUIPMENT ACTIVATION

A. All water chemistry and filtration mechanical equipment shall be operational upon filling of pool after plaster. Chemicals and other related support items as supplied by Contractor, shall be in supply at start-up.

B. For the first fourteen (14) calendar days after completion of the pool plaster, brush all plastered surfaces at least twice a day and coordinate with General Contractor to ensure

that the plaster is carefully maintained after the initial fourteen day period. In addition, coordinate with the Contractor to ensure that pool filtration equipment is continuously running during the initial fourteen day period.

C. Start-up and provide qualified personnel to operate pool equipment for a period not less than fourteen (14) days after the pool is placed in operation, or until the Owner takes occupancy of the facility or letter of substantial completion. During this time, Contractor shall instruct and supervise the Owner's personnel in the various operating and maintenance techniques involved. Contractor shall be responsible for supply of chemicals during this not less than fourteen (14) day period and at time of turnover to Owner, chemical storage tanks shall be full. (Owner's personnel shall be fully trained and capable of assuming swimming pool maintenance tasks, training may begin before Owner takes occupancy).

3.06 CLEAN-UP

A. Upon completion of swimming pool plaster, remove all materials, equipment and debris occasioned by this Work and leave the job site in a clean and presentable condition. Perform all such clean-up to the approval of the Owner’s Representative.

END OF SECTION

SECTION 13 11 06

SWIMMING POOL / WET PLAY EQUIPMENT

PART 1 – GENERAL

1.01 WORK INCLUDED

A. Swimming pool equipment items required for this Work as indicated on the Drawings and specified herein.

1.02 QUALITY ASSURANCE

A. Qualifications of Workers:

1. The entity performing the work of this Section shall have been successfully engaged in the respective trade for at least five (5) years immediately prior to commencement of the Work.

2. For actual construction operations, use only trained and experienced workers with a minimum of three (3) years experience with the materials and methods specified.

3. Provide at least one person who shall be present at all times during execution of the work of this Section, with a minimum of five (5) years experience with the type of materials being installed, the referenced standards, and who shall direct all Work performed under this Section.

B. All equipment supplied or work performed shall comply with regulations governing public swimming pools and spas as contained within Chapter 31 of California Building Code, latest edition.

1.03 SUBMITTALS AND SUBSTITUTIONS

A. Provide submittals in conformance with the requirements of the Standard Specifications for Public Works Construction (Greenbook) and the City Standard Specifications for Public Works Construction (Whitebook).

B. Required submittals include:

1. Swimming Pool Fittings as specified in Article 2.01 of this Section.
2. Swimming Pool Deck and Mechanical Equipment as specified in Article 2.02 of this Section.

C. Submit proof of qualifications as specified in Article 1.02.A of this Section.

D. The equipment shown on the plans represent the first listed items in the technical specifications. The Contractor shall be responsible for all required field coordination and installation of any approved equal product to provide a fully working and warranted system. The Contractor shall submit detailed shop drawings for any products used other than the first listed specified items. Contractor provided shop drawings shall include details and quality equal to the original plans and construction

documents. The Contractor shall provide any and all required engineering including but not limited to structural and anchorage requirements for any proposed equipment other than the first listed specified equipment. The Contractor is responsible to provide a factory certified representative(s) to start-up and provide on-site training for all swimming pool mechanical equipment provided.

1.04 PRODUCT HANDLING

A. Protection: Use all means necessary to protect swimming pool equipment items before, during and after installation and to protect the installed work specified in other Sections.

B. Replacements: In the event of damage, immediately make all repairs and replacements necessary to the approval of the Owner's Representative.

PART 2 – PRODUCTS

2.01 SAFETY EQUIPMENT

A. First Aid Kit for 50 Persons with two (2) wool blankets: Marine Rescue or approved equal. Quantity as required by the Department of Health, one (1) minimum.

B. Rescue Tubes (minimum 49" long) and Life Ring Buoy (minimum 24" in diameter), U.S. Coast Guard Approved: Marine Rescue or approved equal. Quantity as required by the Department of Health, one each (1) minimum.

C. 3/16" diameter Throw Rope, complete with lemon foot, for use with Life Ring Buoy: Kiefer, United Industries, or approved equal. Quantity as required by the Department of Health, one (1) minimum.

D. Rescue Hooks, 16' long x 1-1/2" aluminum pole and stainless steel mounting hardware: Kiefer, Pentair or approved equal. Quantity as required by the Department of Health, one (1) minimum.

E. Pool Safety Signs: As required by the Department of Health. Submittal required. Placement at the pool site shall be in conformance with Health Department Inspector. One (1) set minimum.

2.02 MAINTENANCE EQUIPMENT

A. Commercial Pool Vacuum: Commercial Pool Vacuum: Provide pool vacuum cart with a 155-square foot single-cartridge filter, lid-mounted handle, separate lid-mounted bracket for electrical cord, and two rubber-tired ball bearing wheels with grease fittings. Cart and filter shall be fabricated from schedule 304 stainless steel with welds treated and passified. Provide Whisperflo pump with a 1 1/2 hp, 115/230 volt, maximum 20 amp draw @ 120 volts, single phase motor and integral trap. Pump shall be UL and NSF listed, have 2" suction and 1 1/2" discharge fittings, and have a brass priming valve with hose bib. Entire pump assembly shall be anchored to vacuum cart with two stainless steel bolts. Provide a 100 foot 10 AWG 3/C SJ electrical cord with ground fault interrupter (GFI) plus. Cord shall be wired to a double pole, 30-amp switch which shall be mounted on pump motor. One (1) required.

B. Heavy Duty Vacuum Hose: 2" x 50' with hose connector. Pentair, Smooth Bore or approved equal. One (1) required.

C. Utility Pole: 24' fiberglass with connectors. Pentair, Skimlite or approved equal. Two (2) required.

D. Pool Wall Brush: 36" wide professional quality. Pentair or approved equal. One (1) required.

E. Leaf Skimmer: 30" x 8" x 12", professional quality. Pentair, Spectrum or approved equal. One (1) required.

F. Water Quality Test Kit, Professional Grade, Taylor Technologies Model #1741C, LaMotte Model #PRO250-NJ or approved equal. One (1) required.

2.03 SWIMMING POOL FITTINGS

A. Main Drain Frame & Grate (18" x 18"): Lawson Aquatics #MLD-SG-1818 Super Sump VGBA compliant. Two (2) required. Hayward 1-1/2" collector tubes #SP1056 and Hayward 1-1/2" hydrostatic relief valves #SP1055, or approved equal, two (2) required. **Contractor shall provide to the Owner a Certificate of Compliance, signed by a licensed design professional, for main drain sump(s) and frame(s) and grate(s), as required by the Virginia Graeme Baker Act.**

B. Floor Return Inlet 1-1/2" Adjustable: StaRite #08417-0000, United Industries, or approved equal. Thirty-five (35) required.

C. Swimming Pool Underwater Lights: Pentair #600112, Intellibrite white LED, stainless steel face rings, 70 watt and LWC. Stainless steel niches, Pentair #78210600 with 1" hubs, or approved equal. Sixteen (16) required.

D. Junction Box for Underwater Lights, completed with strain reliefs: Hydrel #1719, Appleton or approved equal. Eight (8) required.

2.04 SWIMMING POOL DECK EQUIPMENT

A. Starting Platform Anchors: KDI-Paragon "Competitor" #23140, 10" deep, no known equal. Seven (7) required.

B. Stanchion Sockets: 1.90" I.D. Bronze. KDI-Paragon 38201TC, no known equal. Ten (10) required.

C. Stanchion Posts: 1.90" O.D. x .145 wall. KDI-Paragon Six (6) #38106, and Six (6) #38301, no known equal.

D. Lane Cup Line Anchor with insert: Spectrum # 58316 or equal. Twenty-four (24) total.

E. Racing Lanes, 25 Yard: Competitor #200-330, no known equal, colors selected by Architect (verify). Eleven (11) required. Provide two (2) additional lanes to be utilized with stationary water polo course.

F. Racing Lane Reel with Cover: KDI-Paragon #75101SS with cover #75133, no known equal. Two (2) required.

G. Moveable Lifeguard Chair: 1.90" O.D. x .065 wall. KDI-Paragon 20302, no known equal. Two (2) required.

H. Adjustable Grab Rails: KDI-Paragon #30302, 1.90" O.D. x .109" wall, no known equal. Two (2) sets required.

I. Recessed Steps, Set of 3: KDI-Paragon #32102, no known equal. Two (2) sets of three required.

J. Hand Rails: Paragon custom 84" three bend, 1.90" O.D. x .065" wall, no known equal. Eight (8) required.

K. Anchor Sockets for Grab Rails & Hand Rails: KDI-Paragon 28102, no known equal. Twenty-four (24) required.

L. Stainless Steel Escutcheon Plates for Grab Rails & Hand Rails: KDI-Paragon 28301, no known equal. Twenty-four (24) required.

M. Disabled Lift: Spectrum #SL-325 Swim-Lift II self operated, or approved equal. Furnish with anchors, one (1) required.

N. Backstroke Pennants: 'Champion' 3/16" diameter vinyl coated cable #50-175; 'Champion' hardware package #53-030, and 'Champion' 12" x 18" vinyl coated polyester pennants #53-020 Lincoln Equipment, Knorr Systems or equal.

O. Pool Cover System: (T-Star or equal)

1. A pool cover system as described below shall be provided and shall include all the specified features, without exception. Submittal data must include complete documentation relating to all the specified features and include manufacturer's sales literature, specification sheets, and installation/operation/maintenance manuals. Upon written request by the specifying agent, the following samples must be provided: samples of tubing used for storage reel winding tubes and end frames; a sample winding tube bearing; a sample castor wheel assembly; and a cover sample measuring at least 8" x 11", including weighted side edge, reinforced end edge, and grommet.

2. Cover Material:

a. Material shall be woven, 10 by 10 count per inch, high-density polyethylene, ultraviolet stabilized film fabric, laminated to both sides of 1/8" thick, closed cell, medium density, white, polyethylene foam. The woven polyethylene film fabric shall be coated on both sides with an ultraviolet stabilized, chemically resistant polyethylene coating. The combination of film, foam and woven components shall be non-toxic, non-absorbent, non-permeable and buoyant. Color shall be blue on upper

surface and black on under surface. In addition to the above, cover must meet the following requirements:

Thickness	1/8 inch minus or plus 10%
Foam Density	2 lbs. per cubic foot
Weight	5 oz. per square foot
Tensile Strength	318 lbs. (ASTM 168264)
Tear Strength	60 lbs. (ASTM D2261-71)
Bursting Strength	(Mullen Tester): 425 psi (ASTM 751-73)
Service Temperature	-40°F to +160°F
K Factor	.25 BTU/sq. ft.-Hr-°F/inch (ASTM D2326)
Reinforced Edge Tear Strength	1225 lbs. pull strength, corner to corner
Open Seam Tear Strength	70 lbs.

3. Cover Design Criteria:

   a. Cover panels shall totally cover the surface of the pool without gaps or overlaps with reinforced cutouts to accommodate rounded corners, step areas, rails, etc. Cover panels shall be of the following quantities and sizes:

Qty.	**Size**
6	13 feet, 8 inch x 75 feet, 1 inch

   b. Along end and side edges of each panel, a weighted material shall be sewn in and shall be continuous, non-corrosive and conform to the flat shape of the cover. End edges shall be reinforced with a double layer of polyethylene-coated film fabric and designed in such a manner as to prevent panels from dividing when the are being pulled across the water. On all corners, weighted edge shall wrap corners and be itself encapsulated by the two layers of end reinforcement. The entire corner construction shall be reinforced with an 1/8" thick load dispersion plate and non-corrosive grommet.

   c. Both ends of each cover panel shall be equipped with no less than three (3) non-corrosive grommets and quick-release loops for easy connection to the storage reel or to the next cover panel. All sewing shall be ultra-violet stabilized and chemically resistant 100% polyester thread. Main body seams shall be welded, glued or heat sealed. Complete mechanical attachment with lock-stitched thread shall be required. Warning labels consistent with the recommendations of the Federal Consumer Protection Agency shall be permanently affixed to each end of each cover panel and to the sides of perimeter panels.

4. Storage Reels:

   a. The following quantity, type, and size of storage reels shall be provided:

Qty.	Winding Tubes Per Reel	Length of Winding Tubes
2	3	16 Foot

   b. Storage reel frame, winding tubes, castors, brake shafts, cranks and fasteners shall be made of type 304 stainless steel. Each reel shall have six wheels, each of which shall be 6 inches in diameter, be rated at 1150 pounds load capacity and be made of solid polyurethane. Wheels shall be lubricateable through grease fittings on stainless steel axle shafts and have stainless steel swivel yoke assemblies. The reel shall have two frame mounted, screw-type brakes with pads that lock directly to the pool deck and have a total of 18 square inches of total braking surface. Castor brakes or other types of foot-operated or lever-operated brakes will not be considered equal. Each winding tube shall be 4 1/2 inches in diameter; have a wall thickness of .120 inches; and shall consist of continuous length of tubing without joints or welds. Reels with tubes fabricated from two or more pieces of tubing joined together will not be acceptable. End frames shall be fabricated from 1 1/2 inch square Schedule 304 stainless steel box beam tubing with .120" wall thickness. To facilitate field repair, 3/8" stainless steel bolts, nuts and washers shall be used to connect major reel frame parts, wheels, brakes, bearings and winding tubes. Reels that use welding to connect these components will not be considered equal. Winding tube bearings shall be heavy duty, self-aligning, pillow block ball bearings with set screws to secure tube shafts and prevent their lateral movement. All bearings shall be lubricateable through grease fittings. Plastic surface bearings will not be acceptable.

   c. Each storage reel shall be provided with a protective cover constructed of vinyl-laminated polyester cloth, 1000 denier, totaling 13 ounces per square yard.

5. Measuring and Training:

   a. A representative of the manufacturer shall visit pool site to confirm measurements prior to fabrication of cover, and once cover is delivered, train operating personnel and supervise initial installation of cover.

6. Warranty:

   a. Cover panels shall be provided with manufacturer's three- year full replacement warranty covering defects in material and workmanship. Storage reel shall be provided with manufacturer's 10-year warranty covering defects in material and workmanship

2.05 CIRCULATION PUMP(S) TWO (2) TOTAL

A. ‘Pentair’ CHK-75, 7 1/2HP, 208V 3PH, rated at 380 GPM,(760 GPM combined) @ 60 Ft. TDH with integral strainer.

2.06 SWIMMING POOL FILTRATION SYSTEM (Eko^3, Nemato, or equal)

The filter system specified herein shall be the standard cataloged product of a company regularly engaged in the manufacture of water treatment equipment. The purpose of this specification is to establish the minimum design, performance, quality, and service standards for the proposed equipment. Equipment provider shall have a minimum of five year's experience in the manufacture of such specified Commercial/Industrial grade water treatment equipment. The equipment shall consist of filter vessel(s), internal distribution and collection system, immediate face piping, operating valves, backwash sightglass, air relief systems, gauges, hydraulic pressure supply system, electronic operational control systems, system operating setup/startup and fifteen (15) year warranty.

Requests for substitutions for the specified components and materials will not be considered unless equal to the specified system in every respect and must be submitted to the specifying agent not less than twenty (20) calendar days prior to bid date. Requests for substitutions must include, but not be limited to:

- List containing contact name and telephone number of ten like systems, each of which shall utilize all specified features and employ fiberglass filament wound vessels, and electronic filter control devices.
- Complete documentation and that proves proposed unit includes all of the specified features.
- Manufacturer's sales literature.
- Engineering drawings, structural and seismic calculations prepared by a licensed Civil Engineer.
- Certification listings.
- Installation/operation/maintenance manuals.
- Name and address of the site-local, factory-authorized startup and service representative with affidavit of last date of certification.

Failure to provide this or any other information necessary to confirm that all specified features are provided will be cause for rejection of substitution request. Prior to ten (10) days before bid date, all prospective bidders will be notified in writing of any proposed substitutions.

A. Filter Area And Flow Rate:

1. The filter system shall be Eko-42-200-3 high-rate permanent media filter vessels with a total effective filter area of 60 square feet. When operating at 15 gallons per minute, per square foot of filter area, the filter system will have a capacity of filtering 900 gallons per minute.

B. Filter Vessel:

1. Vessel:

a. The filter vessel will be 42" inside diameter, will have 20.0 square feet of filter area and shall be designed for a maximum working pressure of 100 psi with a 4-to-1 safety factor for minimum burst. The design shall be capable of withstanding, without leaks or

structural failure, a repetitive pressure test consisting of 250,000 cycles of 0 to 100 psi. This is required to ensure long service life, reduce potential liability and guarantee safe operation.

b. Materials used in the construction of the vessel shall be in accordance with Article RM-1 of ASME Boiler and Pressure Vessel Code, Section X and ASME RTP-1, most current versions. The vessel shell shall be fabricated throughout of a continuous and woven premium grade glass fiber roving with a laminate matrix of un-pigmented polyester resin and hardener. High stress areas shall be reinforced with Kevlar® and/or carbon fiber. Resin-rich layers shall be resistant to UV, weathering, stress cracking and de-laminating, and shall have a field history of performance. The minimum laminate properties shall be as follows:

Tensile Strength (ASTM D-638)	-	42,000 psi
Tensile Modulus	-	2.2×10^6 psi
Flexural Strength (ASTM D-790)	-	50,000 psi
Flexural Modulus	-	1.6×10^6 psi
Heat Distortion Temp. (ASTM D-638)	-	180° F @ 264 psi
Barcol Hardness (ASTM D-2533)	-	45 (Mod #934)
Structural Adhesive Bond Strength	-	1,500 psi

c. Attachments, if any, to the vessel shall be made with a structural adhesive compatible with the laminate used to fabricate the vessel.

d. The vessel shall incorporate two (2), six-inch (6”) grooved pipe ports located in the top of the vessel side shell to serve as influent and effluent plumbing connections. One (1), three-inch (3”) port shall be located in the lower front portion of the vessel to serve as a winterizing and media dump port connection. One (1), three-inch (3”) port shall be located in the upper-most portion of the side shell to serve as a connection for a manual air relief valve. Bulkhead through-port connections will not be considered for this application in order to preclude fitting failure and structural weaknesses inherent with vessels using bulkhead fittings.

e. A 12" x 16" viewing window/access manway shall be fitted at the front end of the vessel to provide operation and periodic media examination, and ease of access for media loading. Manways or manholes located in the side shell of the vessel will not be permitted. Manways or manholes with metal reinforcement will not be allowed, due to inherent weaknesses.

f. Following fabrication, the entire vessel shall be cured to ensure uniformity of strength.

g. Each filter vessel shall be subjected to an in-shop hydro pressure test of 100 psi for a period of four (4) hours. Verification of this test and results shall be submitted to the Owner at time of delivery.

h. Vessel shall be supported by two (2) foam-filled, molded polyethylene saddles, which shall allow the vessel to withstand load forces specified for seismic zone 4 without damage. Certified engineering drawings are required to confirm this capability. Saddles shall be attached to vessel with a permanent adhesive.

Vessel to saddle attachment with tank through-bolts is not acceptable. A positioning template, and four (4) 3/4" x 7" anchor bolt sets with leveling shims shall be provided with each vessel to ensure proper installation.

i. Coated and/or non-coated metal vessels and/or fiberglass vessels with metal reinforcement or fiberglass vessels employing inner tanks (bladders) will not be considered for this application. Historical problems, related to corrosion of metal tanks, an inability to bond inner and outer fiberglass tanks (bladders), and the extreme difficulty associated with the repair of tank bladders, will not allow their use.

2. Distribution and Collection System

a. Internal components shall be hydraulically balanced to prevent migration and channeling of the filter media during the filter cycle and must uniformly fluidize the filter media in the backwash cycle without breakthrough at any one location. Internal component design shall accommodate, during "OFF" cycle, that the filter system shall remain full of water.

b. The influent distribution system shall be fabricated of no less than 12 ABS distribution lenses - each having two-inch (2") IPS connections, PVC pipe, and fittings. The distribution system design shall accommodate a Reynolds Number not to exceed 2000. The collection system shall consist of PVC fittings, six-inch (6") Schedule 80 PVC pipe and molded polypropylene reverse "V" slotted laterals. The laterals shall be designed to retain filter media with minimum head loss. A minimum of 20 molded laterals shall be utilized in the filter vessel with flow velocity not exceeding 6 feet per second at designed filter flow rate. Non-molded laterals will not be considered acceptable for this application. Collection system hydraulic design calculations will be required.

3. Air Relief System

a. An automatic air bleed system shall be provided. An anti-plug protective shield screen shall be a part of the assembly. A manually operated external air relief shall also be provided for the vessel.

4. Winterizing/Drain and Media Dump Port

a. At the lowest point of the front of the vessel a three-inch (3") port shall be provided. The port shall allow the evacuation of all water from the vessel for the purpose of winterizing or service. No media shall be allowed to leave the vessel during the draining process. The port shall also facilitate the removal of the filter media from the vessel.

C. Backwash Valving and Piping: Each filter vessel within the system shall be cleaned individually using filtered water provided by adjacent filter vessels. Reverse flow

backwash with raw source water will not be allowed. Maximum allowable backwash flow rate will be 400 gallons per minute.

1. Backwash Valve:

    a. One (1), two-way, three-port, six-inch (6”) backwash valve shall be supplied with each vessel. The valve body shall be injection-molded of ABS plastic all external components will incorporate UV inhibitors. Valves using metal bodies and covers, coated or non-coated, will not be approved. Grooved-type fittings shall be provided at each of the valve ports for connection to the filter vessel and manifold piping. Couplers shall be provided at each of the valve ports for connection to the filter vessel and manifold piping. The couplers shall be injection-molded of Isoplast 101LGF40NAT plastic and shall contain UV inhibitor. Each valve shall be fitted with a hydraulic diaphragm designed to operate a sliding flow direction piston. Valve internal shaft, nuts, washers and bolts shall be 316 stainless steel. All stainless steel components shall be passivated and rinsed after forming and machining.

    b. The backwash valve shall be designed to allow for continuous circulation pump operation during the backwash of the filter system that will prevent the loss of circulation pump prime and damage to boiler, chemical feed systems and piping that can result by repetitive on/off cycling of circulation pump. Valves requiring external linkage for synchronization of their operation will not be allowed.

2. Rate of Flow Valve:

    a. A tamperproof, gate-type valve shall be supplied for use on the effluent manifold. The valve shall be made of PVC, will be field-adjustable, ensuring the proper system flow rate. The rate of flow valve shall be manually set using a removable tool. Standard butterfly and/or gate-type valves will not be allowed.

3. Backwash Sightglass Valve:

    a. A tamperproof, gate-type valve shall be supplied for use on the waste manifold. The valve shall be made of PVC, will be field-adjustable, ensuring the proper system backwash flow rate. The backwash rate shall be manually set using a removable tool. Standard butterfly and/or gate-type valves and separate sightglass will not be allowed.

4. Piping:

    a. To minimize floor space requirements and provide unhindered access to filter controls, backwash valves, media dump port, and vessel access openings, all piping shall be located on top of the horizontal filter vessel. All 6" manifolds shall be fabricated from Schedule 80 PVC pipe and fittings. All manifolds 8" and larger shall be fabricated Schedule 80 piping with pulled fittings, in manifold

sections not exceed two tank lengths. Influent and effluent manifolds shall be 8" IPS and the waste manifold shall be 6" IPS. All piping shall be factory-assembled and pressure tested.

D. Operational Control

1. Automatic Control Device:

a. An Automatic Control System (ACS) shall be provided, which will allow for the automatic and manual manipulation of the filter backwash operation.

2. Functions and Features

a. The ACS shall perform the following functions and features:

3. Automatic Filter Backwash:

a. Initiate - at filter system via field-adjustable differential set point

b. Ability for the optional initiation of backwash via and external device, i.e., time of day/day of week set point time clock or System6 chemical controller

c. Initiate - manually activated automatic backwash cycle

d. Initiate - backwash by manual manipulation of multiport valve

e. Initiate on/off - Pressure Accumulation System "HydroForce" pump actuation

4. Multiport Valve:

a. Distribute water for the hydraulic actuation of filter system valves
b. 24 VAC, continuous drive motor
c. Constructed of non-corrosive ABS and stainless steel, metallic multiport valves will not be approved - multiple solenoid valves will not be approved

5. Housing and Mounting:

a. The ACS shall be housed in a non-metallic NEMA 4X rated enclosure. The enclosure and connections shall be designed to eliminate any possibility of corrosion or damage to the internal components of the control.

6. Multiport Valve:

a. The multiport valve wetted components shall be injection-molded ABS with stainless steel shaft and springs. The unit shall distribute water for the hydraulic actuation of the filter system valves. Porting shall be 3/8" IPS minimum, employing 1/2" IPS tubing, and shall not retard the opening or closing of the backwash valves beyond 10 seconds. The multiport valve will be equipped with an indicating dial for valve operating sequence and home position. The multiport valve 24 VAC stager drive motor shall be installed in an independent enclosure of the NEMA 4X type.

b. System serial number, model number, operating pressure, media information and basic operating instructions shall be permanently affixed to the multiport valve enclosure. The label shall be treated to resist the mechanical room environment. The enclosure shall be directly attached to the filter system.

7. Transformer:

a. A line voltage to 24 VAC transformer shall be provided. The transformer shall be mounted in an independent enclosure of the NEMA 4X type. The transformer and enclosure shall be of the wall-mount type and shall be posted near the electronic mechanical room control device.

E. Gauges:

1. Two (2), four-inch (4") pressure gauges shall be provided. The gauges shall indicate influent and effluent pressures of the filter. The gauges shall be mounted with the filter system multiport valve enclosure, within a common gauge-mounting bracket.

F. Hardware:

1. All fasteners (nuts, bolts, washers) employed in the system shall be cadmium-plated steel.

G. Service Access:

1. Access to manway, backwash valves, and filter control console shall be from the front of the filter system and shall not require disassembly of any piping or climbing over or around vessel, manifolds or valves to perform operation, service or routine maintenance.

H. Filter Media

1. Filter media depth shall be as indicated on the drawings; measurements will be taken at the site and will be from top of the collection laterals to the top of the media. The media shall be of a single grade, consisting of uniformly

graded, angular shaped, crushed silica sand, which shall be free of limestone or clay.

2. Filter system manufacturer shall provide a filter media analysis for the media being utilized. Media supplier shall supply two (2) pounds of filter media from installation site. Consulting engineer, prior to its installation, must approve filter media analysis.

3. #20 Sand

a. Filter media shall be Grade #20, effective size .45 millimeter with a uniformity coefficient of 1.5 maximum.

MEDIA ANALYSIS

Sieve No. US Series	**MM Opening**	**Percent Retained On Sieve (By Weight)**
20	0.833 (0.333 in)	2
30	0.589 (0.023 in)	58
40	0.417 (0.016 in)	36
50	0.295 (0.012 in)	4

4. Alternate Filter Media

a. #30 Sand

1) Filter media shall be Grade #30, effective size .27 millimeter with a uniformity coefficient of 1.6 maximum.

MEDIA ANALYSIS

Sieve No. US Series	**MM Opening**	**Percent Retained On Sieve (By Weight)**
30	0.589 (0.023 in)	2
40	0.417 (0.016 in)	36
50	0.295 (0.012 in)	46
70	0.208 (0.008 in)	11
100	0.147 (0.006 in)	5

I. "HydroForce®" System:

1. The HydroForce® system shall consist of a stainless steel centrifugal pump, hydro-pneumatic pressure sustaining tank, adjustable pressure switch, 50 feet of 3/8 inch Nylo Seal® tubing and all necessary tubing connectors.

2. Pump

   a. The pump housing shall be made of stainless steel and the impeller shall be molded of Lexan®. A mechanical seal shall be provided and shall be a precision-lapped, highly-polished, carbon-ceramic stainless steel shaft seal, ensuring drip-proof protection. The motor shall be a 1/2 HP, single phase, 60 cycle, 3450 RPM, suitable for service with filter control console. The motor shall be a NEMA 'C' face flange mounting with a drip-proof enclosure. The motor shall be equipped with sealed ball bearings. The pump shall be performance rated at 5 gallons per minute at 80 feet of head.

3. Tank

   a. Pressurized water shall be contained in a hydro-pneumatic steel tank that shall be lined with an epoxy coating. The tank will employ a flexing diaphragm, separating wet and dry chambers. The steel tank shall be designed for a maximum working pressure of 100 psi. Tank connection shall be 3/4" NPTM.

4. Pressure Switch

   a. A pressure switch shall be mounted directly to the pump motor and shall be rated for the operation of a 1-1/2 HP motor at 115 volt, single phase. The switch will allow for adjustment of cut-in and cut-out pressure.

5. Check Valve:

   a. A half-inch, spring-loaded check valve shall be supplied as part of the assembly. The check valve shall be installed on the pump suction and shall be designed to retain water pressure accumulated within the amplification system.

6. Tubing and Fittings:

   a. Fifty (50) feet of 1/2 inch Nylo Seal® tubing and all necessary tubing to pipe fittings shall be supplied for the connection of the HydroForce system to the filter system and the filter control.

7. Finish:

   a. The system shall be coated with an industrial-grade polyurethane high-gloss protective finish.

J. Packaging:

1. To protect and safeguard filter vessel, it shall be skidded and supplied with a plastic wrapping to facilitate shipment, handling, and/or storage on job site. The plastic wrap shall also act as a protective barrier during installation. All other components shall be packaged in a manner that will ensure damage-free transportation and facilitate storage at job site.

K. Instructions:

1. Printed and bound operating, installation and service manual with exploded parts list shall be supplied with the system described herein.

L. Certification:

1. Certified/stamped engineering calculations and drawings will be required for the structural strength of filter vessel and seismic loading. The filter supplied must be listed by the National Sanitation Foundation (NSF) ANSI 50 for a flow rate of up to 20 gallons per minute, per square foot of filter area. Proof of National Sanitation Foundation (NSF) listings will be required.

M. Startup, Training and Field Service:

1. Local factory representation for the products contained herein is mandatory. A site specific/site local factory-authorized and trained service specialist shall provide eight hours (8) of startup and training service. The startup shall include adjustments to the filter system and all of its controlling components, calibration and setup of the control system, and instructions to the Owner/operator of the system's workings.

2. Prior to the completion of one (1) year's service, the site specific/site local factory-authorized service specialist shall visit the filter system installation site. With the Owner/operator, the service specialist shall inspect all of the filter system components for signs of wear/malfunction at that time. Any and all worn or malfunctioning items shall be repaired or replaced at no expense to the Owner. The service specialist will thoroughly instruct the Owner/operator on annual service procedures for the filter system, all at no expense to the Owner.

N. Warranty:

1. A 15-year limited warranty shall be provided covering all components of the filter system specified herein. The first (1st) year of the warranty period shall be unconditional. The second (2nd) year through the fifteenth (15th) year may be limited and prorated.

2.07 SWIMMING POOL HEATER

A. 'Lochinvar' #CPN2071, 2,070,000 BTU input, 2" gas connection, 2 ½" water influent/effluent connections and outdoor vent caps, Copper Fin II heater(s). Piped per manufacturers recommendations. (1,400 lbs). Utilize existing flue penetration through roof for 14" flue.

2.08 CHLORINE FEED/STORAGE

A. Utilized existing 'Chem-Tainer' 350 gallon #5256DC; dual storage/containment with lid with new seismic restraints; (2,920 lbs.). Complies with Fed. Reg. #40CFR-264-193. New Swimming Pool feed pump shall be 'LMI' SD43-88P-KSI, 288 GPD @ 150 psi with FRP shelf bracket.

2.09 CARBON DIOXIDE STORAGE FEED SYSTEM

A. Utilize existing 600 lb. cryogenic storage tank with new seismic restraints and new remote fill port. Provide new EKO PH-MTS CO^2 high efficiency feed system with alkalinity control, 0 to 160 SCFH feed capacity booster pump, piping injector, flowmeter, relays and acid feed alkalinity control. One (1) system total.

2.10 SWIMMING POOL WATER CHEMISTRY CONTROLLER 'IMPACT', 'WALLACE & TIERNAN' OR EQUAL

An integrated microprocessor-based electronic water treatment control system shall be furnished with the capability pool chemical and filtration control applications. The unit shall continuously monitor and control pool chemical and filtration applications, pH, High Resolution Redox (HRR), part per million of chlorine/bromine (optional), and water temperature The flow rate, relay mode, time, date, and sample flow status shall also be displayed. The controller shall incorporate plug-in printed circuit boards (PCB), MODBUS communication port and optional data modem or direct connect (RS-232) communication device.

Data Acquisition Factory (DAQ)®, which is a Microsoft Windows™ based software for interactive connection between the controller and PC shall be part of the system. The chemical controller package shall be Strantrol IMPACT model CS-IMPACT-FILTER(B)-APR by Eko^3 Systems.

Requests for substitutions for the specified make and model will not be considered unless equal to the specified system in every respect and must be submitted to the specifying agent not less than 10 calendar days prior to bid date. Requests for substitutions must include a sample controller with all specified features; complete documentation relating to all the specified features; and manufacturer's sales literature, engineering drawings and, installation, operation, and maintenance manuals. Failure to provide these or any other information necessary to confirm that all specified features are provided will be cause for rejection of substitution request.

A. Controller:

1. Housing and Mounting

a. The control system and touch screen display shall be housed in independent nonmetallic NEMA 4X rated enclosures. The enclosures and connections shall be designed to eliminate any

possibility of corrosion or damage to the internal components of the controller. Controller and external relays shall be factory wired and tested for functionality.

2. Display

a. Controller shall have a 6" alphanumeric, touch screen display with constant backlighting. Overlay shall be treated to resist influence of ultraviolet ray degradation.

b. The screen will continuously display information related to the following:

1) Filter backwash status
2) Rate of flow (gpm)
3) Flow volume indicator
4) pH within a range of 2-12 with a .1 pH resolution
5) HRR within a range of 0-1000 mV with a 1 mV resolution
6) Langelier Saturation index (LSI) and Ryznar Index (RI) displayed with last calculated evaluation date stamp
7) Temperature
8) Name of pool
9) Date, time and alarm status
10) (Optional) ppm within range of .02-20 ppm with .1 resolution
11) Alarm Display shall be a flashing touch screen graphic and shall be provided with visual pH and chlorine/bromine feed pump graphics which are activated as chemicals are being fed. Controller shall also display paused mode of proportional chemical feed. Visual alarm indicators to warn operator of any chemical or filtration alarms.

3. Control Functions

a. Main Recirculation Pump:

- Off - backwash duration failsafe (alarm)
- On/off - operation
- On/off - energy saving mode
- On/off - emergency shut down

b. Automatic Filter Backwash:

- Initiate - at filter system differential set point
- Initiate - at time of day/day of week set point (if backwash initiated by pressure differential next time, set backwash shall be ignored), four (4) event, twenty-eight (28) day timing
- Initiate - at low flow rate
- Initiate - at flow volume set point

- Initiate - manually activated automatic backwash cycle
- Initiate - backwash by manual manipulation of multiport valve

c. Backwash Termination:

- Multiple cycle failsafe timeout set point (disable backwash function and alarm)
- Duration exceeds timeout set point (main recirculation pump off and alarm)
- Waste sump exceeds level set point (main recirculation pump off and alarm)

d. Energy Conservation Mode:

- Shut down all mechanical and chemical function during programmed conservation cycle
- Periodically monitor and satisfy operational requirements, based on programmed time
- Re-enter conservation cycle once operational requirements are satisfied.

e. Flow Monitoring/Metering:

- Paddlewheel flow sensor
- Flow rate, gpm
- Flow volume totalizer

f. Boiler/Heater Control:

- Temperature control - boiler on/off
- Fireman function for boiler protection - 20 minute factory default
- Energy savings modes, on/off set time and secondary temperature set point

4. Output Circuits

a. Eight (8) controller output circuits shall be provided and capable of handling standard line voltage at 5 amps each for pH and chlorine/bromine feed control, for the time clock controlled functions, and for a master alarm signal. Fuses shall be used to protect solid state relay controlled outputs.

b. Automatic outputs shall be capable of being manually overridden with touch screen interface for pH and HRR, and chlorine/bromine shall be provided to allow for direct and complete manual override. The closing of any of these momentary contacts will switch incoming line voltage directly to the feeder output circuit.

5. Chemical Feed Programming

a. The control system shall be capable of being programmed for either standard on/off feed control or a time based proportional feed control mode. Time based proportional feed logic shall automatically adjust, within a settable time base of 10-600 seconds, the operating time of the feed unit, cycling on and off if unit falls below set point. Cycling time will be variable based upon continuance of set point variation. The unit shall also provide for a "proportional band" of 0-99 mV or 0-1.5 pH units. Minimum feeder "on time" shall be no less than five seconds to ensure proper pump performance. The controller shall govern the output of any chemical feeder from 10% to 100% of maximum rated capacity. The system shall operate in such a manner as to make unnecessary, under ordinary or extraordinary conditions, any manual increase or decrease of feeder output settings by operating personnel in order to maintain set point. Units allowing only on/off control of chemical feeders or requiring use of special proportional-band feed devices (4-20 mA or 0-100 strokes per minute inputs) to achieve proportional control shall not be considered equal.

6. Chemical Failsafe Indicators, Alarms, and Warnings

a. The control system shall be provided with pH and HRR feed indicators, which shall be activated when respective chemicals are being fed.

b. System shall be provided with visual high and low pH and HRR alarms. High pH alarm shall prevent soda ash and hypochlorite feed and low pH alarm shall prevent acid feed and gas chlorine feed. High HRR alarm shall disable HRR oxidant feed.

c. System shall be capable of accepting a low voltage on/off flow indication signal via hard wire connection on internal circuitry. The system shall provide a low flow warning message to alert operator when no flow situation exists in the sample stream. Should a no flow condition exist, the system shall disable all chemical feed functions.

d. The control system shall be provided with an internal microprocessor based failsafe (feed duration alarm) circuit that shall disable the appropriate chemical feeder(s) and energize an alarm circuit in the event of: a) sensor failures, b) chemical feeder malfunctions, and c) depletion of chemical supply.

e. The failsafe (feed duration) alarm mode shall be programmable from 0 through 24 hours with 1 minute resolution. In addition, an internal software switch shall make it possible to disable the failsafe (feed duration) alarm circuit entirely without affecting other controller operations. Units incorporating mechanical-type overfeed timers shall not be considered equal.

f. An alarm condition shall activate a remote master alarm signal, provided as a dry contact closure, enabling the use of 0-280 VAC alarms.

7. Electronic Timer

   a. A microprocessor circuit shall provide control over a sensor rinse function or any other chemical feed function activated on a time basis. The timer shall energize a solid-state relay.

8. Data Logging, Communications and Security

   a. Controller shall be capable of logging up to sixty (60) days of data relating to pH and HRR readings; filter flow rate; any alarm conditions; any set point adjustments; and feed event history. Frequency of logged input points shall be selectable from 1 – 60 minutes. Controller shall be capable of downloading logged data onto an IBM compatible computer using MODBUS, Ethernet, modem or direct cable and software, which shall be provided with the controller.
   b. The logic of the system shall include a three level security code system, allowing access to pH, HRR, ppm, temperature, flow rate, surge tank level, strainer vacuum and alarm set points. Security system will allow separate manager [two (2) codes], operator [six (6) codes] and a factory authorized system entry. Security system shall also provide history of access identified by user.

9. Remote Monitoring Features

   a. The controller shall be equipped with a plug-in printed circuit board (PCB) with a 33,600 baud rate modem providing remote interface with a PC and remote system communication with any touch tone telephone. The PCB and modem shall be an integral part of the chemical control feed control system and shall enable service and operating personnel to perform the following functions:
   b. Remotely access current pool water conditions and controller status.
   c. Remotely download historical data relating to water chemistry readings, filter system status, alarm status, feed event history, and set point adjustments.
   d. Remotely adjust feed set points, feed modes, and alarm set points.
   e. In the event the system detects that chemical levels, flow rates or other alarm conditions have violated their user selectable limits, it shall automatically begin an alarm dial-out sequence of programmed telephone numbers. Once an alarm sequence begins, numbers will be called in order until one of them is answered and acknowledged by entering an appropriate number code.

10. Windows Based Software:

   a. Software shall be Windows based interactive designed specifically for monitoring and controlling pool water chemistry. The Software shall be compatible with all versions of Microsoft Windows™. DOS based software will not be accepted.
   b. Software shall have a Graphical User Interface and Water Database Management Package.

c. Software will allow for direct and/or remote access and manipulation of all functions related to the controller. Long-term operational data shall also be retrievable on-site or from a remote location.

d. All software parameters shall be programmable and accessible through an organized step level-programming tree with pop-up windows prompting for a value.

e. Software shall enable user to change setting by clicking on the desired option.

B. Flowcell and Sensor Assembly:

1. The control system shall include a sensing chamber, a flow switch, and sensor assemblies, all of which shall incorporate the following features:

2. An integral self-air purging sensing chamber designed to accommodate four sensing devises shall be provided. The chamber body shall be PVC with a clear polycarbonate inspection cover. All plumbing, PVC Schedule 80, consisting of shut off valves, backflow device, nipples, elbows, sampling cocks, compound gauge and flow switch shall be supplied.

3. The flow switch shall be of the paddle wheel-style with see-through cover and “on stream” light. Flow switch shall indicate flow (at least .9 gpm) through the sample stream and signal the controller to initiate an alarm condition and to shut off feed circuits in the event flow should stop. Flow switch shall operate on low voltage and be made of non-corrosive material. Flow cell and plumbing shall be mounted to a back panel housed with a gasketed enclosure.

4. pH and HRR sensor shall contain no less than 50 milliliters of electrolyte gel to assure reasonable electrode life. The gel used in each electrode shall be inorganic so as to prevent degradation by chlorine or bromine. The Redox sensor shall be of the patented HRR technology. HRR sensing electrode shall incorporate at least 1 square centimeter of 99.99% pure platinum and operate in temperatures between 32 - 150° F (0 – 66° C). Each electrode shall use a porous Teflon liquid junction to minimize the chance of liquid junction clogging and prolong electrode life. pH and HRR sensors shall incorporate shielded BNC connectors to insure continuity of connection. To insure accuracy and compatibility, the controller manufacturer shall manufacture the sensing probes. Electrodes not utilizing the above technology or organic gels or wood or ceramic liquid junctions or connectors other than shielded BNC will not be considered equal to these specifications.

5. Temperature sensor shall be of the RTD type having a two (2) wire cable of the low noise type with appropriate connectors. Cable and connectors shall meet or exceed Military Specifications. To insure accuracy and compatibility, the controller manufacturer shall manufacture the sensing probes.

6. Flow Sensor is a Signer self-powered paddlewheel low flow sensor with saddle fitting shall be provided. Cast mounting saddles shall be provided with U-Bolts for mounting.

7. (Optional) Free ppm sensor shall be a membrane sensing with electrolyte liquid junction type. The connection shall be a three (3)-wire cable of the low noise with appropriate connectors.

C. Sensor Wash System:

1. An automatic sensor wash system shall be provided. The system shall consist of one 6-gallon vapor-proof tank, one feed pump capable of pumping up to 10 gallons per day at 75 psi, and a four-function anti-siphon/pressure relief valve. Digital programmable electronic timer in the chemical controller shall control the pump.

D. System Enclosure:

1. The packaged system enclosure shall be fabricated of ¼" thick non-corrosive DuPont cast acrylic. The cabinet configuration shall be achieved by heat forming followed by solvent welding. The enclosure shall have integral support bracing for added strength and separation of wet and dry chambers. A clear acrylic cover shall be provided and will allow for observation of the controllers operation without the need of the cover's removal.

E. AC Surge Suppression and Phone Modem Line:

1. An integrated solid state device (s) shall be furnished to protect each microprocessor based chemical controller from excessive line voltage at controller and on phone modem line(s). AC line voltage suppression shall be LP-999-00010. Phone modem line protection shall be LP-999-00020.

2. In line (AC) Surge Suppression

   a. Device shall be housed in a tamper proof enclosure provided with mounting tabs and have ½" NPT hardwire connection, with LED indicator light. Suppressor to be U.L. listed.

3. Phone Modem Line Voltage Protection

   a. Device shall be housed in tamper proof enclosure provided with mounting tabs, ground lug and male/female receptacle plugs for phone line connections. Device to be U.L. Listed.

F. Start-up and Warranty:

1. The system shall be provided with an illustrated installation, operating and maintenance manual. Drawings and detailed written description of features and operating phases of the control system shall be a part of the operating and maintenance manual.

2. The control system shall be provided with *on-site start-up*, *on-site operator training*, and one (1) year of *on-site warranty service*, all of which shall be performed by a representative trained and authorized by the controller's manufacturer.

3. The system shall carry a twenty four (24) month limited warranty against defects in material and workmanship for all components including electronics, flowcell assembly and probes.

2.11 WET PLAY FITTINGS (ADDITIVE ALTERNATE #1)

A. Area Drain Grate (24" x 24"): 'Water Odyssey' #WMM600 Maintenance Minimizer or equal. Two (2) required.

2.12 WET PLAY DECK EQUIPMENT (ADDITIVE ALTERNATE #1)

A. Wet Play Safety Signs: As required by the Department of Health. Submittal required. Placement at the pool site shall be in conformance with Health Department Inspector. One (1) set minimum.

B. Wet Play elements:

	ITEM	QUANTITY	GPM
1	Foaming Geyser No. 1 'Vortex' VOR-7020	1	14 GPM
2	Aqua Dome No. 1 'Vortex' VOR-555	1	14 GPM
3	Side Winder 'Vortex' VOR-7518	1	15 GPM
4	Jet Stream 'Vortex' VOR-7512	7	18 GPM
5	Water Jelly No. 3 'Vortex' VOR-7010	1	33 GPM
6	Ground Geyser 'Vortex' VOR-301	1	5 GPM
7	Fumbling Five 'Vortex' VOR-7384	1	12 GPM
8	Water Tunnel No. 2 'Vortex' VOR-309	1	12 GPM
9	Rainbow No. 2 'Vortex' VOR-548	1	23 GPM
10	Split Stream 'Vortex' VOR-7516	2	15 GPM
11	Spidey Spray 'Vortex' VOR-7517	1	9 GPM
12	Bollard Activator No. 1 'Vortex' VOR-600	1	N/A

2.13 WET PLAY CIRCULATION PUMP (ADDITIVE ALTERNATE #1)

A. 'Pentair' Whisperflo, WFK-12; self-priming pump; 3HP, 208V, 3PH; 3,450 RPM; rated at 143 GPM at 60 ft. TDH; with integral strainer electrically interconnect with wet play booster pump. (60 lbs.)

2.14 WET PLAY BOOSTER PUMP (ADDITIVE ALTERNATE #1)

A. 'Pentair' CMK-50: 5HP, 208V, 3PH rated at 230 GPM at 60 ft. TDH, with integral strainer one (1) total.

2.15 WET PLAY FILTERS (ADDITIVE ALTERNATE #1)

A. 'Pentair' Triton, 2-TRI-00C hi-rate permanent media filters with 3" face piping and 3" backwash. Complete with influent/effluent gauges, 9.82 sq. ft. of filter area rated at 147 GPM at 15 GPM/sq. ft.

2.16 WET PLAY CHLORINE FEED SYSTEM (ADDITIVE ALTERNATE #1)

A. Feed pump shall be 'Stenner' 45M-5, 50 GPD @ 25 PSI.

2.17 WET PLAY CO_2 FEED SYSTEM (ADDITIVE ALTERNATE #1)

A. EKO^3 PH-MTS CO_2 high efficiency feed system with alkalinity control and 0-160 SCFH feed capacity.

2.18 WET PLAY ULTRA VIOLET SYSTEM (ADDITIVE ALTERNATATE #1)

A. 'Wallace & Tiernan' Barrier M80, 172 GPM/capacity/flow rate, 5" flanged connections, 1-WTL1000 U.V. lamp, U.V. unit, junction box and control panel, single phase 208V, 60HZ, 36A fusing, 1.1 KVA active power consumption.

2.19 WET PLAY WATER CHEMISTRY CONTROLLER (ADDITIVE ALTERNATE #1)

A. Provide one (1) dedicated analog telephone line for 'Impact CS3I-APR' water chemistry controller with auto-probe rinse for wet play. One (1) total.

2.20 WET PLAY FLOWMETER (ADDITIVE ALTERNATE #1)

A. 'Blue/White' F-300, 3" line size. One (1) total.

2.21 WET PLAY AUTOMATION (ADDITIVE ALTERNATE #1)

A. 'Vortex' command center including system controller, wall mounted water distribution manifolds, with fifteen (15) outlets, solenoid valves, isolation valves, bollard operated activation, complete. Contractor shall provide complete shop drawings for approval. Provide winter drain points adjacent to equipment areas for all manifold lines.

PART 3 – EXECUTION

3.01 SURFACE CONDITIONS

A. Inspection:

1. Prior to installing the items of this Section, carefully inspect the installed Work of other trades and verify that all such Work is complete to the point where this installation may properly commence.

2. Verify that the swimming pool equipment items may be installed in strict accordance with original design, pertinent codes and regulations, and the manufacturers' recommendations.

B. Discrepancies:

1. In the event of discrepancy, immediately notify the Owner's Representative.

2. Do not proceed with installation in areas of discrepancy until all such discrepancies are fully resolved.

3. Failure to notify the Owner's Representative and give written notice of discrepancies shall constitute acceptance by the Installer of existing conditions as fit and proper to receive its Work.

3.02 INSTALLATION

A. Supply and install items of swimming pool equipment in strict accordance with applicable codes and regulations, the original design, and the manufacturer's published recommendations, anchoring firmly and securely for long life under hard use.

B. Coordinate with other trades to insure all imbedded items are set plumb and flush. Railing ends must have anchor sockets and escutcheon plates. Be certain that deck equipment and railings are properly bonded prior to imbedding.

C. All equipment shall be braced and/or anchored to resist a horizontal force acting in any direction using the criteria shown on the Drawings.

3.03 INSTRUCTION

A. The Contractor shall provide a factory certified representative(s) to start-up and certify proper installation, operation and full warranty status of all swimming pool mechanical equipment. The Contractor shall provide not less than two 8-hour days of on-site training for facility staff in the operation and maintenance of the swimming pool mechanical equipment and systems. The two 8-hour days shall be separated by a minimum of seven calendar days and be completed within the 14-day start-up period.

3.04 EQUIPMENT ACTIVATION

A. All water chemistry and filtration mechanical equipment shall be operational upon filling of pool after plaster. Chemicals and other related support items as supplied by Contractor, shall be in supply at start-up.

B. For the first fourteen (14) calendar days after completion of the pool plaster, brush all plastered surfaces at least twice a day and coordinate with General Contractor to ensure

that the plaster is carefully maintained after the initial fourteen day period. In addition, coordinate with the Contractor to ensure that pool filtration equipment is continuously running during the initial fourteen day period.

C. Start-up and provide qualified personnel to operate pool equipment for a period not less than fourteen (14) days after the pool is placed in operation, or until the Owner takes occupancy of the facility or letter of substantial completion. During this time, Contractor shall instruct and supervise the Owner's personnel in the various operating and maintenance techniques involved. Contractor shall be responsible for supply of chemicals during this not less than fourteen (14) day period and at time of turnover to Owner, chemical storage tanks shall be full. (Owner's personnel shall be fully trained and capable of assuming swimming pool maintenance tasks, training may begin before Owner takes occupancy).

3.05 CLEAN-UP

A. Upon completion of swimming pool equipment, remove all debris, materials and equipment occasioned by this Work to the approval of the Owner’s Representative.

END OF SECTION

SECTION 13 11 07

SWIMMING POOL MECHANICAL

PART 1 GENERAL

1.01 WORK INCLUDED

A. Swimming pool mechanical piping as indicated on the Drawings for circulation and filtration systems, pool water heating systems, chemical control systems, booster pump systems and appurtenances.

B. Domestic water system from points of connection within swimming pool mechanical equipment room to make-up water system.

C. Filter backwash piping to point of connection with backwash receptor as required.

1.02 QUALITY ASSURANCE

A. Qualifications of Workers:

1. The entity performing the work of this Section shall have been successfully engaged in the respective trade for at least five (5) years immediately prior to commencement of the Work.

2. For actual construction operations, use only trained and experienced workers with a minimum of three (3) years experience with the materials and methods specified.

3. Provide at least one person who shall be present at all times during execution of the work of this Section, with a minimum of five (5) years experience with the type of materials being installed, the referenced standards, and who shall direct all Work performed under this Section.

B. Standards:

1. All equipment supplied or work performed shall comply with Chapter 31 of California Building Code, latest edition.

2. Work shall be performed in accordance with the applicable editions of all National, State and local codes, laws, regulations and ordinances, including the following:

   a. American National Standards Institute (ANSI).
   b. American Society for Testing Materials (ASTM).
   c. American Waterworks Association (AWWA).
   d. American Welding Society (AWS).

3. Do not construe anything in the Drawings or Specifications to permit Work not conforming to these requirements.

1.03 SUBMITTALS AND SUBSTITUTIONS

A. Provide submittals in conformance with the requirements of the Standard Specifications for Public Works Construction (Greenbook) and the City Standard Specifications for Public Works Construction (Whitebook).

B. Required submittals include:

1. Pipe and Fittings as specified in Article 2.02 of this Section.

2. Valves as specified in Article 2.03 of this Section.

3. Pressure / Vacuum Gauges as specified in Article 2.04 of this Section.

4. Pipe Hangers and Supports as specified in Article 2.05 of this Section.

5. Sleeves and Waterstops as specified in Article 2.06 of this Section.

C. Submit proof of qualifications as specified in Article 1.02.A of this Section.

1.04 PRODUCT HANDLING

A. Delivery: Deliver all materials to the Project Site in the manufacturer's original unopened containers with all labels intact and legible.

B. Storage: Store all materials under cover in a manner to prevent damage and contamination, and store only the specified materials at the Project site.

C. Protection: Use all means necessary to protect swimming pool mechanical items before, during and after installation and to protect the installed Work specified in other Sections.

D. Replacements: In the event of damage, immediately make all repairs and replacements necessary to the approval of the Owner and at no additional cost to the Owner.

1.05 JOB CONDITIONS

A. Cooperate with entities performing Work specified in other Sections to so that no conflict of new construction or occupied space may occur. Should any installation Work be done without such craft coordination, that Work so installed shall be removed and re-installed.

PART 2 - PRODUCTS

2.01 PRODUCT QUALITY

A. Materials and equipment shall be new, of the best quality for the purpose intended, and shall be clearly marked with the manufacturer's name and nameplate data or stamp and rating. As far as practicable, materials and equipment shall be of one manufacturer.

2.02 PIPE AND FITTINGS

A. PVC Schedule 40: Type 1, normal impact, NSF approved for solvent welding applications, ASTM Specification D-1785, color shall be white. Dura, Lasco, or approved equal.

B. PVC Schedule 80: Type 1, normal impact, NSF approved for solvent welding applications, ASTM Specification D-1785, color shall be gray. Dura, Lasco, or approved equal.

C. PVC DR25: Conforming to ATSM D-1784, use with epoxy coated bell and spigot-type fittings or epoxy coated mechanical joint by flange adapters with epoxy coated cast iron fittings as specified in Article 2.02 (F), below. Johns-Manville "Big Blue", Diamond Plastics, or approved equal.

D. Copper Tubing: ASTM Specification B-88, hard drawn, with ANSI Standard B16.22 wrot copper fittings.

E. Steel: ASTM Specification A-120, Schedule 40 black or galvanized pipe with ASTM A-47 150 lb. banded malleable iron threaded fittings.

F. Cast Iron: ASTM Specification B16.1, cast iron flanged fittings, provide epoxy coating as required for use with chlorinated water.

2.03 VALVES

A. Gate Valves: Epoxy coated cast or ductile iron body, 316 stainless steel gate and stem, viton seat material. DeZurick, Keystone, or approved equal.

B. Butterfly Valves:

1. Epoxy coated cast or ductile iron body, 316 stainless steel disc and stem, viton seat material, furnish hand wheel/gear operators on all valves 8" and larger. DeZurick, Keystone, or Asahi Pool Pro.

2. PVC body, PVC disc and EPDM construction suitable for chlorinated water applications. Stem shall be of 316 stainless steel and non-wetted. Valves shall be self-gasketed design with a convex sealing arrangement. Valves 1-1/2” – 10” shall be rated to 150 psi and 12” valves shall be rated to 100 psi at 70°F. Asahi Pool-Pro, no known equal.

C. Check Valves: Wafer-type, epoxy coated cast or ductile iron body, 316 stainless steel plates and shaft, viton seat material. Centerline, Metraflex, or approved equal.

D. Surge Chamber Float Valve: EPD #2-0020-018 Float Control Valve, 8" line size, as manufactured by Environmental Products Division of Doughboy Recreational, Rancho Cucamonga, CA, no known equal.

E. Surge Chamber Isolation Valve: Butterfly valve, tapped lug type, bronze body, stainless steel stem, bronze disc, phenolic back-up ring, EPT seat material. Provide stainless steel

shaft extension, shaft housing and tool operator located 2'-0" above floor level with deck access grate as required. DeZurick, Keystone, Asahi Pool-Pro or approved equal.

F. RP Backflow Preventer: Febco #835-B for 2" and smaller; #825 for 2-1/2" and larger. Febco, Watts, or approved equal.

G. Make-up Water Control: Cla-Val make-up water control valve with ductile iron body/cover, bronze trim, globe pattern, Buna-N rubber seals. Pilot system materials to consist of bronze/brass with stainless steel wetted parts and Buna-N rubber seals.

System to include: 100-01 Hytrol valve, CF1-C1KX float control, X46A flow clean strainers, and copper tubing with brass fittings. Float linkage and float rod shall be PVC and brass. Base plate shall be 316 stainless steel. The plastic float shall be provided with 8' PVC rod and stops and a brass counter weight. Provide model #124-01AKX available KSI (714) 754-044. Two (2) systems total, one (1) at 3" and one (1) at 1".

2.04 PRESSURE / VACUUM GAUGES

A. Furnish and install pressure and vacuum gauges on the discharge and suction sides of all pumps. 4-1/2" dial, bottom connection, chrome ring, shut-off cock and snubber. Ranges shall be selected to indicate between mid-point and two-thirds of maximum range under design conditions. Marsh, Trerice, or approved equal.

2.05 PIPE HANGERS AND SUPPORTS

A. General:

1. The requirements of this Section relates to various requirements of the Agreement, General and Supplementary Conditions, Specifications, Drawings, and modifying documents which are part of the Construction Contract. Responsibility for coordination of all such applicable requirements will be that of the Contractor.

B. Description:

1. This section provides guidelines and limitations for the support of all mechanical, electrical, plumbing or architectural items from the building structure, and for the seismic bracing of such items.
2. Design and install all support and bracing systems as required for the swimming pool systems. Provide for attachment to portions of the building structure capable of bearing the loads imposed. Design these systems to not overstress the building structure.

C. Quality Assurance:

1. Design and install all support systems to comply with the requirements of the 2007 California Building Code, Chapter 16A.

2. Seismic bracing is to be designed by a professional engineer licensed in the State of California.

3. For the seismic bracing of mechanical, electrical and plumbing system, refer to “Guidelines for Seismic Restraints of Mechanical Systems and Plumbing Piping Systems” by Sheet Metal and Air conditioning Contractors National Association, Inc., (SMACNA) for guidelines.

D. Submittals:

1. Submit shop drawings for all substructures and attachment methods.

2. Submit proposed alternative methods of attachment for review and approval by the Architects, prior to deviating from the requirements given below.

3. For all pipe hangers and support systems, submit structural calculations and details which include all resultant forces applied to the building structure and are prepared and signed by the Contractor’s licensed California professional engineer. Calculations will be reviewed for compliance with design criteria, not for arithmetic.

E. Materials:

1. Use Kin-Line, Grinnel, or approved equal.

2. Support all pipelines individually with hangers, each branch having at least one hanger. Lateral brace as noted and required.

3. Support piping near floor with steel stanchions welded to end plates secured to pipe and floor.

4. Support vertical piping at each floor level. Install coupling in piping at each support. Coupling shall rest on and transmit load to support. Isolate copper from steel supports with vinyl electrician's tape around pipe and coupling.

5. Use Stoneman "Trisolator," Unistrut, or approved equal, isolators at each hanger and other support points on bare copper tubing system.

6. For PVC pipe, space hangers four (4) feet apart for pipe sizes 1" and under, five (5) feet apart for pipe sizes 1-1/4" to 2", and six (6) feet apart for pipe sizes over 2". Space hangers for horizontal pipes at a maximum of six (6) feet for copper 2" and smaller and for steel 1-1/4" and smaller; ten (10) feet for copper 2-1/2" and larger and for steel 1-1/2" and larger.

7. Size hanger rods, screws, bolts, nuts, etc., according to manufacturer's sizing charts.

8. Trapeze hangers may be used for parallel lines.

9. Use galvanized or cadmium plated hangers, attachments, rods, nuts, bolts, and other accessories in pool mechanical room, high humidity areas, or where exposed to weather. Hot dip galvanize all items which are not factory furnished. Plating for hinged movements must be done at the factory.

10. Lateral Bracing: To prevent swaying of the piping systems, provide angle iron bracing and anchor into wall or overhead framing. Piping shall be braced or anchored in such a way as to resist a horizontal force of 50% of its operating weight in any direction.

11. Do not use wire or other makeshift devices for hangers.

12. Furnish all substructures and fasteners required to comply with the limitations given below. Use material as specified in the various sections and as appropriate to their use.

F. Guidelines & Limitations:

1. Each Contractor will coordinate the load requirements from all subcontractors so that no combination of loads overstresses the building structure or exceed the limitations given below.

2. Concrete Structure:

a. Support all loads hung from concrete structure with cast-in-place inserts, unless drilled-in anchors are specifically approved in writing prior to placing the concrete.
b. Concrete anchors must not penetrate into reinforcing bars. Where the anchors boring indicates the presence of reinforcing bar, patch hole with an epoxy type grout and relocate anchor 12 diameters away.
c. Individual expansion anchors cannot support any loads greater than 300 pounds or manufacturer's specified load capacity without approval.

3. Steel Structure:

a. Hang no more than 20 pounds per metal deck rib in any span.
b. At beams, hang all beam loads greater than 40 pounds concentric to beam, not off the flanges.
c. Attached no loads to the beams or girders greater than the following without specific approval from the architect;

i. Roof beams and girders: 300 pound point load or 600 pound total load for a single span.

G. Seismic Bracing:

1. Design and install seismic bracing to not ground out vibration and sound isolation systems.

2. All items of mechanical and electrical equipment 60" or more in height are to be seismically braced whether such bracing is shown or not.

2.06 SLEEVES AND WATERSTOPS

A. Provide sleeves where work of this Section passes through fire rated partitions, floors and ceilings, concrete slabs or exterior of structure. Caulk clearance space using sealant appropriate for application in conformance with manufacturer's recommendations and Title 24 of California Code of Regulations. 3m, Dow Corning, or approved equal. In lieu of sleeves and caulking, "Link Seal" products may be used.

B. Provide prefabricated waterstops as indicated on the Drawings at all pipe penetrations through structures containing stored water (i.e., swimming pools, balance/surge tanks, etc.) to insure leak-proof seals.

PART 3 - EXECUTION

3.01 SURFACE CONDITIONS

A. Inspection:

1. Prior to Work of this Section, carefully inspect the installed Work of other trades and verify that such work is complete to the point where this installation may properly commence.

2. Verify that items of this Section may be installed in accordance with the original design and referenced standards.

B. Discrepancies:

1. In the event of discrepancy, immediately notify the Owner’s Representative.

2. Do not proceed with installation in areas of discrepancy until all such discrepancies have been fully resolved.

3. Failure to notify the Owner’s Representative and give written notice of discrepancies shall constitute acceptance by the Contractor of existing conditions as fit and proper to receive his work.

3.02 ABBREVIATIONS AND SYMBOLS

A. Abbreviations and symbols on the Drawings are those most commonly used. Obtain clarification from the Owner’s Representative on any questionable items before bid.

3.03 GENERAL PIPING REQUIREMENTS

A. Size any section of pipe for which size is not indicated or any intermediate section erroneously shown undersized the same size as the largest pipe connecting to it. Sizes listed are nominal.

B. Cut pipe accurately to job measurements and install without springing or forcing, true to line and grade, generally square with building and/or structures and adequately supported to prevent undue stress on pipe, fittings and accessories.

C. Make changes of direction with manufactured fittings. Street ells, bushings, reducing flanges, close nipples or bending of pipe is not allowed.

D. Use great care to install piping in accordance with best practice. Plastic pipe shall be "snaked" in trenches to allow for thermal expansion.

E. All above grade, below grade and buried or imbedded PVC shall be installed using solvent weld fittings. Also, each and every fitting and pipe end shall be prepared with solvent primer. Fittings shall be joined individually and with enough time between assembly of adjacent joints to allow them to seal solidly. After joining, an even ring of primer must be visible around the entire fitting. If any fittings are installed without visible primer, the fitting shall be removed and discarded and piping recut, rechamfered and joint made up again using a new fitting. All procedures, methods and techniques used to make up solvent weld joints shall be in strict accordance with manufacturer's recommendations.

F. Arrange pipe and hangers to allow for expansion, contraction and structural settlement. No pipe shall contact structure except penetrations as shown on the Drawings.

G. Provide dielectric connections between copper and dissimilar metals. In copper systems, threaded piping including connections to equipment shall be brass pipe and fittings. Install dielectric connections in vertical sections of piping only.

H. Run pipe full size through shut-off valves, balancing valves, etc. Change pipe size within three (3) pipe diameters of final connection to control valves, fixtures and other equipment.

I Provide unions or flanges at connections to equipment, on service side of valves and elsewhere as required to facilitate ease of maintenance.

J. Locate equipment shut-off valves as close to equipment as possible maintaining easy valve access.

K. Make all connections between domestic water systems and equipment or face piping with approved backflow prevention devices as required.

L. All PVC pipe exposed to direct sunlight shall be painted with two coats of Exterior Acrylic Semi-gloss Paint, Sherwin Williams or equal. Color to be selected by the Architect. Prior to painting the PVC pipes, the exterior of all PVC pipes shall be wiped with Methyl Ethyl Ketone, or an approved equal, to remove the glaze from the pipes.

M. The Main Drain pipe must run either level or uphill from the main drain sump, through the surge pit (if applicable) and then to the circulation pump.

3.04 TRENCH EXCAVATION AND BACKFILL

A. Excavation:

1. Excavate and backfill trenches as required for the Work of this Section. Conform to requirements of Section 13 11 01.

2. The Contractor shall perform all excavation of every description and of whatever materials encountered, to the depths indicated on the Drawings or as necessary. The Contractor shall dispose of the excavated materials not required or suitable for backfill as directed, and shall perform such grading as may be necessary to prevent surface water from flowing into the trenches. The Contractor shall provide adequate equipment for the removal of storm or subsurface waters, which may accumulate in the excavated areas.

B. Trenching:

1. Excavate trenches to lines and grades as indicated on the Drawings and with banks as nearly vertical as practicable.

2. Bottoms of trenches shall be accurately graded to provide uniform bearing on undisturbed soil for the entire length of each section of pipe.

3. The width of the trench at and below the top of the pipe shall be such that the clear space between the barrel of the pipe and the trench wall shall not exceed 8" on either side of the pipe. The width of trench above the top of pipe may be wider if necessary.

4. Over-depth excavations shall be filled with tamped sand to required grades.

5. Excavations of five (5) feet or more in depth shall be shored or supported in conformance with rules, and regulations of State and Federal Governments. Shoring shall be constructed, maintained and removed in a manner to prevent caving of the excavation walls or other load on the pipe.

C. Backfilling:

1. Material for backfilling of pipes shall be approved granular material less than two (2) inches in diameter obtained from the excavation. No material of a perishable, spongy or otherwise unsuitable nature shall be used as backfill.

2. Backfilling of pipe trenches shall commence immediately after installation and testing to preclude damage to the installed pipe. Backfill around pipe shall be carefully placed so as not to displace or damage the pipe, and shall be carried up symmetrically on each side of the pipe to one foot above the top of the pipe. The material shall be carefully compacted or consolidated before additional backfill is placed.

3. Backfill above an elevation of one foot above the top of pipe in conformance with requirements of Section 13 11 01. Material for balance of backfill shall be

approved granular material less than six (6) inches in diameter taken from the excavation.

4. Unless otherwise indicated on the Drawings, all pipe shall have a minimum of eighteen (18) inches of cover.

3.05 GENERAL EQUIPMENT REQUIREMENTS

A. Position equipment to result in good appearance and easy access to all components for maintenance and repairs.

B. Install piping, flues, breeching and ducts so that they do not interfere with equipment access.

C. Install level, secure and out of moisture. Provide shims, anchors, support straps, angles, grouted bases, or other items as required to accomplish proper installation.

D. All screws, nuts, bolts and washers shall be galvanized, cadmium plated or stainless steel. After fabrication, hot-dip galvanize unfinished ferrous items for outdoor, below grade or other use subject to moisture.

E. Extend 1/2” Schedule 40 black steel pipe lubrication tubes from all hard to reach locations to front of equipment or to access points. Terminate with proper type of lubrication fitting.

3.06 VALVES AND STRAINERS

A. If no shut-off is indicated, provide ball valves at inlet connections and balance valves at outlet connections to fixtures and equipment. Provide proper valve trim for service intended.

B. Use no solder end valves unless noted otherwise; provide adapters in copper tubing systems.

C. Locate valves with stems above horizontal plane of pipe. In general, locate valves within six (6) feet of floor, out from under equipment, in accessible locations with adequate clearance around hand wheels or levers for easy operation.

D. Provide all valves, cocks and strainers, full pipe size unless indicated otherwise.

E. Provide hand wheel operators on all valves 6” and larger, under 6” lever operators may be used.

F. Provide tool operated valve with stainless steel shaft extension and 'on deck' tool operation for surge chamber butterfly isolation valve.

3.07 IDENTIFICATION OF PIPING

A. Identify each valve by a numbered brass tag with hole and brass chain mounted on valve stem or handle. Tag to be a minimum of 1" in diameter and numbers at least 1/4" high stamped into tag.

B. Install an identification chart in a plastic or glass framed enclosure, which schematically illustrates the proper operation of all piping systems and indicates number and location of all valves and control devices within the system.

C. Using manufactured stick on labels, minimum size 2" x 4", label all pipes as to the contents and the direction of flow.

3.08 TESTS

A. Perform tests in presence of Owner's Representative with no pressure loss or noticeable leaks.

B. Do not include valves and equipment in tests. Include connection to previously tested sections if systems are tested in sections.

C. Perform tests as follows:

System	Test Pressure	Test Medium	Duration
Pool Piping	50 psig	Water*	4 hours
Domestic Water	150 psig	Water*	4 hours

*Never test PVC pipe or fittings with air or other gases, always use water.

3.09 PIPE MATERIAL APPLICATION

A. PVC Schedule 40: Below grade swimming pool piping and domestic water piping up to 12" line size; use standard solvent weld fittings.

B. PVC Schedule 80: Above grade swimming pool piping up to 12" line size; use solvent weld Schedule 80 or epoxy coated cast iron fittings.

C. Type L Hard Copper: Above grade domestic water piping.

D. CPVC Schedule 80; Pool Heater Piping.

E. Schedule 40 Steel: Natural gas piping.

3.10 CUTTING AND DRILLING

A. Cutting or drilling necessary for installation of Work of this Section shall be done only with approval of Owner's Representative.

3.11 CLOSING-IN OF UNINSPECTED WORK

A. Do not cover or enclose Work before testing and inspection. Re-open Work prematurely closed and restore all Work damaged.

3.12 QUIETNESS

A. Quietness is a requirement. Eliminate noise, other than that caused by specified equipment operating at optimum conditions, as directed by Owner's Representative.

3.13 FLUSHING OF LINES

A. Flush or blow out pipes free from foreign substances before installing valves, stops or making final connections. Clean piping systems of dirt and dust prior to initial start-up.

B. Just prior to plastering the pool, under the observations of the IOR, the pool mechanical system shall be flushed using the pool circulation pump. Circulate water through the mechanical system until the effluent water from the pool return heads runs clean.

3.14 CLEAN-UP

A. After all Work has been tested and approved, the Swimming Pool Subcontractor shall thoroughly clean all parts of the equipment installations, including all pool pipe and fittings in the pool mechanical room. Exposed parts shall be cleaned of cement, plaster and other materials and all grease and oil spots removed with solvent.

B. The Swimming Pool Subcontractor shall remove debris from the Project site. Cartons, boxes, packing crates and excess materials not used, occasioned by this work shall be disposed of to the satisfaction of the Owner's Representative.

C. If the above requirements of clean up are not performed to the satisfaction of the Owner's Representative, the Owner reserves the right to order the work done, the cost of which shall be borne by the Swimming Pool Subcontractor.

END OF SECTION

SECTION 13 11 08

SWIMMING POOL ELECTRICAL

PART 1 - GENERAL

1.01 WORK INCLUDED

A. Provide labor, materials and equipment as required to install the swimming pool electrical system including but not limited to:

1. A complete and operable system of service equipment, switchboards, panelboards, conduits, switches, time clocks and wiring for power and lighting, motor control centers.

2. Junction and/or pull boxes, conduits, disconnects, starters, contactors, wiring and connection of all motors and mechanical equipment, including connection and wiring of line voltage controls associated with the mechanical systems.

3. Swimming pool underwater lighting systems.

4. Complete grounding system as required and shown on the Drawings.

5. Adjusting and preliminary operation of the completed electrical system as described in Article 3.06, A of this Section.

6. Cleaning of all completed Work and installation adjustment of all trim and decorative items.

1.02 QUALITY ASSURANCE

A. Qualifications of Workers:

1. The entity performing the work of this Section shall have been successfully engaged in the respective trade for at least five (5) years immediately prior to commencement of the Work.

2. For actual construction operations, use only trained and experienced workers with a minimum of three (3) years experience with the materials and methods specified.

3. Provide at least one person who shall be present at all times during execution of the work of this Section, with a minimum of five (5) years experience with the type of materials being installed, the referenced standards, and who shall direct all Work performed under this Section.

B. Ordinances and Codes: Materials and construction shall conform with all applicable code requirements, including:

1. California Electrical Code; Electrical Safety Orders of the State of California; Department of Industrial Relations; regulations of the State Fire Marshal; rules and regulations of the Board of Underwriters of the Pacific.

2. Chapter 31 of California Building Code, latest edition.

C. Verification of Conditions:

1. The locations shown on the Drawings are diagrammatic only and the exact finish location of equipment and materials cannot be indicated. Therefore, locations of all Work and equipment shall be verified to avoid interferences, preserve head room and keep openings and passageways clear. Changes shall be made in locations of equipment and materials which may be necessary to accomplish these purposes.

D. Preliminary Operations and Testing:

1. Motor driven equipment shall be tested for correct rotation and completion of all connections.

1.03 SUBMITTALS AND SUBSTITUTIONS

A. Provide submittals in conformance with the requirements of the Standard Specifications for Public Works Construction (Greenbook) and the City Standard Specifications for Public Works Construction (Whitebook).

B. Required submittals include:

1. Conduit and Fittings as specified in Article 2.02 of this Section.

2. Panelboards as specified in Article 2.06 of this Section.

3. Circuit Breakers as specified in Article 2.07 of this Section.

4. Motor Starters as specified in Article 2.10 and 2.11 of this Section.

5. Fuses as specified in Article 2.13 of this Section.

6. Time Clocks as specified in Article 2.14 of this Section.

7. Ground Fault Circuit Interrupters as specified in Article 2.15 of this Section.

C. Submit proof of qualifications as specified in Article 1.02.A of this Section.

1.04 PRODUCT HANDLING

A. Delivery: Deliver all materials to the Project Site in the manufacturer's original unopened containers with all labels intact and legible.

B. Storage: Store all materials under cover in a manner to prevent damage and contamination, and store only the specified materials at the Project site.

C. Protection: Use all means necessary to protect swimming pool electrical materials before, during, and after installation and to protect the installed Work specified in other Sections.

PART 2 - PRODUCTS

2.01 MATERIALS, GENERAL

A. Materials shall be new, in unbroken packages and bear the U.L. label of approval.

B. Equipment of one type shall be by same manufacturer. One type of equipment for classifications such as:

1. Switchboards, panels, buss duct, disconnect switches and allied items.

2. Conduit.

3. Wire.

4. Conduit fittings.

5. Fixtures of the same general type.

6. Wiring devices.

2.02 CONDUIT AND FITTINGS

A. Conduit within or under buildings or where exposed outdoors shall be rigid threaded, hot dipped, galvanized, or U.L. approved plastic except where noted otherwise on the Drawings. Metallic conduit shall be of the same metal between outlets or terminals.

B. Use flexible metallic conduit only for short connections of motors and where specifically called for on Drawings. Maximum length shall be 40". Use only liquid tight flexible metal conduit. Install an unbroken #12 AWG insulated copper grounding conductor in each liquid tight flexible conduit with permanent connection at motor junction box and service panel ground.

C. Protect, before installation, metallic conduit runs in all slabs laid on grade or in contact with the earth or exposed in damp locations, with two (2) heavy coats of asphaltum rust-resisting compound.

D. Encase conduits 2-1/2" or larger run underground, outside, or under buildings, in concrete envelopes a minimum of 3" thick, except as indicated otherwise on Drawings or stubouts. Conduits 2 and smaller laid 18" below finish surface in soil.

E. Low voltage runs underground outside buildings, 1-1/4" or smaller, may be G.I. or sherardized steel conduit, with machine applied wrapping equal to double wrap or Scotch-Wrap #50 tape, half lapped and quadrupled at joints in lieu of concrete encasement.

F. Service conduits through foundations or concrete members shall run through metal sleeves with adequate clearances for full movement of the conduit. Do not run conduits through footings.

G. Secure conduits run exposed on surfaces with one hole heavy-duty straps or fasten with matching fittings to inserts or trapezes, parallel to building walls and ceilings.

H. Cap all conduit or duct stub-outs with standard factory caps; except cap threaded steel conduit with B.I. water pipe caps in outdoor locations.

I. Use conduit fittings as manufactured by Crouse-Hinds Company, Appleton Electric Co., or approved equal.

J. Employ U.L. liquid tight fittings for use with liquid tight flexible metal conduit.

K. Use unions as manufactured by Appleton, O-Z/Gedney, or approved equal. The use of running threads will not be permitted.

L. Exposed conduit in chemical rooms shall be rigid NEMA 3R Type suitable for installation in corrosive atmospheres.

2.03 GROUNDING

A. Bond together and ground to a common ground at a single point all metallic conduit, piping systems, pool reinforcing steel, metal parts of ladders, lifeguard stands, handrails and their supports and the like. The bonding conductor shall not be smaller than #8 copper.

2.04 WIRING CONNECTIONS

A. Make connections without strain on conductors, allowing the conductors to take a natural position after connections or taps are made. Include all strand of wire in making the connection.

B. Make connections for wiring by one of the following means:

1. Make all taps or connections to conductors with compression type connectors except those smaller than #8 B&S gauge may have soldered connections. Solderless connections for #10 AWG or smaller may be used and shall be

"Scotchlok", Buchanan, or approved equal. For #8 AWG or larger, they shall be T&B "LockTite", Burndy "Versitaps", or approved equal.

2. All cable or conductor terminal lugs shall be Burndy "Quicklug", Ilsco, or approved equal. Two piece stamped lugs and solder lugs will not be approved.

3. Paint taped splices in damp or outdoor locations with two (2) coats of insulating paint.

4. Tag all branch circuit wires with circuit number at the panelboard and at each point of use with linen or plastic tags.

2.05 CONDUCTORS

A. Description: Single conductor insulated wire.

B. Conductor: copper.

C. Insulation Voltage Rating: 600 volts.

D. Insulation: CEC; Stranded wire, Type THHN/THWN or XHHW insulation for feeders and branch circuits #8 AWG and larger solid wire, Type THHN/THWN or XHHW insulation for feeders and branch circuits #10 AWG and smaller.

E. Select one type and use for entire installation, except as indicated for special purpose.

F. For conductors installed in areas subjected to temperatures exceeding 140 degrees F., including terminating in incandescent lighting fixtures and installed through or into housing containing ballasts, provide Type THHN.

G. For conductors installed in exposed conduit outside of buildings and conduit within or just under roofing material, provide Type XHHW.

H. Control Circuits for Mechanical Equipment: Use 600 volt Underwriters' type THWN conductors except where subject to abnormally high temperatures such as on or near boilers. Under these conditions, use Type XHHW.

I. Conductor insulation shall be color coded to indicate phase leg, voltage and use.

J. Conductor insulation type, size and U.L. approval shall be printed with permanent white paint on conductor insulation, continually repeating.

K. Minimum Size of Conductors: #12 AWG copper, unless otherwise indicated.

L. Conductors shall be new and shall have been manufactured within 12 months of the date of delivery to the site and continuously stored where protected from the sun, heat or weather.

M. Deliver conductor to the site in their original cable reels or in their original unbroken packages.

N. Provide conductor packages and cable reels plainly marked or tagged with U.L. labels, AWG size, voltage rating, insulation type, type of stranding, manufacturer's name, trade name and month and year when manufactured.

2.06 CONDUCTOR INDENTIFICATION

A. All secondary branch circuit conductors (No. 10 AWG & smaller) throughout the project shall be provided with color coded insulation as follows:

208Y/120V	Phase	480Y/277
Black	A	Brown
Red	B	Orange
Blue	C	Yellow
White	Neutral	Gray
Green	Ground	Green

2.07 MOTOR WIRING

A. Make final connections to motors with the required AWG (Minimum #12), Flamenol machine tool wire, 19 strand. Control wiring for equipment shall be Flamenol machine tool wire, 19 strand of required AWG. Provide junction boxes at each item of equipment to change from standard building wiring to machine tool wire.

B. Phase motors as proper in direction of rotation.

2.08 PANELBOARDS

A. Panelboards shall be flush or surface mounting as indicated with circuit breakers as shown on panel schedule, hinged lockable doors, index card holders and proper bussing.

B. Where indicated on the drawings, panelboards shall be furnished with subfeed breakers and/or lugs, split bussing, contractors, time switches, relays, etc., as required.

C. All panelboards shall be keyed alike.

D. All panelboards shall be finished with one coat of zinc chromate and coat of primer sealer after a thorough cleaning where exposed to public view (e.g., corridors, covered passages, offices, etc.) and gray in switchboard, janitor's heater and storage rooms. Prime coated panelboard shall be painted to match surroundings after installation. Panelboards shall be fabricated of sheet steel of the following minimum gauges: Doors and trim #12; enclosure - code gauge steel.

E. Furnish all panelboards and terminal cabinets with Yale 46515 flush locks and LL806 keys except where indicated otherwise herein. Fasten the trim to panel boards and terminal cabinet by means of concealed, bolted or screwed fasteners accessible only when the door is open.

F. Panelboards 208/120 volt, three phase, 4 wire, S/N or 120/240 volt, single phase, 3 wire, S/N.

Panelboard types as manufactured by:

Westinghouse	Type B10B
General Electric	Type NLAB
Square D	Type NQOB

G. Panelboards for 480/277 volt, three panes, 4 wire, S/N.

Panelboard types as manufactured by:

Westinghouse	Type Pow-R-Line 2
General Electric	Type AE
Square D	Type NEHB
Sylvania	Type NH1B
I.T.E.	Type Approved Equal

H. Panelboard for bussing sizes thru 400 amp shall be 20" wide surface mounted type. Recess mounted type shall have a 20" wide (maximum) recess metal enclosure with trim plate cover extending 1" on all sides of enclosure. Depth shall be 5-3/4" nominal. Height of panel as required for devices.

I. Provide 6" additional gutter space in all panels where double lugs are required, or where cable size exceeds bus size. Minimum bottom gutter space shall be 6" high. 12" additional gutter space may be required for aluminum feeders where used.

J. Panelboards shown on the drawings with relays, time clocks or other control devices shall have a separate metal barriered compartment mounted above panel with separate hinged locking door to match panelboard. Provide mounting sub-base in cabinet for control devices and wiring terminal strips.

K. Panelboard shall have a circuit index card holder removable type, with clear plastic cover. Index card shall have numbers imprinted to match circuit breaker numbers.

2.09 CIRCUIT BREAKERS

A. Breakers shall have a minimum short circuit interrupting rating of 10,000A symmetrical for panelboard voltage thru 240 volt and 14000A for panelboards thru 600 volts or as specified on the drawings. In no case shall the interrupting rating be less than the bus withstand rating unless noted otherwise on the drawings.

B. Circuit breakers as manufactured by the following companies only are acceptable:

1. General Electric Company
2. Square D Company
3. Westinghouse Company
4. I.T.E. Company

C. Circuit breakers shall be arranged in the panels so that the breakers of the proper trip settings and numbers correspond to the numbering in the panel schedules on the drawings. Circuit numbers of breakers shall be black-on-white micarta tabs or other previously approved method. Circuit number tabs which can readily be changed from front of panel will not be accepted. Circuit number tabs shall not be attached to or be a part of the breaker.

D. Where two or three pole breakers occur in the panels, they shall be common trip units. Single pole breakers with tie-bar between handles will not be accepted.

E. All circuit breakers shall be padlockable in the "off" position. Locking facilities shall be riveted or mechanically attached to the circuit breaker (submit sample for approval). Other means of attachment shall not be accepted without prior written approval of Architect.

F. Where branch circuit breakers supply the power to motors and signal systems, the breakers shall be furnished with lockout clips, mounted in the "on" position. The breakers shall be able to trip automatically with lockout clips in place.

G. Panelboard circuit breakers shall be bolt-on type.

2.10 BUSSING

A. Bussing shall be rectangular cross section copper, or full length silver or tin-plated aluminum.

B. Bussing shall be braces to withstand symmetrical short circuit ratings as follows or as noted on drawings. In no case shall bus short circuit bracing be less than specified circuit breakers.

C. Each panelboard shall be equipped with a ground bus secured to the interior of the enclosure. The bus shall have a separate lug for each ground conductor. No more than one conductor shall be installed per lug.

2.11 TERMINAL CABINETS

A. Terminal cabinets shall be fabricated of code gauge sheet steel for flush mounting (except where noted a surface) of size indicated on the drawings, and complete with hinged lockable doors and the number of 2-way screw terminals required for termination of all conductors. Terminal cabinet locks to operated form same key used for panelboards. The trim to terminal cabinets shall be fastened by means of concealed bolted or screwed fasteners accessible behind door to terminal cabinets. Terminal cabinets shall have 5/8" plywood backing. Cabinets shall be finished with one coat of zinc chromate and one coat of primer sealer after a thorough cleaning where exposed to public view Prime coated cabinets shall be painted to match surroundings after installation.

B. Provide engraved nameplate on each cabinet indicating its designation and system (i.e., Swimming Pool - Panel ‘SP’).

2.12 MOTOR CONTROL INDIVIDUAL STARTERS

A. Manual Motor Starters:

1. Provide flush or surface mounting manual motor starters with number of poles and size of thermal overload heaters as required for the motor being controlled (equipped with overload heaters, one for each motor lead). Back boxes shall be supplied with all flush mounting starters whether they are toggle type requiring only a 4" square outlet box or the larger type requiring a special box and cover designed to accept the particular unit.

2. Unless otherwise noted on the drawings, all manual starters for single phase motors, smaller than 1 h.p., shall be the compact toggle type. Manual starters for all single phase motors, 1 to 5 h.p., and all three phase motors up to 5 h.p. shall be the heavy duty type.

3. Where manual motor starter is shown with pilot light, the pilot light shall be installed in a separate outlet box adjacent to the starter outlet, and engraved nameplate in indicate function of pilot light.

4. The following motor starters as manufactured by:

Manufacture	Single Phase 1HP and Below	Others
Arrow Hart	Type RL	Type LL
General Electric	CR 101	Class CR 1062
I.T.E.	Class C10, C11 or C12	Class C20
Square D Company	Class 2510, Type A	Class 2510, Type B & C
Westinghouse	Type MS	Type A100
Allen Bradley	Approved Equal	Approved Equal.

B. Individual Magnetic Motor Starters:

1. Magnetic motor starters shall be A.C. line voltage, across-the-line units in NEMA Type I enclosure, unless other types of enclosures are indicated.

2. All starters located outside of a building whether or not indicated shall be W.P. (weatherproof), and all starters noted W.P. shall be furnished in NEMA type 4 cast or stainless steel enclosures.

3. Starter shall be horsepower rated for the motor controlled, and shall be equipped with properly sized overload elements. Every pole shall be with overload element.

4. Verify the exact motor current and voltage characteristics with the Contractor supplying the motor before installation of a starter.

5. Each starter shall be equipped with "Hand-Off-Auto" switch or stop-start pushbutton as required.

6. Coils shall be designed to operate on voltage indicated on control diagrams and have built-in-under the voltage release for coil circuit to drop motor starter off the line when the line voltage drops below normal operating voltage.

7. The coil control circuit shall be independently fused, sized to protect coil.

8. Starters to be equipped with running pilot light indication with a "Push-to-Test" feature.

9. Magnetic starters shall have a minimum of two auxiliary contacts. Additional auxiliary contacts shall be provided as required to comply with the requirements of the wiring diagrams on the electrical and mechanical drawings and the description of the function in the Mechanical Section of the Specifications.

10. Minimum starter size shall be NEMA size I unless indicated otherwise.

11. The following types of magnetic motor starters as manufactured by:

Manufacture	Type
General Electric	Class CR 106
I.T.E.	Class A20
Square D Company	Class 8536
Westinghouse	Type A200 (Size 4 Max.) or Class II-200 (Sizes 5-8)

2.13 INDIVIDUAL COMBINATION MOTOR STARTERS

A. Combination starter shall incorporate fused disconnect switch and individual magnetic motor starter in a common enclosure. Combination starters shall be mounted in general purpose enclosures unless otherwise indicated on the plans. Starters shall comply with NEMA standards, size and horsepower as indicated on drawings General Electric, Square D, Westinghouse or I.T.E.

B. The disconnect handle used on combination starters shall control the disconnect device with the door opened or closed. The disconnect handle shall be clearly marked as to whether the disconnect device is "ON" or "OFF", and shall include a two-color handle grip, the black side visible in the "OFF" position indicating a safe condition, and the red side visible in the "ON" position indicating an unsafe or danger condition.

C. All starters used in combination starters shall be manufactured in accordance with the latest published NEMA standards, sizes, and horsepower ratings. These starters shall be furnished with three melting alloy type thermal overload relays.

D. Thermal units shall be of one-piece construction and interchangeable. The starter shall be inoperative if a thermal unit is removed.

2.14 MOTOR CONTROL INTERLOCKS AND CONTROL DEVICES

A. Refer to mechanical and plumbing drawings and specifications and provide all control devices including timeswitches, relays and interconnection of starters of required.

B. Mount all relays and timeswitches in a separate compartment in motor control center unless otherwise indicated.

C. Whether shown on mechanical and plumbing drawings or control center schedules or not, where motors are controlled by external devices (i.e., thermostats, relays, float or pressure switches, etc.) or interlocked with other motors, each motor starter to be equipped with a "Hand-Off-Auto" selector switch in starter cover. Other starters equipped with a "Start'Stop" pushbutton station in starter cover.

2.15 FUSES

A. Fuses shall be dual element, current limiting type, U.L. Class RK5 unless otherwise indicated on the drawings. Provide one spare set of fuses of each size and type in each motor control center.

2.16 TIME CLOCKS

A. Time clocks shall be provided for all underwater lighting systems and swimming pool circulation pumps not controlled by filter microprocessors.

B. Contacts shall have a minimum rating of 40 amperes at 277V.

C. Timing motor shall be heavy duty synchronous, self starting, high torque type, and shall be rated at 120, 208, 240, 277 volt 60 Hz.

D. Motor shall operate normally at temperature range of -60 degrees Fahrenheit to +120 degrees Fahrenheit.

E. Dial shall be 3" diameter, clearly calibrated with day/night zones and 24 hour rotation, with gear to provide one revolution yearly which automatically varies the on/off settings each day according to seasonal changes. Day and month of the year shall show clearly through calendar window on the dial.

F. Time clocks shall be equipped with 7-spoke omitting wheel marked with days of the week.

G. Time clocks shall be housed in a flush enclosure where supply circuits emanate from a flush mounted panelboard and surface enclosure when supply circuits are from a surface mounted panel.

H. Acceptable manufacturers are Tork, Paragon, or approved equal.

2.17 GROUND FAULT CIRCUIT INTERRUPTERS

A. Minimum rating shall be 20 amperes, 125V, 5 milliampere trip setting, Class A per UL943.

B. Manufacturer to be Crouse-Hinds, Leviton, or approved equal.

2.18 BOXES

A. Boxes shall be of the size required by ordinances or larger, and of pressed galvanized code gauge steel where concealed or exposed on ceilings. Exposed boxes on walls below 7'6" shall be cast steel similar to "FA" condulets.

B. Outlets to be surface where wiring is exposed and flush in areas where conduit is concealed.

C. Provide surface outlets with proper galvanized steel surface cover. Box and cover shall be deep enough to provide at least 1/4" clearance between back of device and back of box. Where box contains more than one device, use proper gang box with proper cover. Surface outlet boxes shall be of the threaded hub type wherever below 8'0".

D. Provide exposed junction boxes with proper flat blank galvanized cover. If necessary for cable installation, additional pull boxes or junction boxes may be installed in accessible locations.

E. Where pull boxes larger than outlet boxes are required, galvanized code gauge sheet steel boxes may be used with covers attached by brass machine screws. Boxes exposed to the weather shall be approved for the purpose, and conduit entrances shall be on the bottom made by means of an interchangeable hub with gasket and adapter nut. Pull boxes not shown on Drawings may be added only after approval of size and location is obtained.

F. For outlets exposed to weather or where noted, cast outlet boxes shall be Crouse-Hinds, Appleton, or approved equal. Boxes shall have proper number and size hubs. Device plates, covers, adapters and boxes shall be as manufactured by Crouse-Hinds, Appleton, or approved equal.

G. Exposed junction boxes, outlet boxes and pull boxes for pool chemical rooms shall be NEMA 3R type suitable for corrosive atmosphere, non-metallic.

2.19 IDENTIFICATION MARKINGS

A. Plainly mark all motor and electrical appliance control equipment indicating the equipment controlled with engraved metal tags.

B. Provide laminated plastic nameplates on panelboards on the outside of the door at the top indicating panel designation and feeder source.

C. Provide laminated plastic nameplates on distribution switchboards and motor control centers at the top center indicating panel designation and feeder source.

D. Identify each distribution switchboard and motor control center circuit breaker with a laminated plastic nameplate indicating its' use.

E. Type panelboard directories on the forms provided with the equipment, indicating the use of each branch circuit breaker.

F. Fasten all laminated plastic nameplates to surfaces with two (2) or more screws.

PART 3 - EXECUTION

3.01 INSPECTION

A. Verify conditions at the Project site before submitting bid. Be responsible for providing all necessary wiring for the new electrical systems. Wherever wiring is being disrupted due to remodeling or changes, reconnect existing and provide new wiring circuits to accomplish a fully operable system at no additional cost to the Owner.

3.02 COORDINATION

A. The Drawings are essentially diagrammatic and indicate the desired location, size, routes, connection points, etc., and are to followed as closely as possible. Proper judgment must be exercised in executing the Work so as to provide the best possible installation in the available space and to overcome difficulties, limitations or interference wherever encountered. Be responsible for the correct placement of this Work, the proper location and connection in relation to Work of other trades, for determining the exact location of all conduits, outlets and equipment, and for installing the conduits in such a manner as to conform to the structure, avoid obstruction, preserve headroom and keep openings and passageways clear. Particular attention is directed to the close coordination required on exposed Work. Locations shown on Architectural or Mechanical Drawings if different than those shown on Electrical Drawings should be communicated to the Owner's Representative in writing for clarification.

3.03 INSTALLATION

A. Trenching and Backfill: Conform with requirements of Section 13 11 01. Provide minimum cover as required by Code.

B. Conduit Installation:

1. Conduit and metallic raceway systems shall be mechanically and electrically continuous from sources of current to all outlets in a manner to provide a continuous grounding path. Close ends of conduit during construction to prevent entrance of dirt or moisture.

2. Securely fasten conduit to the building construction within three feet of each outlet and within every ten feet thereafter. Secure it to boxes, cabinets, pull boxes, terminals with two locknuts and ends equipped with bushings or a terminal fitting. Cut square with ends carefully reamed.

3. Make bends or elbows so that the conduit will not be injured or flattened.

4. Use insulated metallic bushings in all places where bushings are required.

5. Run exposed conduits level or plumb and parallel to the construction members of the building. No cutting across or diagonal runs will be permitted. Neatly surmount structural obstructions encountered on conduit runs by the use of fittings or pull boxes.

6. Identify feeder conduits by stamped metal tags secured to exposed section of conduit in main or sub-panels.

7. Make up all threaded conduit joints gas and watertight with conductive sealer except conduit above ground in dry indoor locations.

8. Rigidly support all boxes independently of the conduit system.

C. Connections to Equipment:

1. Fully connect, in an approved manner, all electrical outlets, apparatus, motors, equipment, fixtures, wiring devices and appliances whether they are installed under the Electrical Contract or not, which require electrical connections, to the corresponding electrical system outlet.

2. Where the Work of this Section requires connections to be made to equipment that is furnished and set-in-place under other Sections, obtain such roughing-in dimensions from the manufacturer or supplier of each item as required and assume full responsibility for the installation of the connections thereto.

3.04 ADJUSTMENT AND CLEAN-UP

A. Preliminary Operation: Should the Owner's Representative deem it necessary to operate the electrical installation or any part thereof prior to Substantial Completion of the Work, consent to such preliminary operation and supervise conduction of same. Subcontractor shall pay all costs occasioned by such operation. Preliminary operation shall not be construed as an acceptance of any Work installed under this Contract.

B. Clean-up: Upon completion of the Work of this Section, immediately remove all swimming pool electrical materials, debris and rubbish occasioned by this Work to the approval of the Owner's Representative.

END OF SECTION

SECTION 26 05 11

REQUIREMENTS FOR ELECTRICAL INSTALLATIONS

PART 1 – GENERAL

1.01 DESCRIPTION

A. This section applies to all sections of Division 26.

B. Furnish and install electrical wiring, systems, equipment and accessories in accordance with the specifications and drawings. Capacities and ratings of motors, transformers, cable, switchboards, switchgear, panelboards, motor control centers, and other items and arrangements for the specified items are shown on drawings.

C. Electrical service entrance equipment (arrangements for temporary and permanent connections to the utility's system) shall conform to the utility's requirements. Coordinate fuses, circuit breakers and relays with the utility's system, and obtain utility approval for sizes and settings of these devices.

D. Wiring ampacities specified or shown on the drawings are based on copper conductors, with the conduit and raceways accordingly sized. Aluminum conductors are prohibited.

1.02 MINIMUM REQUIREMENTS

A. References to the International Building Code (IBC), National Electrical Code (NEC), Underwriters Laboratories, Inc. (UL) and National Fire Protection Association (NFPA) are minimum installation requirement standards.

B. Drawings and other specification sections shall govern in those instances where requirements are greater than those specified in the above standards.

1.03 TEST STANDARDS

A. All materials and equipment shall be listed, labeled or certified by a nationally recognized testing laboratory to meet Underwriters Laboratories, Inc., standards where test standards have been established. Equipment and materials which are not covered by UL Standards will be accepted provided equipment and material is listed, labeled, certified or otherwise determined to meet safety requirements of a nationally recognized testing laboratory. Equipment of a class which no nationally recognized testing laboratory accepts, certifies, lists, labels, or determines to be safe, will be considered if inspected or tested in accordance with national industrial standards, such as NEMA, or ANSI. Evidence of compliance shall include certified test reports and definitive shop drawings.

B. Definitions:

1. Listed; Equipment, materials, or services included in a list published by an organization that is acceptable to the authority having jurisdiction and concerned with evaluation of products or services, that maintains periodic inspection of

production or listed equipment or materials or periodic evaluation of services, and whose listing states that the equipment, material, or services either meets appropriate designated standards or has been tested and found suitable for a specified purpose.

2. Labeled; Equipment or materials to which has been attached a label, symbol, or other identifying mark of an organization that is acceptable to the authority having jurisdiction and concerned with product evaluation, that maintains periodic inspection of production of labeled equipment or materials, and by whose labeling the manufacturer indicates compliance with appropriate standards or performance in a specified manner.

3. Certified; equipment or product which:

   a. Has been tested and found by a nationally recognized testing laboratory to meet nationally recognized standards or to be safe for use in a specified manner.

   b. Production of equipment or product is periodically inspected by a nationally recognized testing laboratory.

   c. Bears a label, tag, or other record of certification.

4. Nationally recognized testing laboratory; laboratory which is approved, in accordance with OSHA regulations, by the Secretary of Labor.

1.04 QUALIFICATIONS (PRODUCTS AND SERVICES)

A. Manufacturers Qualifications: The manufacturer shall regularly and presently produce, as one of the manufacturer's principal products, the equipment and material specified for this project, and shall have manufactured the item for at least three years.

B. Product Qualification:

1. Manufacturer's product shall have been in satisfactory operation, on three installations of similar size and type as this project, for approximately three years.

2. The Owner reserves the right to require the Contractor to submit a list of installations where the products have been in operation before approval.

C. Service Qualifications: There shall be a permanent service organization maintained or trained by the manufacturer which will render satisfactory service to this installation within eight hours of receipt of notification that service is needed. Submit name and address of service organizations.

1.05 APPLICABLE PUBLICATIONS

A. Applicable publications listed in all Sections of Division are the latest issue, unless otherwise noted.

1.06 MANUFACTURED PRODUCTS

A. Materials and equipment furnished shall be of current production by manufacturers regularly engaged in the manufacture of such items, for which replacement parts shall be available.

B. When more than one unit of the same class or type of equipment is required, such units shall be the product of a single manufacturer.

C. Equipment Assemblies and Components:

1. Components of an assembled unit need not be products of the same manufacturer.

2. Manufacturers of equipment assemblies, which include components made by others, shall assume complete responsibility for the final assembled unit.

3. Components shall be compatible with each other and with the total assembly for the intended service.

4. Constituent parts which are similar shall be the product of a single manufacturer.

D. Factory wiring shall be identified on the equipment being furnished and on all wiring diagrams.

E. When Factory Testing Is Specified:

1. The Owner shall have the option of witnessing factory tests. The contractor shall notify the Resident Engineer a minimum of 15 working days prior to the manufacturers making the factory tests.

2. Four copies of certified test reports containing all test data shall be furnished to the Resident Engineer prior to final inspection and not more than 90 days after completion of the tests.

3. When equipment fails to meet factory test and re-inspection is required, the contractor shall be liable for all additional expenses, including expenses of the Owner.

1.07 EQUIPMENT REQUIREMENTS

A. Where variations from the contract requirements are requested in accordance with the requirements of the Standard Specifications for Public Works Construction (Greenbook) and the City of San Diego Standard Specifications for Public Works (Whitebook) the connecting work and related components shall include, but not be limited to additions or changes to branch circuits, circuit protective devices, conduits, wire, feeders, controls, panels and installation methods.

1.08 EQUIPMENT PROTECTION

A. Equipment and materials shall be protected during shipment and storage against physical damage, vermin, dirt, corrosive substances, fumes, moisture, cold and rain.

1. Store equipment indoors in clean dry space with uniform temperature to prevent condensation. Equipment shall include but not be limited to switchgear, switchboards, panelboards, transformers, motor control centers, motor controllers, uninterruptible power systems, enclosures, controllers, circuit protective devices, cables, wire, light fixtures, electronic equipment, and accessories.

2. During installation, equipment shall be protected against entry of foreign matter; and be vacuum-cleaned both inside and outside before testing and operating. Compressed air shall not be used to clean equipment. Remove loose packing and flammable materials from inside equipment.

3. Damaged equipment shall be, as determined by the Resident Engineer, placed in first class operating condition or be returned to the source of supply for repair or replacement.

4. Painted surfaces shall be protected with factory installed removable heavy kraft paper, sheet vinyl or equal.

5. Damaged paint on equipment and materials shall be refinished with the same quality of paint and workmanship as used by the manufacturer so repaired areas are not obvious.

1.09 WORK PERFORMANCE

A. All electrical work must comply with the requirements of NFPA 70 (NEC), NFPA 70B, NFPA 70E, OSHA Part 1910 subpart J, OSHA Part 1910 subpart S and OSHA Part 1910 subpart K in addition to other references required by contract.

B. Job site safety and worker safety is the responsibility of the contractor.

C. Electrical work shall be accomplished with all affected circuits or equipment de-energized. When an electrical outage cannot be accomplished in this manner for the required work, the following requirements are mandatory:

1. Electricians must use full protective equipment (i.e., certified and tested insulating material to cover exposed energized electrical components, certified and tested insulated tools, etc.) while working on energized systems in accordance with NFPA 70E.
2. Electricians must wear personal protective equipment while working on energized systems in accordance with NFPA 70E.

3. Before initiating any work, a job specific work plan must be developed by the contractor with a peer review conducted and documented by the Resident Engineer and Medical Center staff. The work plan must include procedures to be used on and near the live electrical equipment, barriers to be installed, safety equipment to be used and exit pathways.

4. Work on energized circuits or equipment cannot begin until prior written approval is obtained from the Resident Engineer.

D. New work shall be installed and connected to existing work neatly, safely and professionally. Disturbed or damaged work shall be replaced or repaired to its prior conditions.

E. Coordinate location of equipment and conduit with other trades to minimize interferences.

1.10 EQUIPMENT INSTALLATION AND REQUIREMENTS

A. Equipment location shall be as close as practical to locations shown on the drawings.

B. Working spaces shall not be less than specified in the NEC for all voltages specified.

C. Inaccessible Equipment:

1. Where the Resident Engineer determines that the Contractor has installed equipment not conveniently accessible for operation and maintenance, the equipment shall be removed and reinstalled as directed at no additional cost to the Owner.

2. "Conveniently accessible" is defined as being capable of being reached quickly for operation, maintenance, or inspections without the use of ladders, or without climbing or crawling under or over obstacles such as, but not limited to, motors, pumps, belt guards, transformers, piping, ductwork, conduit and raceways.

1.11 EQUIPMENT IDENTIFICATION

A. In addition to the requirements of the NEC, install an identification sign which clearly indicates information required for use and maintenance of items such as panelboards, cabinets, motor controllers (starters), safety switches, separately enclosed circuit breakers, individual breakers and controllers in switchboards, switchgear and motor control assemblies, control devices and other significant equipment.

B. Nameplates for Normal Power System equipment shall be laminated black phenolic resin with a white core with engraved lettering. Lettering shall be a minimum of 1/2 inch high. Nameplates shall indicate equipment designation, rated bus amperage, voltage, number of phases and wires. Secure nameplates with screws.

1.12 SUBMITTALS

A. Submit in accordance with the Standard Specifications for Public Works Construction (Greenbook) and the City of San Diego Standard Specifications for Public Works (Whitebook).

B. The Owner approval shall be obtained for all equipment and material before delivery to the job site. Delivery, storage or installation of equipment or material which has not had prior approval will not be permitted at the job site.

C. All submittals shall include adequate descriptive literature, catalog cuts, shop drawings and other data necessary for the Owner to ascertain that the proposed equipment and materials comply with specification requirements. Catalog cuts submitted for approval shall be legible and clearly identify equipment being submitted.

D. Submittals for individual systems and equipment assemblies which consist of more than one item or component shall be made for the system or assembly as a whole. Partial submittals will not be considered for approval.

1. Mark the submittals, "SUBMITTED UNDER SECTION_____".

2. Submittals shall be marked to show specification reference including the section and paragraph numbers.

3. Submit each section separately.

E. The submittals shall include the following:

1. Information that confirms compliance with contract requirements. Include the manufacturer's name, model or catalog numbers, catalog information, technical data sheets, shop drawings, pictures, nameplate data and test reports as required.

2. Submittals are required for all equipment anchors and supports. Submittals shall include weights, dimensions, center of gravity, standard connections, manufacturer's recommendations and behavior problems (e.g., vibration, thermal expansion,) associated with equipment or piping so that the proposed installation can be properly reviewed. Include sufficient fabrication information so that appropriate mounting and securing provisions may be designed and/or attached to the equipment.

3. Elementary and interconnection wiring diagrams for communication and signal systems, control systems and equipment assemblies. All terminal points and wiring shall be identified on wiring diagrams.

4. Parts list which shall include those replacement parts recommended by the equipment manufacturer.

F. Manuals: Submit in accordance with Greenbook and the Whitebook.

1. Maintenance and Operation Manuals: Submit as required for systems and equipment specified in the technical sections. Furnish four copies, bound in hardback binders, (manufacturer's standard binders) or an approved equivalent. Furnish one complete manual as specified in the technical section but in no case later than prior to performance of systems or equipment test, and furnish the remaining manuals prior to contract completion.

2. Inscribe the following identification on the cover: the words "MAINTENANCE AND OPERATION MANUAL," the name and location of the system, equipment, building, name of Contractor, and contract number. Include in the manual the names, addresses, and telephone numbers of each subcontractor

installing the system or equipment and the local representatives for the system or equipment.

3. Provide a "Table of Contents" and assemble the manual to conform to the table of contents, with tab sheets placed before instructions covering the subject. The instructions shall be legible and easily read, with large sheets of drawings folded in.

4. The manuals shall include:
   a. Internal and interconnecting wiring and control diagrams with data to explain detailed operation and control of the equipment.
   b. A control sequence describing start-up, operation, and shutdown.
   c. Description of the function of each principal item of equipment.
   d. Installation instructions.
   e. Safety precautions for operation and maintenance.
   f. Diagrams and illustrations.
   g. Periodic maintenance and testing procedures and frequencies, including replacement parts numbers and replacement frequencies.
   h. Performance data.
   i. Pictorial "exploded" parts list with part numbers. Emphasis shall be placed on the use of special tools and instruments. The list shall indicate sources of supply, recommended spare parts, and name of servicing organization.
   j. List of factory approved or qualified permanent servicing organizations for equipment repair and periodic testing and maintenance, including addresses and factory certification qualifications.

G. Approvals will be based on complete submission of manuals together with shop drawings.

H. After approval and prior to installation, furnish the Resident Engineer with one sample of each of the following:

1. A 12 inch length of each type and size of wire and cable along with the tag from the coils of reels from which the samples were taken.

2. Each type of conduit coupling, bushing and termination fitting.

3. Conduit hangers, clamps and supports.

4. Duct sealing compound.

5. Each type of receptacle, toggle switch, occupancy sensor, outlet box, manual motor starter, device wall plate, engraved nameplate, wire and cable splicing and terminating material, and branch circuit single pole molded case circuit breaker.

1.13 SINGULAR NUMBER

A. Where any device or part of equipment is referred to in these specifications in the singular number (e.g., "the switch"), this reference shall be deemed to apply to as many such devices as are required to complete the installation as shown on the drawings.

1.14 ACCEPTANCE CHECKS AND TESTS

A. The contractor shall furnish the instruments, materials and labor for field tests.

1.16 TRAINING

A. Training shall be provided in accordance the Greenbook and Whitebook.

B. Training shall be provided for the particular equipment or system as required in each associated specification.

C. A training schedule shall be developed and submitted by the contractor and approved by the Resident Engineer at least 30 days prior to the planned training.

END OF SECTION

SECTION 26 05 21

LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES (600 VOLTS AND BELOW)

PART 1 – GENERAL

1.01 DESCRIPTION

A. This section specifies the furnishing, installation, and connection of the low voltage power and lighting wiring.

1.02 RELATED WORK

A. Excavation and backfill for cables that are installed in conduit: Section 31 20 00, EARTH MOVING.

B. General electrical requirements that are common to more than one section in Division 26: Section 26 05 11, REQUIREMENTS FOR ELECTRICAL INSTALLATIONS.

C. Conduits for cables and wiring: Section 26 05 33, RACEWAY AND BOXES FOR ELECTRICAL SYSTEMS.

D. Requirements for personnel safety and to provide a low impedance path for possible ground fault currents: Section 26 05 26, GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS.

1.03 SUBMITTALS

A. In accordance with the Standard Specifications for Public Works Construction (Greenbook) and the City of San Diego Standard Specifications for Public Works (Whitebook).

1. Manufacturer's Literature and Data: Showing each cable type and rating.

2. Certificates: Two weeks prior to final inspection, deliver to the Resident Engineer four copies of the certification that the material is in accordance with the drawings and specifications and has been properly installed.

1.04 APPLICABLE PUBLICATIONS

A. Publications listed below (including amendments, addenda, revisions, supplements and errata) form a part of this specification to the extent referenced. Publications are reference in the text by the basic designation only.

B. American Society of Testing Material (ASTM):

D2301-04 Standard Specification for Vinyl Chloride Plastic Pressure Sensitive Electrical Insulating Tape

C. Federal Specifications (Fed. Spec.):
A-A-59544-00 Cable and Wire, Electrical (Power, Fixed Installation)

D. National Fire Protection Association (NFPA):

70-05 National Electrical Code (NEC)

E. Underwriters Laboratories, Inc. (UL):

44-02 Thermoset-Insulated Wires and Cables
83-03 Thermoplastic-Insulated Wires and Cables
467-01 Electrical Grounding and Bonding Equipment
486A-01 Wire Connectors and Soldering Lugs for Use with Copper Conductors
486C-02 Splicing Wire Connectors
486D-02 Insulated Wire Connector Systems for Underground Use or in Damp or Wet Locations
486E-00 Equipment Wiring Terminals for Use with Aluminum and/or Copper Conductors
493-01 Thermoplastic-Insulated Underground Feeder and Branch Circuit Cable
514B-02 Fittings for Cable and Conduit
1479-03 Fire Tests of Through-Penetration Fire Stops

PART 2 - PRODUCTS

2.01 CABLE AND WIRE (POWER AND LIGHTING)

A. Cable and Wire shall be in accordance with Fed. Spec. A-A-59544, except as hereinafter specified.

B. Single Conductor:

1. Shall be annealed copper.

2. Shall be stranded for sizes No. 8 AWG and larger, solid for sizes No. 10 AWG and smaller.

3. Shall be minimum size No. 12 AWG, except where smaller sizes are allowed herein.

C. Insulation:

1. THW, XHHW, or dual rated THHN-THWN shall be in accordance with UL 44, and 83.

2. Direct burial: UF or USE shall be in accordance with UL 493.

3. Isolated power system wiring: Type XHHW with a dielectric constant of 3.5 or less.

D. Color Code:

1. Secondary service, feeder and branch circuit conductors shall be color coded as follows:

208/120 volt	Phase	480/277 volt
Black	A	Brown
Red	B	Orange
Blue	C	Yellow
White	Neutral	Gray *

* or white with colored (other than green) tracer.

a. The lighting circuit "switch legs" and 3-way switch "traveling wires" shall have color coding unique and distinct (i.e. pink and purple) from the color coding indicated above. The unique color codes shall be solid and in accordance with the NEC. Field coordinate for a final color coding with the Resident Engineer.

2. Use solid color compound or solid color coating for No. 12 AWG and No. 10 AWG branch circuit conductors and neutral sizes.

3. Phase conductors No. 8 AWG and larger shall be color-coded using one of the following methods:

a. Solid color compound or solid color coating.
b. Stripes, bands, or hash marks of color specified above.
c. Color as specified using 19 mm (3/4 inch) wide tape. Apply tape in half overlapping turns for a minimum of 75 mm (three inches) for terminal points, and in junction boxes, pull boxes, troughs, manholes, and handholes. Apply the last two laps of tape with no tension to prevent possible unwinding. Where cable markings are covered by tape, apply tags to cable stating size and insulation type.

4. For modifications and additions to existing wiring systems, color coding shall conform to the existing wiring system.

5. Color code for isolated power system wiring shall be in accordance with the NEC.

2.02 SPLICES AND JOINTS

A. In accordance with UL 486A, C, D, E and NEC.

B. Branch circuits (No. 10 AWG and smaller):

1. Connectors: Solderless, screw-on, reusable pressure cable type, 600 volt, 105 degree C with integral insulation, approved for copper and aluminum conductors.

2. The integral insulator shall have a skirt to completely cover the stripped wires.

3. The number, size, and combination of conductors, as listed on the manufacturers packaging shall be strictly complied with.

C. Feeder Circuits:

1. Connectors shall be indent, hex screw, or bolt clamp-type of high conductivity and corrosion-resistant material.

2. Field installed compression connectors for cable sizes 250 kcmil and larger shall have not less than two clamping elements or compression indents per wire.

3. Insulate splices and joints with materials approved for the particular use, location, voltage, and temperature. Insulate with not less than that of the conductor level that is being joined.

4. Plastic electrical insulating tape: ASTM D2304 shall apply, flame retardant, cold and weather resistant.

2.03 CONTROL WIRING

A. Unless otherwise specified in other sections of these specifications, control wiring shall be as specified for power and lighting wiring, except the minimum size shall be not less than No. 14 AWG.

B. Control wiring shall be large enough so that the voltage drop under inrush conditions does not adversely affect operation of the controls.

2.04 WIRE LUBRICATING COMPOUND

A. Suitable for the wire insulation and conduit it is used with, and shall not harden or become adhesive.

B. Shall not be used on wire for isolated type electrical power systems.

2.05 WARNING TAPE

A. The tape shall be standard, 76 mm (3 inch) wide, 4-Mil polyethylene detectable type.

B. The tape shall be red with black letters indicating “CAUTION BURIED ELECTRIC LINE BELOW”.

PART 3 - EXECUTION

3.01 INSTALLATION, GENERAL

A. Install in accordance with the NEC, and as specified.

B. Install all wiring in raceway systems, except where direct burial or HCF Type AC cables are used.

C. Splice cables and wires only in outlet boxes, junction boxes, pull boxes, manholes, or handholes.

D. Wires of different systems (i.e. 120V, 277V) shall not be installed in the same conduit or junction box system.

E. Install cable supports for all vertical feeders in accordance with the NEC. Provide split wedge type which firmly clamps each individual cable and tightens due to cable weight.

F. For panelboards, cabinets, wireways, switches, and equipment assemblies, neatly form, train, and tie the cables in individual circuits.

G. Seal cable and wire entering a building from underground, between the wire and conduit where the cable exits the conduit, with a non-hardening approved compound.

H. Wire Pulling:

1. Provide installation equipment that will prevent the cutting or abrasion of insulation during pulling of cables.

2. Use ropes made of nonmetallic material for pulling feeders.

3. Attach pulling lines for feeders by means of either woven basket grips or pulling eyes attached directly to the conductors, as approved by the Resident Engineer.

4. Pull in multiple cables together in a single conduit.

I. No more than (3) single-phase branch circuits shall be installed in any one conduit.

J. The wires shall be derated in accordance with NEC Article 310. Neutral wires, under conditions defined by the NEC, shall be considered current-carrying conductors.

3.02 SPLICE INSTALLATION

A. Splices and terminations shall be mechanically and electrically secure.

B. Where the Resident Engineer determines that unsatisfactory splices or terminations have been installed, remove the devices and install approved devices at no additional cost to the Government.

3.03 CONTROL AND SIGNAL WIRING INSTALLATION

A. Unless otherwise specified in other sections, install wiring and connect to equipment/devices to perform the required functions as shown and specified.

B. Except where otherwise required, install a separate power supply circuit for each system so that malfunctions in any system will not affect other systems.

C. Where separate power supply circuits are not shown, connect the systems to the nearest panelboards of suitable voltages, which are intended to supply such systems and have suitable spare circuit breakers or space for installation.

D. Install a red warning indicator on the handle of the branch circuit breaker for the power supply circuit for each system to prevent accidental de-energizing of the systems.

E. System voltages shall be 120 volts or lower where shown on the drawings or as required by the NEC.

3.04 FEEDER IDENTIFICATION

A. In each interior pulbox and junction box, install metal tags on each circuit cables and wires to clearly designate their circuit identification and voltage.

3.05 EXISTNG WIRING

A. Unless specifically indicated on the plans, existing wiring shall not be reused for the new installation. Only wiring that conforms to the specifications and applicable codes may be reused. If existing wiring does not meet these requirements, existing wiring may not be reused and new wires shall be installed.

3.06 FIELD TESTING

A. Feeders and branch circuits shall have their insulation tested after installation and before connection to utilization devices such as fixtures, motors, or appliances.

B. Tests shall be performed by megger and conductors shall test free from short-circuits and grounds.

C. Test conductor phase-to-phase and phase-to-ground.

D. The Contractor shall furnish the instruments, materials, and labor for these tests.

END OF SECTION

SECTION 26 05 26

GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS

PART 1 – GENERAL

1.01 DESCRIPTION

A. This section specifies general grounding and bonding requirements of electrical equipment operations and to provide a low impedance path for possible ground fault currents.

B. "Grounding electrode system" refers to all electrodes required by NEC, as well as including made, supplementary, lightning protection system grounding electrodes.

C. The terms "connect" and "bond" are used interchangeably in this specification and have the same meaning.

1.02 RELATED WORK

A. Section 26 05 11, REQUIREMENTS FOR ELECTRICAL INSTALLATIONS: General electrical requirements and items that are common to more than one section of Division 26.

B. Section 26 05 21, LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES (600 VOLTS AND BELOW): Low Voltage power and lighting wiring.

1.03 SUBMITTALS

A. Submit in accordance with Section 26 05 11, REQUIREMENTS FOR ELECTRICAL INSTALLATIONS.

B. Shop Drawings:

1. Sufficient information, clearly presented, shall be included to determine compliance with drawings and specifications.

2. Include the location of system grounding electrode connections and the routing of aboveground and underground grounding electrode conductors.

C. Test Reports: Provide certified test reports of ground resistance.

D. Certifications: Two weeks prior to final inspection, submit four copies of the following to the Resident Engineer:

1. Certification that the materials and installation is in accordance with the drawings and specifications.

2. Certification, by the Contractor, that the complete installation has been properly installed and tested.

1.04 APPLICABLE PUBLICATIONS

A. Publications listed below (including amendments, addenda, revisions, supplements, and errata) form a part of this specification to the extent referenced. Publications are referenced in the text by the basic designation only.

B. American Society for Testing and Materials (ASTM):

B1-2001 Standard Specification for Hard-Drawn Copper Wire
B8-2004 Standard Specification for Concentric-Lay-Stranded Copper Conductors, Hard, Medium-Hard, or Soft

C. Institute of Electrical and Electronics Engineers, Inc. (IEEE):

81-1983 IEEE Guide for Measuring Earth Resistivity, Ground Impedance, and Earth Surface Potentials of a Ground System

D. National Fire Protection Association (NFPA):

70-2005 National Electrical Code (NEC)
99-2005 Health Care Facilities

E. Underwriters Laboratories, Inc. (UL):

44-2005 Thermoset-Insulated Wires and Cables
83-2003 Thermoplastic-Insulated Wires and Cables
467-2004 Grounding and Bonding Equipment
486A-486B-2003 Wire Connectors

PART 2 – PRODUCTS

2.01 GROUNDING AND BONDING CONDUCTORS

A. Equipment grounding conductors shall be UL 83 insulated stranded copper, except that sizes 6 mm² (10 AWG) and smaller shall be solid copper. Insulation color shall be continuous green for all equipment grounding conductors, except that wire sizes 25 mm² (4 AWG) and larger shall be permitted to be identified per NEC.

B. Bonding conductors shall be ASTM B8 bare stranded copper, except that sizes 6 mm² (10 AWG) and smaller shall be ASTM B1 solid bare copper wire.

C. Isolated Power System: Type XHHW-2 insulation with a dielectric constant of 3.5 or less.

D. Electrical System Grounding: Conductor sizes shall not be less than what is shown on the drawings and not less than required by the NEC, whichever is greater.

2.02 GROUND RODS

A. Copper clad steel, 19 mm (3/4-inch) diameter by 3000 mm (10 feet) long, conforming to UL 467.

B. Quantity of rods shall be as required to obtain the specified ground resistance.

2.03 SPLICES AND TERMINATION COMPONENTS

Components shall meet or exceed UL 467 and be clearly marked with the manufacturer, catalog number, and permitted conductor size(s).

2.04 GROUND CONNECTIONS

A. Below Grade: Exothermic-welded type connectors.

B. Above Grade:

1. Bonding Jumpers: compression type connectors, using zinc-plated fasteners and external tooth lockwashers.

2. Ground Busbars: Two-hole compression type lugs using tin-plated copper or copper alloy bolts and nuts.

3. Rack and Cabinet Ground Bars: one-hole compression-type lugs using zinc-plated or copper alloy fasteners.

2.05 EQUIPMENT RACK AND CABINET GROUND BARS

Provide solid copper ground bars designed for mounting on the framework of open or cabinet enclosed equipment racks with minimum dimensions of 4 mm thick by 19 mm wide (3/8 inch x ¾ inch).

2.06 GROUND TERMINAL BLOCKS

At any equipment mounting location (e.g. backboards and hinged cover enclosures) where rack-type ground bars cannot be mounted, provide screw lug-type terminal blocks.

2.07 SPLICE CASE GROUND ACCESSORIES

Splice case grounding and bonding accessories shall be supplied by the splice case manufacturer when available. Otherwise, use 16 mm² (6 AWG) insulated ground wire with shield bonding connectors.

PART 3 - EXECUTION

3.01 GENERAL

A. Ground in accordance with the NEC, as shown on drawings, and as hereinafter specified.

B. System Grounding:

1. Secondary service neutrals: Ground at the supply side of the secondary disconnecting means and at the related transformers.

2. Separately derived systems (transformers downstream from the service entrance): Ground the secondary neutral.

3. Isolation transformers and isolated power systems shall not be system grounded.

C. Equipment Grounding: Metallic structures (including ductwork and building steel), enclosures, raceways, junction boxes, outlet boxes, cabinets, machine frames, and other conductive items in close proximity with electrical circuits shall be bonded and grounded.

3.02 INACCESSIBLE GROUNDING CONNECTIONS

Make grounding connections, which are buried or otherwise normally inaccessible (except connections for which periodic testing access is required) by exothermic weld.

3.03 SECONDARY EQUIPMENT AND CIRCUITS

A. Main Bonding Jumper: Bond the secondary service neutral to the ground bus in the service equipment.

B. Metallic Piping, Building Steel, and Supplemental Electrode(s):

1. Provide a grounding electrode conductor sized per NEC between the service equipment ground bus and all metallic water and gas pipe systems, building steel, and supplemental or made electrodes. Jumper insulating joints in the metallic piping. All connections to electrodes shall be made with fittings that conform to UL 467.

2. Provide a supplemental ground electrode and bond to the grounding electrode system.

C. Service Disconnect (Separate Individual Enclosure): Provide a ground bar bolted to the enclosure with lugs for connecting the various grounding conductors.

D. Switchgear, Switchboards, Unit Substations, and Motor Control Centers:

1. Connect the various feeder equipment grounding conductors to the ground bus in the enclosure with suitable pressure connectors.

2. For service entrance equipment, connect the grounding electrode conductor to the ground bus.

3. Connect metallic conduits, which terminate without mechanical connection to the housing, by grounding bushings and grounding conductor to the equipment ground bus.

E. Transformers:

1. Exterior: Exterior transformers supplying interior service equipment shall have the neutral grounded at the transformer secondary. Provide a grounding electrode at the transformer.

2. Separately derived systems (transformers downstream from service equipment): Ground the secondary neutral at the transformer. Provide a grounding electrode conductor from the transformer to the nearest component of the grounding electrode system.

F. Conduit Systems:

1. Ground all metallic conduit systems. All metallic conduit systems shall contain an equipment grounding conductor.

2. Non-metallic conduit systems shall contain an equipment grounding conductor, except that non-metallic feeder conduits which carry a grounded conductor from exterior transformers to interior or building-mounted service entrance equipment need not contain an equipment grounding conductor.

3. Conduit containing only a grounding conductor, and which is provided for mechanical protection of the conductor, shall be bonded to that conductor at the entrance and exit from the conduit.

G. Feeders and Branch Circuits: Install equipment grounding conductors with all feeders and power and lighting branch circuits.

H. Boxes, Cabinets, Enclosures, and Panelboards:

1. Bond the equipment grounding conductor to each pullbox, junction box, outlet box, device box, cabinets, and other enclosures through which the conductor passes (except for special grounding systems for intensive care units and other critical units shown).

2. Provide lugs in each box and enclosure for equipment grounding conductor termination.

3. Provide ground bars in panelboards, bolted to the housing, with sufficient lugs to terminate the equipment grounding conductors.

I. Motors and Starters: Provide lugs in motor terminal box and starter housing or motor control center compartment to terminate equipment grounding conductors.

J. Receptacles shall not be grounded through their mounting screws. Ground with a jumper from the receptacle green ground terminal to the device box ground screw and the branch circuit equipment grounding conductor.

K. Ground lighting fixtures to the equipment grounding conductor of the wiring system when the green ground is provided; otherwise, ground the fixtures through the conduit systems. Fixtures connected with flexible conduit shall have a green ground wire included with the power wires from the fixture through the flexible conduit to the first outlet box.

L. Fixed electrical appliances and equipment shall be provided with a ground lug for termination of the equipment grounding conductor.

M. Panelboard Bonding: The equipment grounding terminal buses of the normal and essential branch circuit panelboards serving the same individual patient vicinity shall be bonded together with an insulated continuous copper conductor not less than 16 mm² (10 AWG). These conductors shall be installed in rigid metal conduit.

3.04 CORROSION INHIBITORS

A. When making ground and ground bonding connections, apply a corrosion inhibitor to all contact surfaces. Use corrosion inhibitor appropriate for protecting a connection between the metals used.

3.05 CONDUCTIVE PIPING

A. Bond all conductive piping systems, interior and exterior, to the building to the grounding electrode system. Bonding connections shall be made as close as practical to the equipment ground bus.

3.06 ELECTRICAL ROOM GROUNDING

Building Earth Ground Busbars: Provide ground busbar hardware at each electrical room and connect to pigtail extensions of the building grounding ring.

3.07 WIREWAY GROUNDING

A. Ground and Bond Metallic Wireway Systems as follows:

1. Bond the metallic structures of wireway to provide 100 percent electrical continuity throughout the wireway system by connecting a 16 mm² (6 AWG) bonding jumper at all intermediate metallic enclosures and across all section junctions.

2. Install insulated 16 mm² (6 AWG) bonding jumpers between the wireway system bonded as required in paragraph 1 above, and the closest building ground at each end and approximately every 16 meters (50 feet).

3. Use insulated 16 mm² (6 AWG) bonding jumpers to ground or bond metallic wireway at each end at all intermediate metallic enclosures and cross all section junctions.

4. Use insulated 16 mm² (6 AWG) bonding jumpers to ground cable tray to column-mounted building ground plates (pads) at each end and approximately every 15 meters.

3.08 GROUND RESISTANCE

A. Grounding system resistance to ground shall not exceed 5 ohms. Make necessary modifications or additions to the grounding electrode system for compliance without additional cost to the Owner. Final tests shall assure that this requirement is met.

B. Resistance of the grounding electrode system shall be measured using a four-terminal fall-of-potential method as defined in IEEE 81. Ground resistance measurements shall be made before the electrical distribution system is energized and shall be made in normally dry conditions not less than 48 hours after the last rainfall. Resistance measurements of separate grounding electrode systems shall be made before the systems are bonded together below grade. The combined resistance of separate systems may be used to meet the required resistance, but the specified number of electrodes must still be provided.

C. Services at power company interface points shall comply with the power company ground resistance requirements.

D. Below-grade connections shall be visually inspected by the Resident Engineer prior to backfilling. The Contractor shall notify the Resident Engineer 24 hours before the connections are ready for inspection.

3.09 GROUND ROD INSTALLATION

A. Drive each rod vertically in the earth, not less than 3000 mm (10 feet) in depth.

B. Where permanently concealed ground connections are required, make the connections by the exothermic process to form solid metal joints. Make accessible ground connections with mechanical pressure type ground connectors.

C. Where rock prevents the driving of vertical ground rods, install angled ground rods or grounding electrodes in horizontal trenches to achieve the specified resistance.

END OF SECTION

SECTION 26 05 33

RACEWAY AND BOXES FOR ELECTRICAL SYSTEMS

PART 1 – GENERAL

1.01 DESCRIPTION

A. This section specifies the furnishing, installation, and connection of conduit, fittings, and boxes to form complete, coordinated, grounded raceway systems. Raceways are required for all wiring unless shown or specified otherwise.

B. Definitions: The term conduit, as used in this specification, shall mean any or all of the raceway types specified.

1.02 RELATED WORK

A. Sealing around conduit penetrations through the building envelope to prevent moisture migration into the building.

B. Identification and painting of conduit and other devices: Section 09 91 00, PAINTING.

C. General electrical requirements and items that is common to more than one section of Division 26: Section 26 05 11, REQUIREMENTS FOR ELECTRICAL INSTALLATIONS.

D. Requirements for personnel safety and to provide a low impedance path for possible ground fault currents: Section 26 05 26, GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS.

1.03 SUBMITTALS

In accordance with the Standard Specifications for Public Works Construction (Greenbook) and the City of San Diego Standard Specifications for Public Works (Whitebook).

A. Shop Drawings:

1. Size and location of main feeders;

2. Size and location of panels and pull boxes

3. Layout of required conduit penetrations through structural elements.

4. The specific item proposed and its area of application shall be identified on the catalog cuts.

B. Certification: Prior to final inspection, deliver to the Resident Engineer four copies of the certification that the material is in accordance with the drawings and specifications and has been properly installed.

1.04 APPLICABLE PUBLICATIONS

A. Publications listed below (including amendments, addenda, revisions, supplements and errata) form a part of this specification to the extent referenced. Publications are referenced in the text by the basic designation only.

B. National Fire Protection Association (NFPA):

70-05 National Electrical Code (NEC)

C. Underwriters Laboratories, Inc. (UL):

1-03	Flexible Metal Conduit
5-01	Surface Metal Raceway and Fittings
6-03	Rigid Metal Conduit
50-03	Enclosures for Electrical Equipment
360-03	Liquid-Tight Flexible Steel Conduit
467-01	Grounding and Bonding Equipment
514A-01	Metallic Outlet Boxes
514B-02	Fittings for Cable and Conduit
514C-05	Nonmetallic Outlet Boxes, Flush-Device Boxes and Covers
651-02	Schedule 40 and 80 Rigid PVC Conduit
651A-03	Type EB and A Rigid PVC Conduit and HDPE Conduit
797-03	Electrical Metallic Tubing
1242-00	Intermediate Metal Conduit

D. National Electrical Manufacturers Association (NEMA):

TC-3-04	PVC Fittings for Use with Rigid PVC Conduit and Tubing
FB1-03	Fittings, Cast Metal Boxes and Conduit Bodies for Conduit, Electrical Metallic Tubing and Cable

PART 2 – PRODUCTS

2.01 MATERIAL

A. Conduit Size: In accordance with the NEC, but not less than 13 mm (1/2 inch) unless otherwise shown. Where permitted by the NEC, 13 mm (1/2 inch) flexible conduit may be used for tap connections to recessed lighting fixtures.

B. Conduit:

1. Rigid galvanized steel: Shall Conform to UL 6, ANSI C80.1.

2. Rigid aluminum: Shall Conform to UL 6A, ANSI C80.5.

3. Rigid intermediate steel conduit (IMC): Shall Conform to UL 1242, ANSI C80.6.

4. Electrical metallic tubing (EMT): Shall Conform to UL 797, ANSI C80.3. Maximum size not to exceed 105 mm (4 inch) and shall be permitted only with cable rated 600 volts or less.

5. Flexible galvanized steel conduit: Shall Conform to UL 1.

6. Liquid-tight flexible metal conduit: Shall Conform to UL 360.

7. Direct burial plastic conduit: Shall conform to UL 651 and UL 651A, heavy wall PVC or high density polyethylene (PE).

8. Surface metal raceway: Shall Conform to UL 5.

C. Conduit Fittings:

1. Rigid steel and IMC conduit fittings:

   a. Fittings shall meet the requirements of UL 514B and ANSI/ NEMA FB1.
   b. Standard threaded couplings, locknuts, bushings, and elbows: Only steel or malleable iron materials are acceptable. Integral retractable type IMC couplings are also acceptable.
   c. Locknuts: Bonding type with sharp edges for digging into the metal wall of an enclosure.
   d. Bushings: Metallic insulating type, consisting of an insulating insert molded or locked into the metallic body of the fitting. Bushings made entirely of metal or nonmetallic material are not permitted.
   e. Erickson (union-type) and set screw type couplings: Approved for use in concrete are permitted for use to complete a conduit run where conduit is installed in concrete. Use set screws of case hardened steel with hex head and cup point to firmly seat in conduit wall for positive ground. Tightening of set screws with pliers is prohibited.
   f. Sealing fittings: Threaded cast iron type. Use continuous drain type sealing fittings to prevent passage of water vapor. In concealed work, install fittings in flush steel boxes with blank cover plates having the same finishes as that of other electrical plates in the room.

2. Rigid aluminum conduit fittings:

   a. Standard threaded couplings, locknuts, bushings, and elbows: Malleable iron, steel or aluminum alloy materials; Zinc or cadmium plate iron or steel fittings. Aluminum fittings containing more than 0.4 percent copper are prohibited.
   b. Locknuts and bushings: As specified for rigid steel and IMC conduit.
   c. Set screw fittings: Not permitted for use with aluminum conduit.

3. Electrical metallic tubing fittings:

   a. Fittings shall meet the requirements of UL 514B and ANSI/ NEMA FB1.
   b. Only steel or malleable iron materials are acceptable.

c. Couplings and connectors: Concrete tight and rain tight, with connectors having insulated throats. Use gland and ring compression type couplings and connectors for conduit sizes 50 mm (2 inches) and smaller. Use set screw type couplings with four set screws each for conduit sizes over 50 mm (2 inches). Use set screws of case-hardened steel with hex head and cup point to firmly seat in wall of conduit for positive grounding.
d. Indent type connectors or couplings are prohibited.
e. Die-cast or pressure-cast zinc-alloy fittings or fittings made of "pot metal" are prohibited.

4. Flexible steel conduit fittings:

a. Conform to UL 514B. Only steel or malleable iron materials are acceptable.
b. Clamp type, with insulated throat.

5. Liquid-tight flexible metal conduit fittings:

a. Fittings shall meet the requirements of UL 514B and ANSI/ NEMA FB1.
b. Only steel or malleable iron materials are acceptable.
c. Fittings must incorporate a threaded grounding cone, a steel or plastic compression ring, and a gland for tightening. Connectors shall have insulated throats.

6. Direct burial plastic conduit fittings:

a. Fittings shall meet the requirements of UL 514C and NEMA TC3.
b. As recommended by the conduit manufacturer.

7. Surface metal raceway fittings: As recommended by the raceway manufacturer.

8. Expansion and deflection couplings:

a. Conform to UL 467 and UL 514B.
b. Accommodate, 19 mm (0.75 inch) deflection, expansion, or contraction in any direction, and allow 30 degree angular deflections.
c. Include internal flexible metal braid sized to guarantee conduit ground continuity and fault currents in accordance with UL 467, and the NEC code tables for ground conductors.
d. Jacket: Flexible, corrosion-resistant, watertight, moisture and heat resistant molded rubber material with stainless steel jacket clamps.

D. Conduit Supports:

1. Parts and hardware: Zinc-coat or provide equivalent corrosion protection.
2. Individual Conduit Hangers: Designed for the purpose, having a pre-assembled closure bolt and nut, and provisions for receiving a hanger rod.

3. Multiple conduit (trapeze) hangers: Not less than 38 mm by 38 mm (1-1/2 by 1-1/2 inch), 12 gage steel, cold formed, lipped channels; with not less than 9 mm (3/8 inch) diameter steel hanger rods.

4. Solid Masonry and Concrete Anchors: Self-drilling expansion shields, or machine bolt expansion.

E. Outlet, Junction, and Pull Boxes:

1. UL-50 and UL-514A.

2. Cast metal where required by the NEC or shown, and equipped with rustproof boxes.

3. Sheet metal boxes: Galvanized steel, except where otherwise shown.

4. Flush mounted wall or ceiling boxes shall be installed with raised covers so that front face of raised cover is flush with the wall. Surface mounted wall or ceiling boxes shall be installed with surface style flat or raised covers.

F. Wireways: Equip with hinged covers, except where removable covers are shown.

G. Warning Tape: Standard, 4-Mil polyethylene 76 mm (3 inch) wide tape non-detectable type, red with black letters, and imprinted with “CAUTION BURIED ELECTRIC LINE BELOW”.

PART 3 – EXECUTION

3.01 PENETRATIONS

A. Cutting or Holes:

1. Locate holes in advance where they are proposed in the structural sections such as ribs or beams. Obtain the approval of the Resident Engineer prior to drilling through structural sections.

2. Cut holes through concrete and masonry in new and existing structures with a diamond core drill or concrete saw. Pneumatic hammer, impact electric, hand or manual hammer type drills are not allowed, except where permitted by the Resident Engineer as required by limited working space.

3.02 INSTALLATION, GENERAL

A. In accordance with UL, NEC, as shown, and as hereinafter specified.

B. Install conduit as follows:

1. In complete runs before pulling in cables or wires.
2. Flattened, dented, or deformed conduit is not permitted. Remove and replace the damaged conduits with new undamaged material.

3. Assure conduit installation does not encroach into the ceiling height head room, walkways, or doorways.

4. Cut square with a hacksaw, ream, remove burrs, and draw up tight.

5. Mechanically and electrically continuous.

6. Independently support conduit at 8’0” on center. Do not use other supports i.e., (suspended ceilings, suspended ceiling supporting members, lighting fixtures, conduits, mechanical piping, or mechanical ducts).

7. Support within 300 mm (1 foot) of changes of direction, and within 300 mm (1 foot) of each enclosure to which connected.

8. Close ends of empty conduit with plugs or caps at the rough-in stage to prevent entry of debris, until wires are pulled in.

9. Secure conduits to cabinets, junction boxes, pull boxes and outlet boxes with bonding type locknuts. For rigid and IMC conduit installations, provide a locknut on the inside of the enclosure, made up wrench tight. Do not make conduit connections to junction box covers.

10. Do not use aluminum conduits in wet locations.

11. Unless otherwise indicated on the drawings or specified herein, all conduits shall be installed concealed within finished walls, floors and ceilings.

C. Conduit Bends:

1. Make bends with standard conduit bending machines.

2. Conduit hickey may be used for slight offsets, and for straightening stubbed out conduits.

3. Bending of conduits with a pipe tee or vise is prohibited.

D. Layout and Homeruns:

1. Install conduit with wiring, including homeruns, as shown.

2. Deviations: Make only where necessary to avoid interferences and only after drawings showing the proposed deviations have been submitted approved by the Resident Engineer.

3.03 CONCEALED WORK INSTALLATION

A. In Concrete:

1. Conduit: Rigid steel, IMC or EMT. Do not install EMT in concrete slabs that are in contact with soil, gravel or vapor barriers.

2. Align and run conduit in direct lines.

3. Install conduit through concrete beams only when the following occurs:

   a. Where shown on the structural drawings.
   b. As approved by the Resident Engineer prior to construction, and after submittal of drawing showing location, size, and position of each penetration.

4. Installation of conduit in concrete that is less than 75 mm (3 inches) thick is prohibited.

   a. Conduit outside diameter larger than 1/3 of the slab thickness is prohibited.
   b. Space between conduits in slabs: Approximately six conduit diameters apart, except one conduit diameter at conduit crossings.
   c. Install conduits approximately in the center of the slab so that there will be a minimum of 19 mm (3/4 inch) of concrete around the conduits.

5. Make couplings and connections watertight. Use thread compounds that are UL approved conductive type to insure low resistance ground continuity through the conduits. Tightening set screws with pliers is prohibited.

3.04 EXPOSED WORK INSTALLATION

A. Unless otherwise indicated on the drawings, exposed conduit is only permitted in mechanical and electrical rooms.

B. Conduit for conductors above 600 volts:

1. Rigid steel or rigid aluminum.

2. Aluminum conduit mixed indiscriminately with other types in the same system is prohibited.

C. Conduit for Conductors 600 volts and below:

1. Rigid steel, IMC, rigid aluminum, or EMT. Different type of conduits mixed indiscriminately in the system is prohibited.

D. Align and run conduit parallel or perpendicular to the building lines.

E. Install horizontal runs close to the ceiling or beams and secure with conduit straps.

F. Support horizontal or vertical runs at not over 2400 mm (eight foot) intervals.

G. Surface metal raceways: Use only where shown.

H. Painting:

1. Paint exposed conduit as specified in Section 09 90 00, PAINTING AND COATING.

3.05 DIRECT BURIAL INSTALLATION

A. Exterior routing of Lighting Systems and Other Branch circuits (600 Volt and Less, and 1500 mm (5 feet) from the buildings):

1. Conduit: Thick wall PVC or high density PE, unless otherwise shown.

2. Mark conduit at uniform intervals to show the kind of material, direct burial type, and the UL approval label.

3. Install conduit fittings and terminations as recommended by the conduit manufacturer.

4. Tops of conduits shall be as follows unless otherwise shown:

a. Not less than 600 mm (24 inches) below finished grade.

b. Not less than 750 mm (30 inches) below road and other paved surfaces.

5. Work with extreme care near existing ducts, conduits, cables, and other utilities to avoid damaging them.

6. Excavation for conduit bedding and back-filling of trenches:

a. Cut the trenches neatly and uniformly.
b. Do not kink the conduits.

7. Seal conduits, including spare conduits, at building entrances and at outdoor terminations for equipment with a suitable compound that prevents the entrance of moisture and gases.

8. Where metal conduit is shown, install threaded heavy wall rigid steel galvanized PVC, or rigid steel or IMC, PVC coated or standard coated with bituminous asphaltic compound.

9. Warning tape shall be continuously placed 300 mm (12 inches) above conduits or electric lines.

B. Exterior routing of lighting systems and other branch circuits (600 volts and less-under buildings slab on grade to 1500 mm (5 feet) from the building):

1. Pre-coated rigid galvanized steel conduit in accordance with the requirements of Section 26 05 41, UNDERGROUND ELECTRICAL CONSTRUCTION.

3.06 WET OR DAMP LOCATIONS

A. Unless otherwise shown, use conduits of rigid steel or IMC.

B. Unless otherwise shown, use rigid steel or IMC conduit within 1500 mm (5 feet) of the exterior and below concrete building slabs in contact with soil, gravel, or vapor barriers. Conduit shall include an outer factory coating of .5 mm (20 mil) bonded PVC or field coat with asphaltum before installation. After installation, completely coat damaged areas of coating.

3.07 MOTORS AND VIBRATING EQUIPMENT

A. Use flexible metal conduit for connections to motors and other electrical equipment subject to movement, vibration, misalignment, cramped quarters, or noise transmission.

B. Provide liquid-tight flexible metal conduit for installation in exterior locations, moisture or humidity laden atmosphere, corrosive atmosphere, water or spray wash-down operations, inside (air stream) of HVAC units, and locations subject to seepage or dripping of oil, grease or water. Provide a green ground wire with flexible metal conduit.

3.08 CONDUIT SUPPORTS, INSTALLATION

A. Safe working load shall not exceed 1/4 of proof test load of fastening devices.

B. Use pipe straps or individual conduit hangers for supporting individual conduits. Maximum distance between supports is 2.5 m (8 foot) on center.

C. Support multiple conduit runs with trapeze hangers. Use trapeze hangers that are designed to support a load equal to or greater than the sum of the weights of the conduits, wires, hanger itself, and 90 kg (200 pounds). Attach each conduit with U-bolts or other approved fasteners.

D. Support conduit independently of junction boxes, pull boxes, fixtures, suspended ceiling T-bars, angle supports, and similar items.

E. Fasteners and Supports in Solid Masonry and Concrete:

1. New Construction: Use steel or malleable iron concrete inserts set in place prior to placing the concrete.
2. Existing Construction:

a. Steel expansion anchors not less than 6 mm (1/4 inch) bolt size and not less than 28 mm (1-1/8 inch) embedment.
b. Power set fasteners not less than 6 mm (1/4 inch) diameter with depth of penetration not less than 75 mm (3 inches).

c. Use vibration and shock resistant anchors and fasteners for attaching to concrete ceilings.

F. Hollow Masonry: Toggle bolts are permitted.

G. Bolts supported only by plaster or gypsum wallboard are not acceptable.

H. Metal Structures: Use machine screw fasteners or other devices specifically designed and approved for the application.

I. Attachment by wood plugs, rawl plug, plastic, lead or soft metal anchors, or wood blocking and bolts supported only by plaster is prohibited.

J. Chain, wire, or perforated strap shall not be used to support or fasten conduit.

K. Spring steel type supports or fasteners are prohibited for all uses except: Horizontal and vertical supports/fasteners within walls.

L. Vertical Supports: Vertical conduit runs shall have riser clamps and supports in accordance with the NEC and as shown. Provide supports for cable and wire with fittings that include internal wedges and retaining collars.

3.10 BOX INSTALLATION

A. Boxes for Concealed Conduits:

1. Flush mounted.

2. Provide raised covers for boxes to suit the wall or ceiling, construction and finish.

B. In addition to boxes shown, install additional boxes where needed to prevent damage to cables and wires during pulling in operations.

C. Remove only knockouts as required and plug unused openings. Use threaded plugs for cast metal boxes and snap-in metal covers for sheet metal boxes.

D. Outlet boxes in the same wall mounted back-to-back are prohibited. A minimum 600 mm (24 inch), center-to-center lateral spacing shall be maintained between boxes.)

E. Minimum size of outlet boxes for ground fault interrupter (GFI) receptacles is 100 mm (4 inches) square by 55 mm (2-1/8 inches) deep, with device covers for the wall material and thickness involved.

F. Stencil or install phenolic nameplates on covers of the boxes identified on riser diagrams; for example "SIG-FA JB No. 1".

G. On all Branch Circuit junction box covers, identify the circuits with black marker.

END OF SECTION

SECTION 26 05 41

UNDERGROUND ELECTRICAL CONSTRUCTION

PART 1 – GENERAL

1.01 DESCRIPTION

A. This section specifies the furnishing, installation and connection of manholes, handholes and ducts to form a complete underground raceway system.

B. "Duct" and "conduit", and "rigid metal conduit" and "rigid steel conduit are used interchangeably in this specification and have the same meaning.

1.02 RELATED WORK

A. Section 31 20 00, EARTH MOVING, Trenching, backfill and compaction.

B. Section 26 05 11, REQUIREMENTS FOR ELECTRICAL INSTALLATIONS: General electrical requirements and items that are common to more than one section of Division 26.

C. Section 26 05 33, RACEWAY AND BOXES FOR ELECTRICAL SYSTEMS: Conduits, fittings and boxes for raceway systems.

D. Section 26 05 26, GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS: Requirements for personnel safety and to provide a low impedance path for possible ground fault currents.

1.03 SUBMITTALS

A. Submit in accordance with Section 26 05 11, REQUIREMENTS FOR ELECTRICAL INSTALLATIONS.

B. Shop Drawings:

1. Sufficient information, clearly presented, shall be included to determine compliance with drawings and specifications.

2. Include manholes, handholes, duct materials, and hardware. Proposed deviations from details on the drawings shall be clearly marked on the submittals.

C. Certifications: Two weeks prior to final inspection, submit four copies of the following to the Resident Engineer:

1. Certification that the materials are in accordance with the drawings and specifications.

2. Certification, by the Contractor, that the complete installation has been properly installed and tested.

1.04 APPLICABLE PUBLICATIONS

Publications listed below (including amendments, addenda, revisions, supplements, and errata) form a part of this specification to the extent referenced. Publications are referenced in the text by the basic designation only.

A. American Concrete Institute (ACI):
Building Code Requirements for Structural Concrete
318/318M-2005 Building Code Requirements for Structural Concrete & Commentary
SP-66-04 ACI Detailing Manual

B. American Society for Testing and Materials (ASTM):

C478/C478M 2006(b)	Standard Specification for Precast Reinforced Concrete Manhole Sections
C990 REV A 2003	Standard Specification for joints concrete pipe, Manholes and Precast Box using performed flexible Joint sealants.

C. Institute of Electrical and Electronic Engineers (IEEE):

C2-2002 National Electrical Safety Code

D. National Electrical Manufacturers Association (NEMA):

RNI 2005	Polyvinyl Chloride (PVC) Externally Coated Galvanized Rigid Steel Conduit and Intermediate Metal Conduit
TC 2 2003	Electrical Polyvinyl Chloride (PVC) Tubing and Conduit
TC 3-2004	PVC Fittings for Use with Rigid PVC Conduit and Tubing
TC 6 & 8 2003	PVC Plastic Utilities Duct For Underground Installations
TC 9-2004	Fittings for PVC Plastic Utilities Duct for Underground Installation

E. National Fire Protection Association (NFPA):

70 2005National Electrical Code (NEC)

F. Underwriters Laboratories, Inc. (UL):

6-2004 Electrical Rigid Metal Conduit-Steel
467-2004 Standard for Grounding and Bonding Equipment
651-2005 Standard for Schedule 40 and 80 Rigid PVC Conduit and Fittings
651A-2003 Type EB and A Rigid PVC Conduit and HDPE Conduit, (RTRC)
651B-2002 Continuous Length HDPE Conduit

G. U.S. General Services Administration (GSA):

A-A-60005-1998 Frames, Covers, Gratings, Steps, Sump and Catch Basin, Manhole
SS-S-210A-1981 Sealing Compound, Preformed Plastic for Expansion joints And Pipe Joints.

PART 2 - PRODUCTS

2.01 DUCTS

A. Number and sizes shall be as shown on drawings.

B. Ducts (direct burial):

1. Plastic duct:

a. NEMA TC2 and TC3

b. UL 651, 651A and 651B, Schedule 40 PVC.

c. Duct shall be suitable for use with 75 degree C rated conductors.

2. Rigid metal conduit, PVC-coated: UL6 and NEMA RN1 galvanized rigid steel, threaded type, coated with PVC sheath bonded to the galvanized exterior surface, nominal 1 mm (0.040 inch) thick.

2.02 GROUNDING

A. Rods: Per Section 26 05 26, GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS and UL 467

B. Ground Wire: Stranded bare copper 16 mm² (6 AWG) minimum.

2.03 WARNING TAPE

Standard 4-mil polyethylene 76 mm (3 inch) wide tape, detectable type, red with black letters, imprinted with “CAUTION BURIED ELECTRIC CABLE BELOW”.

2.04 PULL ROPE

Plastic with 890N (200 pound) minimum tensile strength.

PART 3 - EXECUTION

3.01 TRENCHING

A. Refer to Section 31 20 00, EARTH MOVING for trenching back-filling, and compaction.

B. Work with extreme care near existing ducts, conduits, cables, and other utilities to avoid damaging them.

C. Cut the trenches neatly and uniformly.

3.02 DUCT INSTALLATION

A. General Requirements:

1. Ducts shall be in accordance with the NEC and IEEE C2, as shown on the drawings, and as specified.

2. Slope ducts to drain away from building and equipment entrances. Pitch not less than 100 mm (4 inches) in 30 M (100 feet).

3. Underground conduit stub-ups and sweeps to equipment inside of buildings shall be PVC-coated galvanized rigid steel, and shall extend a minimum of 1500 mm (5 feet) outside of building foundation.

4. Stub-ups, sweeps, and risers to equipment mounted on outdoor concrete slabs shall be PVC-coated galvanized rigid steel, and shall extend a minimum of 1500 mm (5 feet) away from edge of slab.

5. Install insulated grounding bushings on the terminations.

6. PVC-coated rigid steel conduits shall be coupled to the ducts with suitable adapters, and the whole encased with 75 mm (3 inches) of concrete.

7. PVC coated rigid steel conduit turns of direction for all duct lines shall have minimum 1200 mm (4 feet) radius in the horizontal and vertical directions. PVC conduit sweeps for all duct lines shall have a minimum 12000 mm (40 feet) radius in the horizontal and 1200 mm (4 feet) in the vertical directions. Where a 12000 mm (40 feet) radius is not possible, horizontal turns of direction shall be rigid steel.

8. All multiple conduit runs shall have conduit spacers. Spacers shall securely support and maintain uniform spacing of the duct assembly a minimum of 75 mm (3 inches) above bottom of trench during the concrete pour. Spacer spacing shall not exceed 1500 mm (5 feet).

9. Duct lines shall be installed no less than 300 mm (12 inches) from other utility systems, such as water, sewer, and chilled water.

10. Clearances between individual ducts:

    a. For like services, not less than 75 mm (3 inches).

    b. For power and signal services, not less than 150 mm (6 inches).

    c. Provide plastic spacers to maintain clearances.

    d. Provide nonferrous tie wires to prevent displacement of the ducts during pouring of concrete. Tie wires shall not act as substitute for spacers.

11. Duct lines shall terminate at window openings in manhole walls as shown on the drawings. All ducts shall be fitted with end bells.

12. Couple the ducts with proper couplings. Stagger couplings in rows and layers to insure maximum strength and rigidity of the duct bank.

13. Keep ducts clean of earth, sand, or gravel during construction, and seal with tapered plugs upon completion of each portion of the work.

B. Direct Burial Duct and Conduits:

1. Install direct burial ducts and conduits only where shown on the drawings. Provide direct burial ducts only for low voltage systems.

2. Join and terminate ducts and conduits with fittings recommended by conduit manufacturer.

3. Direct burial ducts and conduits are prohibited under railroad tracks.

4. Tops of ducts and conduits shall be:

   a. Not less than 600 mm (24 inches) and not less than shown on the drawings, below finished grade.

   b. Not less than 750 mm (30 inches) and not less than shown on the drawings, below roads and other paved surfaces.

5. Do not kink the ducts or conduits.

C. Concrete-Encased and Direct Burial Duct and Conduit Identification: Place continuous strip of warning tape approximately 300 mm (12 inches) above ducts or conduits before backfilling trenches. Warning tape shall be preprinted with proper identification.

D. Spare Ducts and Conduits: Where spare ducts are shown, they shall have a nylon pull rope installed. They shall be capped at each end and labeled as to location of the other end.

E. Duct and Conduit Cleaning:

1. Upon completion of the duct bank installation or installation of direct buried ducts, a standard flexible mandrel shall be pulled through each duct to loosen particles of earth, sand, or foreign material left in the line. The mandrel shall be not less than 3600 mm (12 inches) long, and shall have a diameter not less than 13 mm (1/2 inch) less than the inside diameter of the duct. A brush with stiff bristles shall then be pulled through each duct to remove the loosened particles. The diameter of the brush shall be the same as, or slightly larger than the diameter of the duct.

2. Mandrel pulls shall be witnessed by the Resident Engineer.

F. Duct and Conduit Sealing: Seal the ducts and conduits at building entrances, and at outdoor terminations for equipment, with a suitable non-hardening compound to prevent the entrance of moisture and gases.

G. Connections to Existing Ducts: Where connections to existing duct banks are indicated, excavate around the duct banks as necessary. Cut off the duct banks and remove loose concrete from the conduits before installing new concrete-encased ducts. Provide a reinforced concrete collar, poured monolithically with the new duct bank, to take the shear at the joint of the duct banks.

END OF SECTION

SECTION 26 24 11

DISTRIBUTION SWITCHBOARDS

PART 1 - GENERAL

1.01 DESCRIPTION

This section specifies the furnishing, installation, and connection of the distribution switchboards.

1.02 RELATED WORK

A. Section 26 05 11, REQUIREMENTS FOR ELECTRICAL INSTALLATIONS: General electrical requirements and items that are common to more than one section of Division 26.

B. Section 26 05 21, LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES (600 VOLTS AND BELOW): Cables and wiring.

C. Section 26 05 26, GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS: Requirements for Personnel Safety and to provide a low impedance path for possible fault currents.

D. Section 26 05 33, RACEWAY AND BOXES FOR ELECTRICAL SYSTEMS: Conduit and outlet boxes.

1.03 QUALITY ASSURANCE

Refer to Paragraph, QUALIFICATIONS, in Section 26 05 11, REQUIREMENTS FOR ELECTRICAL INSTALLATIONS.

1.04 FACTORY TESTS

A. Distribution switchboards shall be thoroughly tested at the factory to assure that there are no electrical or mechanical defects. Tests shall be conducted as per NEMA PB 2 and UL 891. Factory tests shall be certified.

B. The following additional tests shall be performed:

1. Verify that circuit breaker sizes and types correspond to drawings and coordination study.

2. Verify tightness of bolted electrical connections by calibrated torque-wrench method in accordance with manufacturer’s published data.

3. Exercise all active components.

4. Perform a dielectric withstand voltage test on each bus section, each phase-to-ground with phases not under test grounded, in accordance with manufacturer’s published data.

5. Perform insulation-resistance tests on control wiring with respect to ground. Applied potential shall be 500 volts dc for 300-volt rated cable and 1000 volts dc for 600-volt rated cable, or as required if solid-state components or control devices cannot tolerate the applied voltage.

6. If applicable, verify correct function of control transfer relays located in the switchboard with multiple control power sources.

7. Perform phasing checks on double-ended or dual-source switchboards to insure correct bus phasing from each source.

C. Furnish four (4) copies of certified manufacturer's factory test reports to the Resident Engineer prior to shipment of the switchboards to ensure that the switchboards have been successfully tested as specified.

1.05 SUBMITTALS

Submit in accordance with Section 26 05 11, REQUIREMENTS FOR ELECTRICAL INSTALLATIONS:

A. Shop Drawings:

1. Sufficient information, clearly presented, shall be included to determine compliance with drawings and specifications.

2. Include electrical ratings, dimensions, mounting details, materials, required clearances, terminations, weight, temperature rise, wiring and connection diagrams, plan, front, side, and rear elevations, sectional views, bus work, circuit breaker frame sizes, trip and short-circuit rating, long-time, short-time, instantaneous and ground fault settings, coordinated breaker and fuse curves, accessories, and device nameplate data.

3. Show the size, ampere-rating, number of bars per phase and neutral in each bus run (horizontal and vertical), bus spacing, equipment ground bus, and bus material.

B. Manuals:

1. Submit, simultaneously with the shop drawings, companion copies of complete maintenance and operating manuals including technical data sheets, wiring diagrams, and information for ordering replacement parts.

a. Wiring diagrams shall have their terminals identified to facilitate installation, maintenance, and operation.

b. Wiring diagrams shall indicate internal wiring for each item of equipment and the interconnection between the items of equipment.

c. Provide a clear and concise description of operation, which gives, in detail, the information required to properly operate the equipment.

d. Approvals will be based on complete submissions of manuals together with shop drawings.

2. Two weeks prior to final inspection, deliver four copies of the final updated maintenance and operating manuals to the Resident Engineer.

a. The manuals shall be updated to include any information necessitated by shop drawing approval.

b. Complete "As Installed" wiring and schematic diagrams shall be included which show all items of equipment and their interconnecting wiring.

c. Show all terminal identification.

d. Include information for testing, repair, trouble shooting, assembly, disassembly, and recommended maintenance intervals.

e. Provide a replacement parts list with current prices. Include a list of recommended spare parts, tools, and instruments for testing and maintenance purposes.

f. Furnish manuals in loose-leaf binder or manufacturer's standard binder.

C. Certifications:

1. Two weeks prior to final inspection, submit four copies of the following to the Resident Engineer:

a. Certification by the Contractor that the assemblies have been properly installed, adjusted and tested, including circuit breakers settings.

b. Certified copies of all of the factory design and production tests, field test data sheets and reports for the assemblies.

1.06 APPLICABLE PUBLICATIONS

Publications listed below (including amendments, addenda, revisions, supplements and errata) form a part of this specification to the extent referenced. Publications are referenced in the text by basic designation only.

A. Institute of Engineering and Electronic Engineers (IEEE):

C37.13 Low Voltage AC Power Circuit Breakers Used in Enclosures
C57.13 Instrument Transformers
C62.41 Surge Voltage in Low Voltage AC Power Circuits
C62.45 Surge Testing for Equipment connected to Low-Voltage AC Power Circuits

B. National Electrical Manufacturer's Association (NEMA):

PB-2 Dead-Front Distribution Switchboards.
PB-2.1 Instructions for Proper Handling, Installation, Operation, and Maintenance of Switchboards

AB-1 Molded Case Circuit Breakers, Molded Case Switches and Circuit Breaker Enclosures

C. National Fire Protection Association (NFPA):

70 National Electrical Code (NEC)

D. Underwriters Laboratories, Inc. (UL):

67 Panelboards
489 Molded Case Circuit Breakers and Circuit Breakers Enclosures
891 Dead-Front Switchboards
1283 Electromagnetic Interference Filters
1449 Transient Voltage Surge Suppressors

PART 2 – PRODUCTS

2.01 GENERAL

A. Switchboards shall be in accordance with UL, NEMA, NEC, IEEE, and as shown on the drawings.

B. Switchboards shall be provided complete, ready for operation including, but not limited to housing, buses, circuit breakers, instruments and related transformers, fuses, and wiring.

C. Switchboard dimensions shall not exceed the dimensions shown on the drawings.

D. Manufacturer's nameplate shall include complete ratings of switchboard in addition to the date of manufacture.

2.02 BASIC ARRANGEMENT

A. Type I: Switchboard shall be front accessible with the following features:

1. Device mounting:

a. Main breaker: Individually mounted and compartmented or group mounted with feeder breakers.

b. Feeder breakers: Group mounted.

2. Section alignment: As shown on the drawings.

3. Accessibility:

a. Main section line and load terminals: Front and side.

b. Distribution section line and load terminals: Front.

c. Through bus connections: Front and end.

4. Bolted line and load connections.

5. Full height wiring gutter covers for access to wiring terminals.

6. Short Circuit Current Rating: 65,000 amperes rms symmetrical, minimum, or as shown on the drawings, whichever is higher**.**

2.03 HOUSING

A. Provide a completely enclosed, free standing, steel enclosure not less than the gage required by the ANSI and UL standards. The enclosure is to consist of the required number of vertical sections bolted together to form one metal enclosed rigid switchboard. The sides, top and rear shall be covered with removable screw on sheet steel plates.

B. Provide ventilating louvers where required to limit the temperature rise of current carrying parts. All openings shall be protected against entrance of falling dirt, water, or foreign matter.

C. Enclosure shall be thoroughly cleaned, phosphate treated, and primed with rust-inhibiting paint. Final finish coat to be the manufacturers standard gray. Provide a quart of finish paint for touch-up purposes.

2.04 BUSES

A. General: Buses shall be arranged for 3 phase, 4 wire distribution. Main phase buses (through bus), full size neutral bus, and ground bus shall be full capacity the entire length of the switchboard. Provide for future extensions by means of bolt holes or other approved method. Brace the bus to withstand the available short circuit current at the particular location and as shown on the drawings. No magnetic material shall be used between buses to form a magnetic loop.

B. Material and Size: Buses and connections shall be hard drawn copper of 98 percent conductivity. Bus temperature rise shall not exceed 65 degrees C (149 degrees F). Section busing shall be sized based on UL and NEMA Switchboard Standards.

C. Bus Connections: All contact surfaces shall be copper. Provide a minimum of two plated bolts per splice. Where physical bus size permits only one bolt, provide a means other than friction to prevent turning, twisting or bending. Torque bolts to the manufacturer's recommended values.

D. Neutral Bus: Provide bare or plated bus and mount on insulated bus supports. Provide neutral disconnect link to permit isolation of neutral bus from the common ground bus and service entrance conductors.

E. Ground Bus: Provide an uninsulated 6 mm by 50 mm (1/4 inch by 2 inch) copper equipment ground bus bar sized per UL 891 the length of the switchboard and secure at each section.

F. Main Bonding Jumper: Connect an uninsulated 1/4 inch by 2 inch (6mm by 50 mm) copper bus between the neutral and ground buses to establish the system common ground point.

2.05 PROVISION FOR FUTURE

Where "provision for", "future", or "space" is noted on drawings, the space shall be equipped with bus connections to the future overcurrent device with suitable insulation and bracing to maintain proper short circuit rating and physical clearance. Provide buses for the ampere rating as shown for the future device.

2.06 CONTROL WIRING

Control wiring shall be 600 volt class B stranded SIS. Install all control wiring complete at the factory adequately bundled and protected. Wiring across hinges and between shipping units shall be Class C stranded. Size in accordance with NEC. Provide control circuit fuses.

2.07 MAIN CIRCUIT BREAKERS

A. Type I Switchboard: Provide UL listed and labeled molded case circuit breakers in accordance with NEC and as shown on the drawings. Circuit breakers shall be the solid state adjustable trip type.

1. Trip units shall have field adjustable tripping characteristics as follows:

   a. Ampere setting (continuous).

   b. Long time band.

   c. Short time trip point.

   d. Short time delay.

   e. Instantaneous trip point.

   f. Ground fault trip point.

   g. Ground fault trip delay.

2. Trip settings shall be as indicated on the drawings. Final settings shall be as shown on the electrical system protective device study.

3. Breakers, which have same rating, shall be interchangeable with each other.

2.08 FEEDER CIRCUIT BREAKERS

A. Provide UL listed and labeled molded case circuit breakers, in accordance with the NEC, as shown on the drawings, and as herein specified.

B. Non-adjustable Trip Molded Case Circuit Breakers:

1. Molded case circuit breakers shall have automatic, trip free, non-adjustable, inverse time, and instantaneous magnetic trips for 100 ampere frame size or less. Magnetic trip shall be adjustable from 3X to 10X for breakers with 600 ampere frame size and higher. Factory setting shall be LOW unless otherwise noted.

2. Breaker features shall be as follows:

   a. A rugged, integral housing of molded insulating material.

   b. Silver alloy contacts.

   c. Arc quenchers and phase barriers for each pole.

   d. Quick-make, quick-break, operating mechanisms.

   e. A trip element for each pole, thermal magnetic type with long time delay and instantaneous characteristics, a common trip bar for all poles and a single operator.

   f. Electrically and mechanically trip free.

   g. An operating handle which indicates ON, TRIPPED and OFF positions.

   h. Line and load connections shall be bolted.

   i. Interrupting rating shall not be less than the maximum short circuit current available at the line.

   j. An overload on one pole of a multipole breaker shall automatically cause all the poles of the breaker to open.

PART 3 – EXECUTION

3.01 INSTALLATION

A. Install the switchboard in accordance with the NEC, as shown on the drawings, and as recommended by the manufacturer.

B. In seismic areas, switchboard shall be adequately anchored and braced per details on structural contract drawings to withstand the seismic (Zone IV) forces at the location where installed.

C. Interior Location. Mount switchboard on concrete slab. Unless otherwise indicated, the slab shall be at least 4 inches [100mm] thick. The top of the concrete slab shall be approximately 4 inches [100mm] above finished floor. Edges above floor shall have 1/2 inch [12.5mm] chamfer. The slab shall be of adequate size to project at least 8 inches [200mm] beyond the equipment. Provide conduit turnups and cable entrance space required by the equipment to be mounted. Seal voids around conduit openings in slab with water- and oil-resistant caulking or sealant. Cut off and bush conduits 3 inches [75mm] above slab surface. Concrete work shall be as specified in Section 03 30 00, CAST-IN-PLACE CONCRETE.

3.02 ACCEPTANCE CHECKS AND TESTS

A. Perform in accordance with the manufacturer's recommendations. Include the following visual and mechanical inspections and electrical tests:

1. Visual and Mechanical Inspection

   a. Compare equipment nameplate data with specifications and approved shop drawings.

   b. Inspect physical, electrical, and mechanical condition.

   c. Confirm correct application of manufacturer's recommended lubricants.

   d. Verify appropriate anchorage, required area clearances, and correct alignment.

   e. Verify that circuit breaker sizes and types correspond to approved shop drawings.

   f. Verifying tightness of accessible bolted electrical connections by calibrated torque-wrench method, or performing thermographic survey after energization.

   g. Confirm correct operation and sequencing of electrical and mechanical interlock systems.

   h. Clean switchboard.

   i. Inspect insulators for evidence of physical damage or contaminated surfaces.

   j. Verify correct shutter installation and operation.

   k. Exercise all active components.

   l. Verify the correct operation of all sensing devices, alarms, and indicating devices.

   m. If applicable, verify that vents are clear.

   n. If applicable, inspect control power transformers.

2. Electrical Tests

   a. Perform insulation-resistance tests on each bus section.

   b. Perform overpotential tests.

   c. Perform insulation-resistance test on control wiring; do not perform this test on wiring connected to solid-state components.

d. Perform phasing check on double-ended switchboard to ensure correct bus phasing from each source.

3.03 FOLLOW-UP VERIFICATION

Upon completion of acceptance checks, settings, and tests, the Contractor shall show by demonstration in service that the switchboard is in good operating condition and properly performing the intended function. Circuit breakers shall be tripped by operation of each protective device.

3.04 INSTRUCTION

Furnish the services of a factory certified instructor for one 4 hour period for instructing personnel in the operation and maintenance of the switchboard and related equipment on the date requested by the Resident Engineer.

END OF SECTION

SECTION 26 24 16

PANELBOARDS

PART 1 - GENERAL

1.01 DESCRIPTION

This section specifies the furnishing, installation and connection of panelboards.

1.02 RELATED WORK

A. Section 09 90 00, PAINTING AND COATING: Identification and painting of panelboards.

B. Section 26 05 11, REQUIREMENTS FOR ELECTRICAL INSTALLATIONS: General electrical requirements and items that are common to more than one Section of Division 26.

C. Section 26 05 33, RACEWAY AND BOXES FOR ELECTRICAL SYSTEMS: Conduits and outlet boxes.

D. Section 26 05 21, LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES (600 VOLTS AND BELOW): Cables and wiring.

E. Section 26 05 26, GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS: Requirements for personnel safety and to provide a low impedance path for possible ground fault currents.

1.03 SUBMITTALS

A. Submit in accordance with Section 26 05 11, REQUIREMENTS FOR ELECTRICAL INSTALLATIONS.

B. Shop Drawings:

1. Sufficient information, clearly presented, shall be included to determine compliance with drawings and specifications.

2. Include electrical ratings, dimensions, mounting details, materials, wiring diagrams accessories and weights of equipment. Complete nameplate data including manufacturer’s name and catalog number.

C. Certification: Two weeks prior to final inspection, submit four copies of the following to the Resident Engineer:

Certification that the material is in accordance with the drawings and specifications has been properly installed, and that the loads are balanced.

1.04 APPLICABLE PUBLICATIONS

Publications listed below (including amendments, addenda, revisions, supplements and errata) form a part of this specification to the extent referenced. Publications are referenced in the text by the basic designation only.

A. National Electrical Manufacturers Association (NEMA):

PB-1-2006 Panelboards

AB-1-2002 Molded Case Circuit Breakers, Molded Case Switches and Circuit Breaker Enclosures

B. National Fire Protection Association (NFPA):

70-2005 National Electrical Code (NEC)
70E-2004 Standard for Electrical Life Safety in the Workplace

C. Underwriters Laboratories, Inc. (UL):

50-2003 Enclosures for Electrical Equipment

67-2003 Panel boards

489-2006 Molded Case Circuit Breakers and Circuit Breaker Enclosures

PART 2 - PRODUCTS

2.01 PANELBOARDS

A. Panelboards shall be in accordance with UL, NEMA, NEC, and as shown on the drawings.

B. Panelboards shall be standard manufactured products. All components of the panelboards shall be the product and assembly of the same manufacturer. All similar units of all panelboards to be of the same manufacturer.

C. All panelboards shall be hinged “door in door” type with:

1. Interior hinged door with hand operated latch or latches as required to provide access to circuit breaker operating handles only, not to energized ports.

2. Outer hinged door shall be securely mounted to the panelboard box with factory bolts, screws, clips or other fasteners requiring a tool for entry, hand operated latches are not acceptable.

3. Push inner and outer doors shall open left to right.

D. All panelboards shall be completely factory assembled with molded case circuit breakers. Include one-piece removable, inner dead front cover independent of the panelboard cover.

E. Panelboards shall have main breaker or main lugs, bus size, voltage, phase, top or bottom feed, and flush or surface mounting as scheduled on the drawings.

F. Panelboards shall conform to NEMA PB-1, NEMA AB-1 and UL 67 and have the following features:

1. Nonreduced size copper bus bars, complete with current ratings as shown on the panel schedules connection straps bolted together and rigidly supported on molded insulators.

2. Bus bar connections to the branch circuit breakers shall be the “distributed phase” or “phase sequence” type. Single-phase, three-wire panelboard busing shall be such that when any two adjacent single-pole breakers are connected to opposite phases, two-pole breakers can be installed in any location. Three-phase, four-wire busing shall be such that when any three adjacent single-pole breakers are individually connected to each of the three different phases, two-or three-pole breakers can be installed at any location. Current-carrying parts of the bus assembly shall be plated. Mains ratings shall be as shown.

3. Mechanical lugs furnished with panelboards shall be cast, stamped or machined metal alloys of sizes suitable for the conductors indicated to be connected thereto.

4. Neutral bus shall be 100% rated, mounted on insulated supports.

5. Grounding bus bar equipped with screws or lugs for the connection of grounding wires.

6. Buses braced for the available short circuit current, but not less than 22,000 amperes symmetrical for 120/208 volt and 120/240 volt panelboards, and 14,000 amperes symmetrical for 277/480-volt panelboards.

7. Branch circuit panels shall have buses fabricated for bolt-on type circuit breakers.

8. Protective devices shall be designed so that they can be easily replaced.

9. Where designated on panel schedule "spaces", include all necessary bussing, device support and connections. Provide blank cover for each space.

10. In two section panelboards, the main bus in each section shall be full size. The first section shall be furnished with subfeed lugs on the line side of main lugs only, or through-feed lugs for main breaker type panels, and with cable connections to the second section. Panelboard sections with tapped bus or crossover bus are not acceptable.

11. Series rated panelboards are not permitted.

2.02 CABINETS AND TRIMS

A. Cabinets:

1. Provide galvanized steel cabinets to house panelboards. Cabinets for outdoor panels shall be factory primed and suitably treated with a corrosion-resisting paint finish meeting UL 50 and UL 67.

2. Cabinet enclosure shall not have ventilating openings.

3. Cabinets for panelboards may be of one-piece formed steel or of formed sheet steel with end and side panels welded, riveted, or bolted as required.

2.03 MOLDED CASE CIRCUIT BREAKERS FOR PANELBOARDS

A. Breakers shall be UL 489 listed and labeled, in accordance with the NEC, as shown on the drawings, and as specified.

B. Circuit breakers in panelboards shall be bolt on type on phase bus bar or branch circuit bar.

1. Molded case circuit breakers for lighting and appliance branch circuit panelboards shall have minimum interrupting rating as indicated but not less than:

a. 120/208 Volt Panelboard: 22,000 amperes symmetrical.

b. 120/240 Volt Panelboard: 22,000 amperes symmetrical.

c. 277/480 Volt Panelboard: 14,000 amperes symmetrical.

2. Molded case circuit breakers shall have automatic, trip free, non-adjustable, inverse time, and instantaneous magnetic trips for 100-ampere frame or less. Magnetic trip shall be adjustable from 3X to 10X for breakers with 600 ampere frames and higher.

C. Breaker features shall be as follows:

1. A rugged, integral housing of molded insulating material.

2. Silver alloy contacts.

3. Arc quenchers and phase barriers for each pole.

4. Quick-make, quick-break, operating mechanisms.

5. A trip element for each pole, thermal magnetic type with long time delay and instantaneous characteristics, a common trip bar for all poles and a single operator.

6. Electrically and mechanically trip free.

7. An operating handle which indicates ON, TRIPPED, and OFF positions.

   a. Line connections shall be bolted.

   b. Interrupting rating shall not be less than the maximum short circuit current available at the line terminals as indicated on the drawings.

8. An overload on one pole of a multipole breaker shall automatically cause all the poles of the breaker to open.

9. Shunt trips shall be provided where indicated

2.04 SEPARATELY ENCLOSED MOLDED CASE CIRCUIT BREAKERS

A. Where separately enclosed molded case circuit breakers are shown on the drawings, provide circuit breakers in accordance with the applicable requirements of those specified for panelboards.

B. Enclosures are to be of the NEMA types shown on the drawings. Where the types are not shown, they are to be the NEMA type most suitable for the environmental conditions where the breakers are being installed.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Installation shall be in accordance with the Manufacturer's instructions, the NEC, as shown on the drawings, and as specified.

B. Locate panelboards so that the present and future conduits can be conveniently connected. Coordinate the sizes of cabinets with designated closet space.

C. Install a typewritten schedule of circuits in each panelboard after being submitted to and approved by the Resident Engineer. Schedules, after approval, shall be typed on the panel directory cards and installed in the appropriate panelboards, incorporating all applicable contract changes pertaining to that schedule. Include the room numbers and items served on the cards.

D. Mount the panelboard fully aligned and such that the maximum height of the top circuit breaker above finished floor shall not exceed 1980 mm (78 inches). For panelboards that are too high, mount panelboard so that the bottom of the cabinets will not be less than 150 mm (6 inches) above the finished floor.

E. For panelboards located in areas accessible to the public, paint the exposed surfaces of the trims, doors, and boxes with finishes to match surrounding surfaces after the panelboards have been installed.

F. Directory-card information shall be typewritten to indicate outlets, lights, devices, and equipment controlled and final room numbers served by each circuit and shall be mounted in holders behind protective covering.

G. Where new panels are to be installed in existing backboxes, backboxes shall have rust and scale removed from inside. Paint inside of backboxes with rust preventive paint before the new panel interior is installed. Provide new trim and doors for these panels. Covers shall fit tight to the box with no gaps between the cover and the box.

H. Provide ARC flash identification per NFPA 70E.

END OF SECTION

SECTION 26 56 00

EXTERIOR LIGHTING

PART 1 – GENERAL

1.01 DESCRIPTION

This section specifies the furnishing, installation, and connection of exterior luminaries, controls, poles and supports.

1.02 RELATED WORK

A. Section 26 05 11, REQUIREMENTS FOR ELECTRICAL INSTALLATIONS: General electrical requirements and items that are common to more than one section of Division 26.

B. Section 26 05 33, RACEWAY AND BOXES FOR ELECTRICAL SYSTEMS: Conduits, fittings, and boxes for raceway systems.

C. Section 26 05 21, LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES (600 VOLTS AND BELOW): Low voltage power and lighting wiring.

D. Section 26 05 41, UNDERGROUND ELECTRICAL CONSTRUCTION: Underground handholes and conduits.

E. Section 26 05 26, GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS: Requirements for personnel safety and to provide a low impedance path for possible ground fault currents.

1.03 SUBMITTALS

A. Submit in accordance with Section 26 05 11, REQUIREMENTS FOR ELECTRICAL INSTALLATIONS.

B. Shop Drawings:

1. Sufficient information, clearly presented, shall be included to determine compliance with drawings and specifications.

2. Include electrical ratings, dimensions, mounting, details, materials, required clearances, terminations, wiring and connection diagrams, photometric data, ballasts, poles, luminaries, lamps and controls.

C. Manuals: Two weeks prior to final inspection, submit four copies of operating and maintenance manuals to the Resident Engineer. Include technical data sheets, wiring and connection diagrams, and information for ordering replacement parts.

D. Certifications: Two weeks prior to final inspection, submit four copies of the following to the Resident Engineer:

1. Certification that the materials are in accordance with the drawings and specifications.

2. Certification, by the Contractor, that the complete installation has been properly installed and tested.

1.04 APPLICABLE PUBLICATIONS

Publications listed below (including amendments, addenda, revisions, supplements and errata) form a part of this specification to the extent referenced. Publications are referenced in the text by the basic designation only.

A. Aluminum Association Inc. (AA):

AAH35.1-2006 Alloy and Temper Designation Systems for Aluminum

B. American Association of State Highway and Transportation Officials (AASHTO):

LTS-4-2003 Structural Supports for Highway Signs, Luminaries and Traffic Signals

C. American Concrete Institute (ACI):

318-2005 Building Code Requirements for Structural Concrete

D. American National Standards Institute (ANSI):

C57.12-2000General Requirements for Liquid-Immersed Distribution, Power, and Regulating Transformers

C81.61-2005 Electrical Lamp Bases

E. American Society for Testing and Materials (ASTM):

A123/A123M-2002 Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products

A153/A153M-2001 Zinc Coating (Hot-Dip) on Iron and Steel Hardware – AASHTO No.: M232

B108-03a -2003 Aluminum-Alloy Permanent Mold Castings

D3487-2000 Mineral Insulating Oil Used in Electrical Apparatus

F. Federal Aviation Administration (FAA):

AC 70/7460-IK CHG 1-2000Obstruction Lighting and Marking

AC 150/5345-43E-1995 Specification for Obstruction Lighting Equipment

G. Illuminating Engineering Society of North America (IESNA)

HB-9-2000 Lighting Handbook

RP-8-2000 (R-2005) Roadway Lighting

H. National Electrical Manufacturers Association (NEMA):

C78.41-2001Electric Lamps – Guidelines for Low-Pressure Sodium Lamps

C78.42-2004 Electric Lamps – Guidelines for High-Pressure Sodium Lamps

C78.43-2005 Electric Lamps – Single-Ended Metal-Halide Lamps

C78.1381-1998 (R 1997) Electric Lamps – 70-Watt M85 Metal-Halide Lamps

C82.4-2002 Ballasts for High-Intensity-Discharge and Low-Pressure Sodium Lamps (Multiple-Supply Type)

C136.17-2005 Roadway Lighting Equipment – Enclosed Side-Mounted Luminaries for Horizontal-Burning High-Intensity-Discharge Lamps

ICS 2-2005 Industrial Control and Systems Controllers, Contactors and Overload Relays Rated 600 Volts

ICS 6-2001 Industrial Control and Systems Enclosures

I. National Fire Protection Association (NFPA):
70-2005 National Electrical Code (NEC)

J. Underwriters Laboratories, Inc. (UL):

496-2004 Edison-Base Lamp holders

773-1995 Plug-in, Locking Type Photo controls, for Use with Area Lighting

773A-2006 Non-industrial Photoelectric Switches for Lighting Control

1029-1994 High-Intensity-Discharge Lamp Ballasts

1598-2004 Luminaries

1.05 DELIVERY, STORAGE, AND HANDLING

Aluminum Poles: Do not store poles on ground. Store poles so they are at least 305 mm (one foot) above ground level and growing vegetation. Do not remove factory-applied pole wrappings until just before installing pole.

PART 2 – PRODUCTS

2.01 MATERIALS AND EQUIPMENT

Materials and equipment shall be in accordance with NEC, UL, ANSI, and as shown on the drawings and specified.

2.02 POLES

A. General:

1. Poles shall be round aluminum, as shown on the drawings, and as specified. Finish shall be as specified on the drawings.

2. The pole and arm assembly shall be designed for wind loading of 161 km/hr (100 miles per hour), with an additional 30 percent gust factor, supporting luminaire(s) having the effective projected areas indicated. The effective projected area of the pole shall be applied at the height of the pole base as shown on the drawings.

3. Poles shall be anchor-bolt type designed for use with underground supply conductors. Poles shall have oval-shaped handhole having a minimum clear opening of 65 by 125 mm (2.5 by 5 inches). Handhole cover shall be secured by stainless steel captive screws.

4. Provide a steel-grounding stud opposite hand hole openings.

5. Provide a base cover matching the pole in material and color to conceal the mounting hardware pole-base welds and anchor bolts.

6. Hardware: All necessary hardware shall be 300 series stainless steel.

B. Types:

1. Aluminum: Provide aluminum poles manufactured of corrosion resistant AA AAH35.1 aluminum alloys conforming to AASHTO LTS-4 for Alloy 6063-T6 or Alloy 6005-T5 for wrought alloys, and Alloy 356-T4 (3,5) for ASTM B108-03 cast alloys. Poles shall be seamless extruded or spun seamless type. Provide a pole grounding connection designed to prevent electrolysis when used with copper ground wire. Base covers for aluminum poles shall be cast from 356-T6 aluminum alloy in accordance with ASTM B108-03.

2.03 FOUNDATIONS FOR POLES

A. Foundations shall be cast-in-place concrete.

B. Foundations shall support the effective projected area of the specified pole, arm(s), and luminaire(s) under wind conditions previously specified in this section.

C. Place concrete in spirally wrapped treated paper forms for round foundations, and construct forms for square foundations.

D. Rub-finish and round all above-grade concrete edges to approximately 6 mm (1/4 inch) radius.

E. Concrete shall have 3000 psi minimum 28 day compressive strength.

F. Anchor bolt assemblies and reinforcing of concrete foundations shall be as shown on the drawings and meet ACI 318. Anchor bolts shall be in a welded cage or properly positioned by the tie wire to stirrups.

G. Prior to concrete pour, install a copperclad steel ground rod, not less than 19 mm (3/4-inch) diameter by 3000 mm (10 feet) long, below each foundation. Drive the rod vertically under the foundation so not less than 1800 mm (6 feet) of rod is in contact with the earth. Remainder of rod may be in the concrete pour. Where rock or layered rock is present, drill a hole not less than 50 mm (2 inches) in diameter and 1800 mm (6 feet) deep, backfill with tamped fine sand and drive the rod into the hole. Bond the rod to the pole with not less than number 6 AWG bare copper wires. The method of bonding shall be approved for the purpose.

2.04 LUMINAIRES

A. UL 1598 and NEMA C136.17. Luminaries shall be weatherproof, heavy duty, outdoor types designed for efficient light utilization, adequate dissipation of lamp and ballast heat and safe cleaning and relamping.

B. IESNA HB-9 and RP-8 light distribution pattern types shall be as shown on the drawings.

C. Incorporate ballasts in the luminaire housing except where otherwise shown on the drawings.

D. Lenses shall be frame-mounted heat-resistant, borosilicate glass, prismatic refractors. Attach the frame to the luminaire housing by hinges or chain. Use heat and aging resistant resilient gaskets to seal and cushion lenses and refractors in luminary doors.

E. Lamp sockets for high intensity discharge (H.I.D) fixture shall have locking type porcelain enclosures in conformance to the applicable requirements of ANSI C81.61 and UL 496.

F. Pre-wire internal components to terminal strips at the factory.

G. Bracket mounted luminaries shall have leveling provisions and clamp type adjustable slip-fitters with locking screws.

H. Materials shall be rustproof. Latches and fittings shall be non-ferrous metal.

I. IESNA Cutoff Category: cutoff .

2.05 LAMPS

A. Install the proper lamps in every luminaire installed.

B. Lamps to be general-service, outdoor lighting types.

C. High-Pressure Sodium (HPS) Lamps: NEMA C78.42, wattage as indicated. Lamps shall have average rated life of 16,000 hours minimum for 35 watt lamps and 24,000 hours minimum for all higher wattages.

D. Low-Pressure Sodium (LPS) Lamps: NEMA C78.41.

E. Metal-Halide Lamps: NEMA C78.43 or NEMA C78.1381

F. Mercury vapor lamps shall not be used.

2.06 HIGH INTENSITY DISCHARGE BALLASTS

A. For low voltage systems, the ballasts shall be the high efficiency, high power factor, copper-wound constant wattage type and shall meet the requirements of UL 1029 and NEMA C82.4.

1. Ballasts shall operate the discharge lamp of the type, wattage, and voltage shown on the drawings.

2. Ballasts shall have individual overcurrent protection (inline fuse holder) as recommended by the ballast manufacturer.

3. Ballasts shall be capable of providing reliable starting of the lamps at minus 30 degrees C.

4. Open-circuit operation shall not reduce the average life.

2.07 LIGHTING CONTACTORS

NEMA ICS 2, electrically held contactors. Rate contactors as indicated. Provide in NEMA 4 enclosure conforming to NEMA ICS 6. Contactors shall have silver alloy double-break contacts and shall require no arcing contacts.

2.08 CONTROLS

A. Lighting System:

1. Shall be controlled by the following method as shown for system on the drawings:

   a. The pilot devices shall control the power circuit through the contractor or relay as shown on the drawings.

2. Mount and connect time clocks as shown on the drawings.

3. Time clocks shall have the following features:

   a. A 24-hour astronomic dial, motor-driven.

   b. A spring-actuated, reserve power mechanism for operating the timer during electrical power failures and that automatically winds the spring when the electrical power is restored.

4. The arrangement and method of control and the control devices shall be as shown on the drawings.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Install lighting in accordance with the NEC, as shown on the drawings, and in accordance with manufacturer's recommendations.

B. Aluminum Poles:

1. Provide pole foundations with galvanized steel anchor bolts, threaded at the top end and bent 1.57 rad 90 degrees at the bottom end. Provide galvanized nuts, washers, and ornamental covers for anchor bolts. Thoroughly compact backfill with compacting arranged to prevent pressure between conductor, jacket, or sheath and the end of conduit. Adjust poles as necessary to provide a permanent vertical position with the bracket arm in proper position for luminaire location.

2. After the poles have been installed, shimmed and plumbed, grout the spaces between the pole bases and the concrete base with non-shrink concrete grout material. Provide a plastic or copper tube, of not less than 9 mm (3/8-inch) inside diameter, through the grout tight to the top of the concrete base for moisture weeping.

C. Foundation Excavation: Depth shall be as indicated. Dig holes large enough to permit the proper use of tampers to the full depth of the hole. Place backfill in the hole in 150 mm (6 inch) maximum layers and thoroughly tamp. Place surplus earth around the pole in a conical shape and pack tightly to drain water away.

3.02 GROUNDING

Ground noncurrent-carrying parts of equipment including metal poles, luminaries, mounting arms, brackets, and metallic enclosures as specified in Section 26 05 26, GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS. Where copper grounding conductor is connected to a metal other than copper, provide specially treated or lined connectors suitable and listed for this purpose.

END OF SECTION

SECTION 31 20 00

SWIMMING POOL EARTH MOVING

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes:

1. Preparing subgrades for slabs-on-grade, walks, pavements, and plants.

2. Excavating and backfilling for buildings and structures.

3. Drainage course for concrete slabs-on-grade.

4. Subbase course for concrete walks and pavements.

5. Subbase course and base course for asphalt paving.

6. Excavating and backfilling for utility trenches.

1.02 DEFINITIONS

A. Backfill: Soil material used to fill an excavation.

1. Initial Backfill: Backfill placed beside and over pipe in a trench, including haunches to support sides of pipe.

2. Final Backfill: Backfill placed over initial backfill to fill a trench.

B. Base Course: Aggregate layer placed between the subbase course and hot-mix asphalt paving.

C. Bedding Course: Aggregate layer placed over the excavated subgrade in a trench before laying pipe.

D. Borrow Soil: Satisfactory soil imported from off-site for use as fill or backfill.

E. Drainage Course: Aggregate layer supporting the slab-on-grade that also minimizes upward capillary flow of pore water.

F. Fill: Soil materials used to raise existing grades.

G. Structures: Buildings, footings, foundations, retaining walls, slabs, tanks, curbs, mechanical and electrical appurtenances, or other man-made stationary features constructed above or below the ground surface.

H. Subbase Course: Aggregate layer placed between the subgrade and base course for hot-mix asphalt pavement, or aggregate layer placed between the subgrade and a cement concrete pavement or a cement concrete or hot-mix asphalt walk.

I. Subgrade: Uppermost surface of an excavation or the top surface of a fill or backfill immediately below subbase, drainage fill, drainage course, or topsoil materials.

J. Utilities: On-site underground pipes, conduits, ducts, and cables, as well as underground services within buildings.

1.03 SUBMITTALS

A. Submit source and laboratory analysis of off site backfill material.

1.04 QUALITY ASSURANCE

A. Pre-excavation Conference: Conduct conference at project site.

1.04.1 PROJECT CONDITIONS

A. Utility Locator Service: Notify utility locator service for area where Project is located before beginning earth moving operations.

PART 2 - PRODUCTS

2.01 SOIL MATERIALS

A. General: Provide borrow soil materials when sufficient satisfactory soil materials are not available from excavations.

B. Satisfactory Soils: Soil Classification Groups GW, GP, GM, SW, SP, and SM according to ASTM D 2487, or a combination of these groups; free of rock or gravel larger than 3 inches (75 mm) in any dimension, debris, waste, frozen materials, vegetation, and other deleterious matter.

1. Liquid Limit = 35 (Per Geotech Appendix B Log of boring B26 Page 2.)

2. Plasticity Index = 19 (Per Geotech Appendix B Log of boring B26 Page 2.)

C. Unsatisfactory Soils: Soil Classification Groups GC, SC, CL, ML, OL, CH, MH, OH, and PT according to ASTM D 2487, or a combination of these groups.

1. Unsatisfactory soils also include satisfactory soils not maintained within 2 percent of optimum moisture content at time of compaction.

D. Subbase Material: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; with at least 90 percent passing a 1-1/2-inch (37.5-mm) sieve and not more than 12 percent passing a No. 200 (0.075-mm) sieve.

E. Base Course: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; with at least 95 percent passing a 1-1/2-inch (37.5-mm) sieve and not more than 8 percent passing a No. 200 (0.075-mm) sieve.

F. Engineered Fill: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; with at least 90 percent passing a 1-1/2-inch (37.5-mm) sieve and not more than 12 percent passing a No. 200 (0.075-mm) sieve.

G. Bedding Course: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; except with 100 percent passing a 3/8-inch (9.37-mm) sieve and not more than 8 percent passing a No. 200 (0.075-mm) sieve.

H. Drainage Course: Narrowly graded mixture of crushed stone, or crushed or uncrushed gravel; ASTM D 448; coarse-aggregate grading Size 57; with 100 percent passing a 1-1/2-inch (37.5-mm) sieve and 0 to 5 percent passing a No. 8 (2.36-mm) sieve.

2.02 ACCESSORIES

A. Warning Tape: Acid- and alkali-resistant, polyethylene film warning tape manufactured for marking and identifying underground utilities, 6 inches (150 mm) wide and 4 mils (0.1 mm) thick, continuously inscribed with a description of the utility; colored to comply with local practice or requirements of authorities having jurisdiction.

B. Detectable Warning Tape: Acid- and alkali-resistant, polyethylene film warning tape manufactured for marking and identifying underground utilities, a minimum of 6 inches (150 mm) wide and 4 mils (0.1 mm) thick, continuously inscribed with a description of the utility, with metallic core encased in a protective jacket for corrosion protection, detectable by metal detector when tape is buried up to 30 inches (750 mm) deep; colored to comply with local practice or requirements of authorities having jurisdiction.

PART 3 - EXECUTION

3.01 PREPARATION

A. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earth moving operations.

B. Protect and maintain erosion and sedimentation controls during earth moving operations.

C. Protect subgrades and foundation soils from freezing temperatures and frost. Remove temporary protection before placing subsequent materials.

3.02 EXCAVATION, GENERAL

A. Unclassified Excavation: Excavate to subgrade elevations regardless of the character of surface and subsurface conditions encountered. Unclassified excavated materials may include rock, soil materials, and obstructions. No changes in the Contract Sum or the Contract Time will be authorized for rock excavation or removal of obstructions.

1. If excavated materials intended for fill and backfill include unsatisfactory soil materials and rock, replace with satisfactory soil materials.

2. If soils are unsatisfactory due only to moisture content, over-excavate 12” and replace with bedding course material over a layer of filter fabric.

3.03 EXCAVATION FOR STRUCTURES

A. Excavate to indicated elevations and dimensions within a tolerance of plus or minus 1 inch (25 mm). If applicable, extend excavations a sufficient distance from structures for placing and removing concrete formwork, for installing services and other construction, and for inspections.

1. Excavations for Footings and Foundations: Do not disturb bottom of excavation. Excavate by hand to final grade just before placing concrete reinforcement. Trim bottoms to required lines and grades to leave solid base to receive other work.

3.04 EXCAVATION FOR WALKS AND PAVEMENTS

A. Excavate surfaces under walks and pavements to required lines, cross sections, elevations, and subgrades.

3.05 EXCAVATION FOR UTILITY TRENCHES

A. Excavate trenches to indicated gradients, lines, depths, and elevations.

B. Excavate trenches to uniform widths to provide the following clearance on each side of pipe or conduit. Excavate trench walls vertically from trench bottom to 12 inches (300 mm) higher than top of pipe or conduit unless otherwise indicated.

1. Clearance: 12 inches (300 mm) each side of pipe or conduit.

C. Trench Bottoms: Excavate and shape trench bottoms to provide uniform bearing and support of conduit encasement. Shape subgrade to provide continuous support for conduit encasement. Remove projecting stones and sharp objects along trench subgrade.

1. Excavate trenches 6 inches (150 mm) deeper than elevation required in rock or other unyielding bearing material, 4 inches (100 mm) deeper elsewhere, to allow for bedding course.

2. The bottom of the trench shall be compacted to reach 90% compaction of the soil.

3.06 SUBGRADE INSPECTION

A. Proof-roll subgrade below the building slabs and pavements with a pneumatic-tired dump truck to identify soft pockets and areas of excess yielding. Do not proof-roll wet or saturated subgrades.

B. Reconstruct subgrades damaged by freezing temperatures, frost, rain, accumulated water, or construction activities, as directed by Architect, without additional compensation.

3.07 UNAUTHORIZED EXCAVATION

A. Fill unauthorized excavation under foundations or wall footings by extending bottom elevation of concrete foundation or footing to excavation bottom, without altering top elevation. Lean concrete fill, with 28-day compressive strength of 2500 psi (17.2 MPa), may be used when approved by Architect.

1. Fill unauthorized excavations under other construction, pipe, or conduit as directed by Architect.

3.08 STORAGE OF SOIL MATERIALS

A. Stockpile borrow soil materials and excavated satisfactory soil materials without intermixing. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.

1. Stockpile soil materials away from edge of excavations. Do not store within drip line of remaining trees.

3.09 UTILITY TRENCH BACKFILL

A. Place backfill on subgrades free of mud, frost, snow, or ice.

B. Place and compact bedding course on trench bottoms and where indicated. Shape bedding course to provide continuous support for electrical conduit encasement.

C. Trenches under Footings: Backfill trenches excavated under footings and within 18 inches (450 mm) of bottom of footings with satisfactory soil; fill with concrete to elevation of bottom of footings. Concrete for encasement is specified in Section 260543.

D. Trenches under Roadways: Provide 4-inch- (100-mm-) thick, concrete-base slab support for piping or conduit less than 30 inches (750 mm) below surface of roadways. After installing and testing, completely encase piping or conduit in a minimum of 6 inches (150 mm) of concrete before backfilling or placing roadway subbase course. Concrete for encasement is specified in Section 260543.

E. Place and compact initial backfill of subbase material, free of particles larger than 3/8 inch in any dimension, to a height of 12 inches (300 mm) over the conduit.

1. Carefully compact initial backfill under conduit encasement to 90% compaction and compact evenly up on both sides and along the full length of conduit encasement to avoid damage or displacement of conduit encasement. Coordinate backfilling with utilities testing.

F. Place and compact final backfill of satisfactory soil to final subgrade elevation.

G. Achieve 90% compaction with trench backfill.

H. Install warning tape directly above utilities, 12 inches (300 mm) below finished grade, except 6 inches (150 mm) below subgrade under pavements and slabs. Provide detectable warning tape over non-metallic conduits or service.

3.10 SOIL FILL

A. Plow, scarify, bench, or break up sloped surfaces steeper than 1 vertical to 4 horizontal so fill material will bond with existing material.

B. Place and compact fill material in layers to required elevations as follows:

1. Under grass and planted areas, use satisfactory soil material.

2. Under walks and pavements, use satisfactory soil material.

3. Under steps and ramps, use engineered fill.

4. Under building slabs, use engineered fill.

5. Under footings and foundations, use engineered fill.

3.11 SOIL MOISTURE CONTROL

A. Uniformly moisten or aerate subgrade and each subsequent fill or backfill soil layer before compaction to within 2 percent of optimum moisture content.

1. Do not place backfill or fill soil material on surfaces that are muddy, frozen, or contain frost or ice.
2. Remove and replace, or scarify and air dry, otherwise satisfactory soil material that exceeds optimum moisture content by 2 percent and is too wet to compact to specified dry unit weight.

3.12 COMPACTION OF SOIL BACKFILLS AND FILLS

A. Place backfill and fill soil materials in layers not more than 8 inches (200 mm) in loose depth for material compacted by heavy compaction equipment, and not more than 4 inches (100 mm) in loose depth for material compacted by hand-operated tampers.

B. Place backfill and fill soil materials evenly on all sides of structures to required elevations, and uniformly along the full length of each structure.

C. Compact soil materials to not less than the following percentages of maximum dry unit weight according to ASTM D 1557:

1. Under structures, building slabs, steps, and pavements, scarify and recompact top 12 inches (300 mm) of existing subgrade and each layer of backfill or fill soil material at 95 percent.
2. Under walkways, scarify and recompact top 6 inches (150 mm) below subgrade and compact each layer of backfill or fill soil material at 92 percent.

3. Under turf or unpaved areas, scarify and recompact top 6 inches (150 mm) below subgrade and compact each layer of backfill or fill soil material at 85 percent.

4. For utility trenches, compact each layer of initial and final backfill soil material at 90 percent.

3.13 GRADING

A. General: Uniformly grade areas to a smooth surface, free of irregular surface changes. Comply with compaction requirements and grade to cross sections, lines, and elevations indicated.

B. Site Rough Grading: Slope grades to direct water away from buildings and to prevent ponding. Finish subgrades to required elevations within the following tolerances:

1. Turf or Unpaved Areas: Plus or minus 1 inch (25 mm).

2. Walks: Plus or minus 1 inch (25 mm).

3. Pavements: Plus or minus 1/2 inch (13 mm).

C. Grading inside Building Lines: Finish subgrade to a tolerance of 1/2 inch (13 mm) when tested with a 10-foot (3-m) straightedge.

3.14 SUBBASE AND BASE COURSES UNDER PAVEMENTS AND WALKS

A. Place subbase course and base course on subgrades free of mud, frost, snow, or ice.

B. On prepared subgrade, place subbase course and base course under pavements and walks as follows:

1. Shape subbase course and base course to required crown elevations and cross-slope grades.

2. Place subbase course and base course that exceeds 6 inches (150 mm) in compacted thickness in layers of equal thickness, with no compacted layer more than 6 inches (150 mm) thick or less than 3 inches (75 mm) thick.

3. Compact subbase course and base course at optimum moisture content to required grades, lines, cross sections, and thickness to not less than 95 percent of maximum dry unit weight according to ASTM D 1557.

3.15 DRAINAGE COURSE UNDER CONCRETE SLABS-ON-GRADE

A. Place drainage course on subgrades free of mud, frost, snow, or ice.

B. On prepared subgrade, place and compact drainage course under cast-in-place concrete slabs-on-grade as follows:

1. Place drainage course that exceeds 6 inches (150 mm) in compacted thickness in layers of equal thickness, with no compacted layer more than 6 inches (150 mm) thick or less than 3 inches (75 mm) thick.

2. Compact each layer of drainage course to required cross sections and thicknesses to not less than 95 percent of maximum dry unit weight according to ASTM D 698.

3.16 FIELD QUALITY CONTROL

A. Testing Agency: Owner will engage a qualified geotechnical engineering testing agency to perform tests and inspections.

B. Allow testing agency to inspect and test subgrades and each fill or backfill layer. Proceed with subsequent earth moving only after test results for previously completed work comply with requirements.

C. Footing Subgrade: At footing subgrades, at least one test of each soil stratum will be performed to verify design bearing capacities. Subsequent verification and approval of other footing subgrades may be based on a visual comparison of subgrade with tested subgrade when approved by Architect.

D. When testing agency reports that subgrades, fills, or backfills have not achieved degree of compaction specified, scarify and moisten or aerate, or remove and replace soil materials to depth required; recompact and retest until specified compaction is obtained.

3.17 PROTECTION

A. Protecting Graded Areas: Protect newly graded areas from traffic, freezing, and erosion. Keep free of trash and debris.

B. Repair and reestablish grades to specified tolerances where completed or partially completed surfaces become eroded, rutted, settled, or where they lose compaction due to subsequent construction operations or weather conditions.

C. Where settling occurs before Project correction period elapses, remove finished surfacing, backfill with additional soil material, compact, and reconstruct surfacing.

1. Restore appearance, quality, and condition of finished surfacing to match adjacent work, and eliminate evidence of restoration to greatest extent possible.

3.18 DISPOSAL OF SURPLUS AND WASTE MATERIALS

A. Remove surplus satisfactory soil and waste materials, including unsatisfactory soil, trash, and debris, and legally dispose of them off Owner's property.

3.19 BACKFILLING

1. Compact upper 12 inches of soil under manholes to 90%.

2. Compact site fill to 90%.

3. See paragraph 3.2 in this specification section for over-excavation when wet soils are encountered.

END OF SECTION

SECTION 32 12 16

ASPHALT PAVING

PART 1 – GENERAL

1.01 DESCRIPTION

This work shall cover the composition, mixing, construction upon the prepared subgrade, and the protection of hot asphalt concrete pavement. The hot asphalt concrete pavement shall consist of an aggregate or asphalt base course and asphalt surface course constructed in conformity with the lines, grades, thickness, and cross sections as shown. Each course shall be constructed to the depth, section, or elevation required by the drawings and shall be rolled, finished, and approved before the placement of the next course.

1.02 RELATED WORK

A. Laboratory and field testing requirements: the Standard Specifications for Public Works Construction (Greenbook) and the City of San Diego Standard Specifications for Public Works (Whitebook).

B. Subgrade Preparation: Paragraph 3.3 and Section 13 11 01, Swimming Pool Excavation.

1.03 SUBMITTALS

A. In accordance with The Greenbook and Whitebook, furnish the following:

B. Data and Test Reports:

1. Aggregate Base Course: Sources, gradation, liquid limit, plasticity index, percentage of wear, and other tests required by State Highway Department.

2. Asphalt Base/Surface Course: Aggregate source, gradation, soundness loss, percentage of wear, and other tests required by State Highway Department.

3. Job-mix formula.

C. Certifications:

1. Asphalt prime and tack coat material certificate of conformance to State Highway Department requirements.

2. Asphalt cement certificate of conformance to State Highway Department requirements.

3. Job-mix certification - Submit plant mix certification that mix equals or exceeds the State Highway Specification.

D. One copy of State Highway Department Specifications.

E. Provide MSDS (Material Safety Data Sheets) for all chemicals used on ground.

PART 2 - PRODUCTS

2.01 GENERAL

A. Aggregate base, Asphaltic base, and asphalt concrete materials shall conform to the requirements of the following and other appropriate sections of the latest version of the State Highway Material Specifications.

2.02 AGGREGATES

A. Provide aggregates consisting of crushed stone, gravel, sand, or other sound, durable mineral materials processed and blended, and naturally combined.

B. Subbase aggregate (where required) maximum size: 1-1/2".

C. Base aggregate maximum size:

1. Base course over 6" thick.

2. Other base courses: 3/4”

D. Asphaltic base course:

1. Maximum particle size not to exceed 1”.

2. Where conflicts arise between this specification and the requirements in the latest version of the State Highway Specifications, the State Specifications shall control.

E. Aggregates for asphaltic concrete paving: Provide a mixture of sand, mineral aggregate, and liquid asphalt mixed in such proportions that the percentage by weight will be within:

Sieve Sizes	Percentage Passing
3/4”	100
3/8"	67 to 85
1/4"	50 to 65
No. 8 mesh	37 to 50
No. 30 mesh	15 to 25
No. 200 mesh	3 to 8

plus 50/60 penetration liquid asphalt at 5 percent to 6-1/2 percent of the combined dry aggregates.

2.03 ASPHALTS

A. Comply with provisions of Asphalt Institute Specification SS2:

1. Asphalt cement: Penetration grade 50/60
2. Prime coat: Cut-back type, grade MC-250

3. Tack coat: Uniformly emulsified, grade SS-1H

2.04 SEALER

A. Provide a sealer consisting of suitable fibrated chemical type asphalt base binders and fillers having a container consistency suitable for troweling after thorough stirring, and containing no clay or other deleterious substance.

B. Where conflicts arise between this specification and the requirements in the latest version of the State Highway Specifications, the State Specifications shall control.

PART 3 - EXECUTION

3.01 GENERAL

The Asphalt Concrete Paving equipment, weather limitations, job-mix formula, mixing, construction methods, compaction, finishing, tolerance, and protection shall conform to the requirements of the appropriate sections of the State Highway Specifications for the type of material specified.

3.02 MIXING ASPHALTIC CONCRETE MATERIALS

A. Provide hot plant-mixed asphaltic concrete paving materials.

1. Temperature leaving the plant: 143 degrees C(290 degrees F) minimum, 160 degrees C(320 degrees F) maximum.

2. Temperature at time of placing: 138 degrees C(280 degrees F) minimum.

3.03 SUBGRADE

A. Shape to line and grade and compact with self-propelled rollers.

B. All depressions that develop under rolling shall be filled with acceptable material and the area re-rolled.

C. Soft areas shall be removed and filled with acceptable materials and the area re-rolled.

D. Should the subgrade become rutted or displaced prior to the placing of the subbase, it shall be reworked to bring to line and grade.

3.04 BASE COURSES

A. Subbase (when required)

1. Spread and compact to the thickness shown on the drawings.
2. Rolling shall begin at the sides and continue toward the center and shall continue until there is no movement ahead of the roller.
3. After completion of the subbase rolling there shall be no hauling over the subbase other than the delivery of material for the top course.

B. Base

1. Spread and compact to the thickness shown on the drawings.

2. Rolling shall begin at the sides and continue toward the center and shall continue until there is no movement ahead of the roller.

3. After completion of the base rolling there shall be no hauling over the base other than the delivery of material for the top course.

C. Thickness tolerance: Provide the compacted thicknesses shown on the Drawings within a tolerance of minus 0.0” to plus 0.5".

D. Smoothness tolerance: Provide the lines and grades shown on the Drawings within a tolerance of 3/16 inch in ten feet.

E. Moisture content: Use only the amount of moisture needed to achieve the specified compaction.

3.05 PLACEMENT OF ASPHALTIC CONCRETE PAVING

A. Remove all loose materials from the compacted base.

B. Apply the specified prime coat, and tack coat where required, and allow to dry in accordance with the manufacturer’s recommendations as approved by the Architect or Engineer.

C. Receipt of asphaltic concrete materials:

1. Do not accept material unless it is covered with a tarpaulin until unloaded, and unless the material has a temperature of not less than 130 degrees C(280 degrees F).

2. Do not commence placement of asphaltic concrete materials when the atmospheric temperature is below 10 degrees C (50 degrees F), not during fog, rain, or other unsuitable conditions.

D. Spreading:

1. Spread material in a manner that requires the least handling.

2. Where thickness of finished paving will be 3" or less, spread in one layer.

E. Rolling:

1. After the material has been spread to the proper depth, roll until the surface is hard, smooth, unyielding, and true to the thickness and elevations shown own the drawings.
2. Roll in at least two directions until no roller marks are visible.

3. Finished paving smoothness tolerance:

a. No depressions which will retain standing water.
b. No deviation greater than 1/8" in six feet.

3.06 APPLICATION OF SEAL COAT

A. Prepare the surfaces, mix the seal coat material, and apply in accordance with the manufacturer's recommendations as approved by the Architect.

B. Apply one coat of the specified sealer.

C. Achieve a finished surface seal which, when dry and thoroughly set, is smooth, tough, resilient, of uniform black color, and free from coarse textured areas, lap marks, ridges, and other surface irregularities.

3.07 PROTECTION

Protect the asphaltic concrete paved areas from traffic until the sealer is set and cured and does not pick up under foot or wheeled traffic.

3.08 FINAL CLEAN-UP

Remove all debris, rubbish, and excess material from the work area.

END OF SECTION

SECTION 32 31 19

DECORATIVE METAL FENCES AND GATES

PART 1 - GENERAL

1.01 WORK INCLUDED

A. The contractor shall provide all labor, materials and appurtenances necessary for installation of the steel roll gate system, fencing and gates per plans.

1.02 RELATED WORK

A. Section 02200 - Earthwork

B. Section 03300 - Concrete

1.03 SYSTEM DESCRIPTION

A. The manufacturer shall supply a total fence, gate and roll gate system of Ameristar® Aegis® II Ornamental design series and Majestic, or Genesis style or approved equal. The system shall include all components (i.e., pickets, rails, gate uprights, wheels and hardware) required.

1.04 QUALITY ASSURANCE

A. The contractor shall provide laborers and supervisors who are thoroughly familiar with the type of construction involved and materials and techniques specified.

1.05 REFERENCES

- ASTM D653/ASTM653M – Standard Specification for Steel Sheet, Zinc Coasted (Galvanized) or Zinc Iron Alloy Coated (Galvannealed) by the Hot Dip Process.
- ASTM B117 – Practice for Operating Salt Spray (Fog) Apparatus.
- ASTM D714 – Test Method for Evaluating Blistering in Paint.
- ASTM D523 - Test Method for Specular Glass.
- ASTM D822 – Practive for Conducting Tests on Paint and Related Coatings and Materials using Filtered Open-Flame Carbon-Arc Light and Water Exposure Apparatus.
- ASTM D1654 - Test Method for Evaluation of Painted or Coated Specimens Subjected to Corrosive Environments.
- ASTM D2244 - Test Method for Calculations of Color Differences from Instrumentally Measured Color Coordinates.
- ASTM D2794 - Test Method for Resistance of Organic Coatings to the Effects of Rapid Deformation (Impact).
- ASTM D3359 - Test Method for Measuring Adhesion by Tape Test.
- ASTIM F2408 – Ornamental Fences Employing Galvanized Steel Tubular Pickets.

1.06 SUBMITTAL

A. The manufacturer's submittal package consisting of gate elevations, hardware details, and installation details, shall be submitted prior to installation.

1.07 PRODUCT HANDLING AND STORAGE

A. Upon receipt at the job site, all materials shall be checked to ensure that no damages occurred during shipping or handling. Materials shall be stored in such a manner to ensure proper ventilation and drainage and to protect against damage, weather, vandalism and theft.

PART 2 – MATERIALS

2.01 MANUFACTURER

A. The steel fence, gate and roll gate system shall conform to Ameristar® Aegis® II Ornamental design series and frame configuration manufactured by Ameristar Fence Products, Inc. in Tulsa, Oklahoma or approved equal.

2.02 MATERIAL

A. Steel material for fencing, gates and roll gate components (i.e. pickets, rails, diagonals and uprights), shall be industrial steel with a minimum yield strength of 45,000 psi (344 MPa). Steel material for fence framework (i.e. tubular pickets, rails and posts), shall be galvanized prior to forming in accordance with the requirements of ASTM A653/A653M, with minimum yield strength of 45,000 psi (310 MPa). The steel shall be hot-dip galvanized to meet the requirements of ASTM A653/A653M with a minimum zinc coating weight of 0.90 oz/ft2 (276 g/m2), Coating Designation G-90.

B. Ornamental picket material shall be 1" square x 14 Ga. tubing for Aegis® II Ornamental gate pickets. Picket spacing shall be 4-3/4" for Aegis® II Ornamental gate pickets. Material for toprails, uprights and diagonals rails shall be 2" square x 11 Ga. Material for the bottom rail shall be 2" x 4" x 11 Ga. Posts shall be 4" square x 11 Ga. Material for pickets shall be 1" square x 14 Ga. tubing. The cross-sectional shape of the rails shall conform to the manufacturer's ForeRunner double wall design with outside cross-section dimensions of 1.75" square and a minimum thickness of 14 Ga. Picket holes in the ForeRunner rail shall be spaced 4.715" o.c. Picket retaining rods shall be 0.125" diameter galvanized steel. High quality PVC grommets shall be supplied to seal all picket-to-rail intersections. Fence posts and gate posts shall meet the minimum size requirements of Table 1.

C. Perimeter and storage fence and gates shall have 85% opacity knitted (HDPE) high density polyethelene windscreen with sewn edge binding and 3/8" brace grommets at 24" o.c. top and bottom. Color to be black. 'Jaypro', 'EPT', or approved equal.

2.02 FABRICATION

A. Pickets, rails, uprights and posts shall be precut to specified lengths. Diagonals shall be precut to specified lengths and angles. Frame materials shall be joined by welding.

Pickets shall be face welded to roll gate frame. ForeRunner rails shall be prepunched to accept pickets. Pickets shall be predrilled to accept retaining rods

B. The manufactured fence, gates and roll gates and bolt-on panels (if applicable) shall be subjected to the PermaCoat® thermal stratification coating process (hightemperature, in-line, multi-stage, multi-layer) including, as a minimum, a
six-stage pre-treatment/wash (with zinc phosphate), an electrostatic spray application of an epoxy base, and a separate electrostatic spray application of a polyester finish. The base coat shall be a thermosetting epoxy powder coating (gray in color) with a minimum thickness of 2 mils (0.0508mm). The topcoat shall be a "no-mar" TGIC polyester powder coat finish with a minimum thickness of 2 mils (0.0508mm). The color shall be Black. The stratification-coated framework shall be capable of meeting the performance requirements for each quality characteristic shown in Table 2. Grommets shall be inserted into the prepunched holes in the rails and pickets shall be inserted through the grommets so that predrilled picket holes align with the internal upper raceway of the ForeRunner rails (Note: This can best be accomplished by making an alignment jig). Retaining rods shall be inserted into each ForeRunner rail so that they pass through the predrilled holes in each picket.

C. The manufactured galvanized framework shall be subjected to the PermaCoat® thermal stratification coating process (high-temperature, in-line, multi-stage, multi-layer) including, as a minimum, a six-stage pretreatment/wash (with zinc phosphate), an electrostatic spray application of an epoxy base, and a separate electrostatic spray application of a polyester finish. The base coat shall be a thermosetting epoxy powder coating (gray in color) with a minimum thickness of 2 mils (0.0508mm). The topcoat shall be a "no-mar" TGIC polyester powder coat finish with a minimum thickness of 2 mils (0.0508mm). The color shall be Black. The stratification-coated framework shall be capable of meeting the performance requirements for each quality characteristic shown in Table 2.

D. Completed gates shall be capable of supporting a 200 lb. load applied at midspan without permanent deformation. Completed sections (i.e., panels) shall be capable of supporting a 600 lb. load applied at midspan without permanent deformation. Panels shall be biasable to a 25% change in grade

E. Swing gates shall be fabricated using 1.75" x 14ga Forerunner double channel rail, 1.75" sq. x 14ga. gate ends, and 1" sq. x 14ga. pickets. Gates that exceed 6' in width will have a 1.75" sq. x 14ga. intermediate upright. All rail and upright intersections shall be joined by welding. All picket and rail intersections shall also be joined by welding

PART 3 - EXECUTION

3.01 PREPARATION

A. All new gate installations shall be laid out by the contractor in accordance with the construction plans.

B. All hardware shall be installed in accordance with the Ameristar® Aegis® II installation instructions. Passport roll gates shall be installed so they comply with current ASTM F2200 & UL325 standards, or approved equal.

C. Gate stops shall be installed on each track in a way that conforms to current ASTM F2200 standards.

3.02 INSTALLATION

A. Gate posts shall be set in accordance with the spacings shown in the construction plans. Fence post shall be spaced according to Table 3, plus or minus ½". For installations that must be raked to follow sloping grades, the post spacing dimension must be measured along the grade. The "Earthwork" and "Concrete" sections of this specification shall govern post base material requirements. 6" wheels shall be bolted to the gate between the wheel plates welded near the ends of the gate bottom rail. The gate shall be set upright with the V-grooved wheels positioned over the pre-installed steel V-track that traverses the gate opening. Roller guides shall be affixed to the gate posts at a height even with the gate toprail to hold the gate in a vertical position. Gate stops shall be welded to the end of the gate or track so gate cannot pass rollers in either direction.

3.03 FENCE INSTALLATION MAINTENANCE

A. When cutting/drilling rails or posts adhere to the following steps to seal the exposed steel surfaces; 1) Remove all metal shavings from cut area. 2) Apply zinc-rich primer to thoroughly cover cut edge and/or drilled hole; let dry. 3) Apply 2 coats of custom finish paint matching fence color. Failure to seal exposed surfaces per steps 1-3 above will negate warranty. Ameristar spray cans or paint pens shall be used to prime and finish exposed surfaces; it is recommended that paint pens be used to prevent overspray. Use of non-Ameristar parts or components will negate the manufactures' warranty.

3.04 GATE INSTALLATION

A. Gate posts shall be spaced according to the manufacturers' gate drawings, dependent on standard out-to-out gate leaf dimensions and gate hardware selected. Type and quantity of gate hinges shall be based on the application; weight, height, and number of gate cycles. The manufacturers' gate drawings shall identify the necessary gate hardware required for the application. Gate hardware shall be provided by the manufacture of the gate and shall be installed per manufacturer's recommendations.

3.05 CLEANING

A. The contractor shall clean the jobsite of excess materials; post-hole excavations shall be scattered uniformly away from posts.

Table 1 – Minimum Sizes for Aegis II Posts				
Fence Posts	**Panel Height**			
2-1/2" x 12 Ga.	Up to & Including 6' Height			
3" x 12 Ga.	Over 6' Up to & Including 10' Height			
4" x 11 Ga.	Over 10' Height			
Gate Leaf	**Gate Height**			
	Up to & Including 6'	**Over 6' Up to & Including 8'**	**Over 8' Up to & Including 10'**	**Over 12'**
Up to 4'	3" x 12Ga.	3" x 12 Ga.	4" x 11 Ga.	4" x 11 Ga.
4'1" to 6'	3" x 12Ga.	3" x 12 Ga.	4" x 11 Ga.	4" x 11 Ga.
6'1" to 8'	4" x 11 Ga.	6" x 3/16"	6" x 3/16"	6" x 3/16"
8'1" to 10'	4" x 11 Ga.	6" x 3/16"	6" x 3/16"	6" x 3/16"
10'1" to 12'	6" x 3/16"	6" x 3/16"	6" x 3/16"	8" x 1/4"
12'1" to 16'	6" x 3/16"	6" x 3/16"	8" x 1/4"	8" x 1/4"

Table 2 – Coating Performance Requirements		
Quality Characteristics	**ASTM Test Method**	**Performance Requirements**
Adhesion	D3359 – Method B	Adhesion (Retention of Coating) over 90% of test area (Tape and knife test).
Corrosion Resistance	B117, D714 & D1654	Corrosion Resistance over 3,500 hours (Scribed per D1654; failure mode is accumulation of 1/8" coating loss from scribe or medium #8 blisters).
Impact Resistance	D2794	Impact Resistance over 60 inch lb. (Forward impact using 0.625" ball).
Weathering Resistance	D822 D2244, D523 (60˚ Method)	Weathering Resistance over 1,000 hours (Failure mode is 60% loss of gloss or color variance of more than 3 delta-E color units).

Table 3 – Aegis II – Post Spacing By Bracket Type								
Span	For INVINCIBLE® 8’ Nominal (91.25” Rail)		For CLASSIC, GENESIS, & MAJESTIC 8’ Nominal (92.625” Rail)					
Post Size	2-/2”	3”				3”		3”
Bracket Type	Industrial Flat Mount (BB301)		Industrial Universal (BB302)	Industrial Universal	Industrial Flat Mount (BB301)		Industrial Swivel (BB304)*	
Post Settings ± ½” O.C.	94-1/2”	95”	96”	96.5”	96”	96.5”	*96”	*96-1/2”
Span	For INVINCIBLE® 6’ Nominal (67.75” Rail)		For CLASSIC, GENESIS, & MAJESTIC 6’ Nominal (71.375” Rail)					
Post Size	2-1/2”					3”	2-1/2”	3”
Bracket Type	Industrial Flat Mount (BB301)		Industrial Universal (BB302)	Industrial Universal (BB303)	Industrial Flat Mount (BB301)		Industrial Swivel (BB304)*	
Post Settings ± ½” O.C.	75”	75.5”	71.5”	72”	71.5””	72”	*73”	*73.5”
*Note: When using BB304 swivel brackets on either or both ends of a panel installation, care must be taken to ensure the spacing between post and adjoining pickets meets applicable codes. This will require trimming one or both ends of the panel.								

END OF SECTION

SECTION 33 44 00

SWIMMING POOL STORM DRAINAGE UTILITIES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO)

AASHTO M 198	(2005) Standard Specification for Joints for Concrete Pipe, Manholes and Precast Box Sections Using Preformed Flexible Joint Sealants
AASHTO M 288	(2006) Standard Specification for Geotextile Specification for Highway Applications

AMERICAN CONCRETE PIPE ASSOCIATION (ACPA)

ACPA 01-103	(2000) Concrete Pipe Installation Manual

AMERICAN WATER WORKS ASSOCIATION (AWWA)

AWWA C110/A21.10	(2003) Ductile-Iron and Gray-Iron Fittings for Water
AWWA C111/A21.11	(2000) Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings
AWWA C210	(2003; R 2004) Standard for Liquid Epoxy Coating Systems for the Interior and Exterior of Steel Water Pipelines

ASTM INTERNATIONAL (ASTM)

ASTM A 48/A 48M	(2003) Standard Specification for Gray Iron Castings
ASTM A 74	(2006) Standard Specification for Cast Iron Soil Pipe and Fittings
ASTM A 746	(2003) Standard Specification for Ductile Iron Gravity Sewer Pipe
ASTM A 760/A 760M	(2006) Standard Specification for Corrugated Steel Pipe, Metallic-Coated for Sewers and Drains
ASTM A 762/A 762M	(2000) Standard Specification for Corrugated Steel Pipe, Polymer Precoated for Sewers and Drains
ASTM A 798/A 798M	(2001) Standard Practice for Installing Factory-Made Corrugated Steel Pipe for Sewers and Other Applications

ASTM A 849	(2000; R 2005) Standard Specification for Post-Applied Coatings, Pavings, and Linings for Corrugated Steel Sewer and Drainage Pipe
ASTM B 745/B 745M	(1997; R 2005) Standard Specification for Corrugated Aluminum Pipe for Sewers and Drains
ASTM C 12	(2006) Standard Practice for Installing Vitrified Clay Pipe Lines
ASTM C 139	(2005) Standard Specification for Concrete Masonry Units for Construction of Catch Basins and Manholes
ASTM C 14	(2005a) Standard Specification for Concrete Sewer, Storm Drain, and Culvert Pipe
ASTM C 270	(2006) Standard Specification for Mortar for Unit Masonry
ASTM C 32	(2005) Standard Specification for Sewer and Manhole Brick (Made from Clay or Shale)
ASTM C 361	(2005e1) Standard Specification for Reinforced Concrete Low-Head Pressure Pipe
ASTM C 387/C 387M	(2006) Standard Specification for Packaged, Dry, Combined Materials for Mortar and Concrete
ASTM C 425	(2004) Standard Specification for Compression Joints for Vitrified Clay Pipe and Fittings
ASTM C 443	(2005a) Standard Specification for Joints for Concrete Pipe and Manholes, Using Rubber Gaskets
ASTM C 478	(2006b) Standard Specification for Precast Reinforced Concrete Manhole Sections
ASTM C 506	(2005a) Standard Specification for Reinforced Concrete Arch Culvert, Storm Drain, and Sewer Pipe
ASTM C 507	(2005a) Standard Specification for Reinforced Concrete Elliptical Culvert, Storm Drain, and Sewer Pipe
ASTM C 564	(2003a) Standard Specification for Rubber Gaskets for Cast Iron Soil Pipe and Fittings
ASTM C 700	(2005) Standard Specification for Vitrified Clay Pipe, Extra Strength, Standard Strength, and Perforated
ASTM C 76	(2006) Standard Specification for Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe

ASTM C 923	(2002) Standard Specification for Resilient Connectors Between Reinforced Concrete Manhole Structures, Pipes and Laterals
ASTM C 969	(2002) Standard Practice for Infiltration and Exfiltration Acceptance Testing of Installed Precast Concrete Pipe Sewer Lines
ASTM D 2321	(2005) Standard Practice for Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity-Flow Applications
ASTM D 2680	(2001) Standard Specification for Acrylonitrile-Butadiene-Styrene (ABS) and Poly(Vinyl Chloride) (PVC) Composite Sewer Piping
ASTM D 2855	(1996; R 2002) Standard Practice for Making Solvent-Cemented Joints with Poly(Vinyl Chloride) (PVC) Pipe and Fittings
ASTM D 3034	(2006) Standard Specification for Type PSM Poly(Vinyl Chloride) (PVC) Sewer Pipe and Fittings
ASTM D 3212	(1996a; R 2003e1) Standard Specification for Joints for Drain and Sewer Plastic Pipes Using Flexible Elastomeric Seals
ASTM F 1417	(1992; R 2005) Standard Test Method for Installation Acceptance of Plastic Gravity Sewer Lines Using Low Pressure Air
ASTM F 477	(2002e1) Standard Specification for Elastomeric Seals (Gaskets) for Joining Plastic Pipe
ASTM F 794	(2003) Standard Specification for Poly(Vinyl Chloride) (PVC) Profile Gravity Sewer Pipe and Fittings Based on Controlled Inside Diameter

U.S. GENERAL SERVICES ADMINISTRATION (GSA)

FS A-A-60005	(Basic) Frames. Covers, Gratings, Steps, Sump and Catch Basin, Manhole

1.02 BEDDING AND BACKFILL

Bedding and backfill shall be clean native soil and shall comply with section 31 20 00 Swimming Pool Earthmoving

1.03 DRAWINGS

Contractor shall submit Coordination Drawings interferences for construction. Details of catch basins and manholes shall be shown with proper elevations.

1.04 PLANS

A Work Plan shall be submitted when sewer flow is to be interrupted, noting Proposed Schedules, Methods, Materials and Equipment.

PART 2 – PRODUCTS

2.01 FILTER MATERIAL

A. Filter Fabric

Fabric shall be in accordance with AASHTO M 288, and be water pervious, made of polyester.

B. Filter Aggregate

Aggregate shall be clean gravel free from organic materials, clay, or other deleterious materials, graded to the following minimal limits:

SIEVE SIZE	PERCENT PASSING
No. 4	15 to 30

2.02 CONDUIT PIPING, JOINTS, FITTINGS AND GASKETS

A. Plastic Piping

1. Type PSM Poly (Vinyl Chloride) (PVC) Pipe

Pipe shall be in accordance with ASTM D 3034, SDR 35, up to 15 inch diameter.

Pipe ends made for joints shall be elastomeric gasket type.

PSM PVC Pipe, 18 to 48 inch diameter shall be in accordance with ASTM F 794.

2. PVC Pipe Joints

Joints shall be in accordance with ASTM D 3212 push-on type.

3. Manhole Connectors

Connectors shall be in accordance with ASTM C 923 for joints between manhole and pipes.

PART 3 – EXECUTION

3.01 EXCAVATION AND BACKFILL

Excavation, backfill, and removal of unsatisfactory materials shall be in accordance with Section 31 20 00 SWIMMING POOL EARTHMOVING

3.02 GRADING

Grading shall be performed in accordance with Section 31 20 00 SWIMMING POOL EARTHMOVING

3.03 PIPE INSTALLATION

A. Pipe Installation

Excavations shall be trimmed to required elevations. Objects which impair backfilling or compaction shall be removed. Over-excavation shall be corrected with fill material of fine aggregate.

Pipe and fittings shall be inspected for defects before installing. Defective materials shall be removed from site.

Pipe interior shall be cleaned before installation. Pipe ends shall be sealed when work is not in progress.

Pipe shall be laid to line and grade, with bell end upstream.

Maximum variation from true slope shall not exceed 1/8 inch per foot

B. PVC Plastic Pipe Installation

PVC pipe and fittings shall be installed in accordance with manufacturer's instructions and in accordance with ASTM D 2321.

3.04 PIPE BEDDING

A. Bedding

Minimum compacted bedding under installed pipe shall be one-fourth of the pipe diameter in thickness, and in no case less than 4 inches or more than 12 inches.

Bedding shall be placed in layers not exceeding 6 inches in depth and compacted. Additional layers shall be added until a minimum elevation of 12 inches above the pipe is achieved.

B. Compaction

Puddling or jetting shall not be permitted when compacting bedding materials.

3.05 STORM SEWER CONNECTIONS AND WYES

Pipe connections to existing conduit and manholes shall be provided.

Wyes for branch connections shall be provided. Field-cutting into conduit shall not be permitted. Wyes shall be sprung into existing lines. Entire wye shall be encased in concrete.

Epoxy shall be used to secure each interface connecting new and existing conduit.

3.06 FIELD QUALITY CONTROL

A. Tests

Contractor shall provide test equipment or engage the services of a firm to provide the necessary testing.

B. Interior Inspection of Pipe

Installed pipe shall be inspected when 2 feet of earth cover is in place and upon completion of project]. Displaced or misaligned pipe, infiltration, accumulation of debris, or other defects shall be corrected by the Contractor at no additional cost to the Government.

END OF SECTION

APPENDIX A

Notice of Exemption CEQA

NOTICE OF EXEMPTION

(Check one or both)

TO: X RECORDER/COUNTY CLERK
P.O. BOX 1750, MS A-33
1600 PACIFIC HWY, ROOM 260
SAN DIEGO, CA 92101-2422

_____ OFFICE OF PLANNING AND RESEARCH
1400 TENTH STREET, ROOM 121
SACRAMENTO, CA 95814

FROM: CITY OF SAN DIEGO
DEVELOPMENT SERVICES DEPARTMENT
1222 FIRST AVENUE, MS 501
SAN DIEGO, CA 92101

PROJECT NO.: N/A PROJECT TITLE: MEMORIAL PARK SWIMMING POOL

PROJECT LOCATION-SPECIFIC: Memorial Community Park, located at 2902 Marcy Avenue, San Diego, CA 92113.

PROJECT LOCATION-CITY/COUNTY: San Diego/San Diego

DESCRIPTION OF NATURE AND PURPOSE OF THE PROJECT: Memorial Swimming Pool- to demolish the existing swimming pool and construct a new 25 yard by 25 meter swimming pool, a 1,887 square foot splash pad, shaded spectator seating, install umbrellas at splash pad, and install shade/tables at group picnic area. The project site is located in the MF-3000 zone of the Southeastern San Diego Planned District, and the Southeastern Community Plan.

NAME OF PUBLIC AGENCY APPROVING PROJECT: City of San Diego

NAME OF PERSON OR AGENCY CARRYING OUT PROJECT: Clark Ritter, RLA
Engineering and Capital Projects Department
600 B Street, San Diego, CA 92101
Phone: 619-533-4601.

EXEMPT STATUS: (CHECK ONE)

( ) MINISTERIAL (SEC. 21080(b)(1); 15268);
( ) DECLARED EMERGENCY (SEC. 21080(b)(3); 15269(a));
( ) EMERGENCY PROJECT (SEC. 21080(b)(4); 15269 (b)(c))
(X) CATEGORICAL EXEMPTION: 15301- Existing Facilities. 15303- New construction.
( ) STATUTORY EXEMPTIONS:

REASONS WHY PROJECT IS EXEMPT: The demolition of an existing swimming pool, and construction of a new swimming pool with associated improvements, will not result in any significant environmental impacts

LEAD AGENCY CONTACT PERSON: Herrmann TELEPHONE: (619) 446-5372

IF FILED BY APPLICANT:

1. ATTACH CERTIFIED DOCUMENT OF EXEMPTION FINDING.
2. HAS A NOTICE OF EXEMPTION BEEN FILED BY THE PUBLIC AGENCY APPROVING THE PROJECT?
   ( ) YES ( ) NO

IT IS HEREBY CERTIFIED THAT THE CITY OF SAN DIEGO HAS DETERMINED THE ABOVE ACTIVITY TO BE EXEMPT FROM CEQA

Mark D. Herrmann, Senior Planner
SIGNATURE/TITLE

3/8/10
DATE

CHECK ONE:
(X) SIGNED BY LEAD AGENCY
( ) SIGNED BY APPLICANT

DATE RECEIVED FOR FILING WITH COUNTY CLERK OR OPR:

Revised March 8, 2010mjh

APPENDIX B

Fire Hydrant Meter Program

CITY OF SAN DIEGO CALIFORNIA DEPARTMENT INSTRUCTIONS	NUMBER DI 55.27	DEPARTMENT Water Department
SUBJECT FIRE HYDRANT METER PROGRAM (FORMERLY: CONSTRUCTION METER PROGRAM)	PAGE 1OF 10	EFFECTIVE DATE October 15, 2002
	SUPERSEDES DI 55.27	DATED April 21, 2000

1. **PURPOSE**

1.1 To establish a Departmental policy and procedure for issuance, proper usage and charges for fire hydrant meters.

2. **AUTHORITY**

2.1 All authorities and references shall be current versions and revisions.

2.2 San Diego Municipal Code (NC) Chapter VI, Article 7, Sections 67.14 and 67.15

2.3 Code of Federal Regulations, Safe Drinking Water Act of 1986

2.4 California Code of Regulations, Titles 17 and 22

2.5 California State Penal Code, Section 498B.0

2.6 State of California Water Code, Section 110, 500-6, and 520-23

2.7 Water Department Director

Reference

2.8 State of California Guidance Manual for Cross Connection Programs

2.9 American Water Works Association Manual M-14, Recommended Practice for Backflow Prevention

2.10 American Water Works Association Standards for Water Meters

2.11 U.S.C. Foundation for Cross Connection Control and Hydraulic Research Manual

3. **DEFINITIONS**

3.1 **Fire Hydrant Meter:** A portable water meter which is connected to a fire hydrant for the purpose of temporary use. (These meters are sometimes referred to as Construction Meters.)

3.2 **Temporary Water Use:** Water provided to the customer for no longer than twelve (12) months.

3.3 **Backflow Preventor:** A Reduced Pressure Principal Assembly connected to the outlet side of a Fire Hydrant Meter.

4. POLICY

4.1 The Water Department shall collect a deposit from every customer requiring a fire hydrant meter and appurtenances prior to providing the meter and appurtenances (see Section 7.1 regarding the Fees and Deposit Schedule). The deposit is refundable upon the termination of use and return of equipment and appurtenances in good working condition.

4.2 Fire hydrant meters will have a 2 ½" swivel connection between the meter and fire hydrant. The meter shall not be connected to the 4" port on the hydrant. All Fire Hydrant Meters issued shall have a Reduced Pressure Principle Assembly (RP) as part of the installation. Spanner wrenches are the only tool allowed to turn on water at the fire hydrant.

4.3 The use of private hydrant meters on City hydrants is prohibited, with exceptions as noted below. All private fire hydrant meters are to be phased out of the City of San Diego. All customers who wish to continue to use their own fire hydrant meters must adhere to the following conditions:

a. Meters shall meet all City specifications and American Water Works Association (AWWA) standards.

b. Customers currently using private fire hydrant meters in the City of San Diego water system will be allowed to continue using the meter under the following conditions:

1. The customer must submit a current certificate of accuracy and calibration results for private meters and private backflows annually to the City of San Diego, Water Department, Meter Shop.

2. The meter must be properly identifiable with a clearly labeled serial number on the body of the fire hydrant meter. The serial number shall be plainly stamped on the register lid and the main casing. Serial numbers shall be visible from the top of the meter casing and the numbers shall be stamped on the top of the inlet casing flange.

3. All meters shall be locked to the fire hydrant by the Water Department, Meter Section (see Section 4.7).

4. All meters shall be read by the Water Department, Meter Section (see Section 4.7).

5. All meters shall be relocated by the Water Department, Meter Section (see Section 4.7).

6. These meters shall be tested on the anniversary of the original test date and proof of testing will be submitted to the Water Department, Meter Shop, on a yearly basis. If not tested, the meter will not be allowed for use in the City of San Diego.

7. All private fire hydrant meters shall have backflow devices attached when installed.

8. The customer must maintain and repair their own private meters and private backflows.

9. The customer must provide current test and calibration results to the Water Department, Meter Shop after any repairs.

10. When private meters are damaged beyond repair, these private meters will be replaced by City owned fire hydrant meters.

11. When a private meter malfunctions, the customer will be notified and the meter will be removed by the City and returned to the customer for repairs. Testing and calibration results shall be given to the City prior to any re-installation.

12. The register shall be hermetically sealed straight reading and shall be readable from the inlet side. Registration shall be in hundred cubic feet.

13. The outlet shall have a 2 ½ "National Standards Tested (NST) fire hydrant male coupling.

14. Private fire hydrant meters shall not be transferable from one contracting company to another (i.e. if a company goes out of business or is bought out by another company).

4.4 All fire hydrant meters and appurtenances shall be installed, relocated and removed by the City of San Diego, Water Department. All City owned fire hydrant meters and appurtenances shall be maintained by the City of San Diego, Water Department, Meter Services.

4.5 If any fire hydrant meter is used in violation of this Department Instruction, the violation will be reported to the Code Compliance Section for investigation and appropriate action. Any customer using a fire hydrant meter in violation of the requirements set forth above is subject to fines or penalties pursuant to the Municipal Code, Section 67.15 and Section 67.37.

4.6 **Conditions and Processes for Issuance of a Fire Hydrant Meter**

Process for Issuance

a. Fire hydrant meters shall only be used for the following purposes:

1. Temporary irrigation purposes not to exceed one year.

2. Construction and maintenance related activities (see Tab 2).

b. No customer inside or outside the boundaries of the City of San Diego Water Department shall resell any portion of the water delivered through a fire hydrant by the City of San Diego Water Department.

c. The City of San Diego allows for the issuance of a temporary fire hydrant meter for a period not to exceed 12 months (365 days). An extension can only be granted in writing from the Water Department Director for up to 90 additional days. A written request for an extension by the consumer must be submitted at least 30 days prior to the 12 month period ending. No extension shall be granted to any customer with a delinquent account with the Water Department. No further extensions shall be granted.

d. Any customer requesting the issuance of a fire hydrant meter shall file an application with the Meter Section. The customer must complete a "Fire Hydrant Meter Application" (Tab 1) which includes the name of the company, the party responsible for payment, Social Security number and/or California ID, requested location of the meter (a detailed map signifying an exact location), local contact person, local phone number, a contractor's license (or a business license), description of specific water use, duration of use at the site and full name and address of the person responsible for payment.

e. At the time of the application the customer will pay their fees according to the schedule set forth in the Rate Book of Fees and Charges, located in the City Clerk's Office. All fees must be paid by check, money order or cashiers check, made payable to the City Treasurer. Cash will not be accepted.

f. No fire hydrant meters shall be furnished or relocated for any customer with a delinquent account with the Water Department.

g. After the fees have been paid and an account has been created, the

meter shall be installed within 48 hours (by the second business day). For an additional fee, at overtime rates, meters can be installed within 24 hours (within one business day).

4.7 **Relocation of Existing Fire Hydrant Meters**

a. The customer shall call the Fire Hydrant Meter Hotline (herein referred to as "Hotline"), a minimum of 24 hours in advance, to request the relocation of a meter. A fee will be charged to the existing account, which must be current before a work order is generated for the meter's relocation.

b. The customer will supply in writing the address where the meter is to be relocated (map page, cross street, etc). The customer must update the original Fire Hydrant Meter Application with any changes as it applies to the new location.

c. Fire hydrant meters shall be read on a monthly basis. While fire hydrant meters and backflow devices are in service, commodity, base fee and damage charges, if applicable, will be billed to the customer on a monthly basis. If the account becomes delinquent, the meter will be removed.

4.8 **Disconnection of Fire Hydrant Meter**

a. After ten (10) months a "Notice of Discontinuation of Service" (Tab 3) will be issued to the site and the address of record to notify the customer of the date of discontinuance of service. An extension can only be granted in writing from the Water Department Director for up to 90 additional days (as stated in Section 4.6C) and a copy of the extension shall be forwarded to the Meter Shop Supervisor. If an extension has not been approved, the meter will be removed after twelve (12) months of use.

b. Upon completion of the project the customer will notify the Meter Services office via the Hotline to request the removal of the fire hydrant meter and appurtenances. A work order will be generated

for removal of the meter.

c. Meter Section staff will remove the meter and backflow prevention assembly and return it to the Meter Shop. Once returned to the Meter Shop the meter and backflow will be tested for accuracy and functionality.

d. Meter Section Staff will contact and notify Customer Services of the final read and any charges resulting from damages to the meter and backflow or its appurtenance. These charges will be added on the customer's final bill and will be sent to the address of record. Any customer who has an outstanding balance will not receive additional meters.

e. Outstanding balances due may be deducted from deposits and any balances refunded to the customer. Any outstanding balances will be turned over to the City Treasurer for collection. Outstanding balances may also be transferred to any other existing accounts.

5. EXCEPTIONS

5.1 Any request for exceptions to this policy shall be presented, in writing, to the Customer Support Deputy Director, or his/her designee for consideration.

6. MOBILE METER

6.1 Mobile meters will be allowed on a case by case basis. All mobile meters will be protected by an approved backflow assembly and the minimum requirement will be a Reduced Pressure Principal Assembly. The two types of Mobile Meters are vehicle mounted and floating meters. Each style of meters has separate guidelines that shall be followed for the customer to retain service and are described below:

a) **Vehicle Mounted Meters**: Customer applies for and receives a City owned Fire Hydrant Meter from the Meter Shop. The customer mounts the meter on the vehicle and brings it to the Meter Shop for

inspection. After installation is approved by the Meter Shop the vehicle and meter shall be brought to the Meter Shop on a monthly basis for meter reading and on a quarterly basis for testing of the backflow assembly. Meters mounted at the owner's expense shall have the one year contract expiration waived and shall have meter or backflow changed if either fails.

b) **Floating Meters**: Floating Meters are meters that are not mounted to a vehicle. **(Note: All floating meters shall have an approved backflow assembly attached.)** The customer shall submit an application and a letter explaining the need for a floating meter to the Meter Shop. The Fire Hydrant Meter Administrator, after a thorough review of the needs of the customer, (i.e. number of jobsites per day, City contract work, lack of mounting area on work vehicle, etc.), may issue a floating meter. At the time of issue, it will be necessary for the customer to complete and sign the "Floating Fire Hydrant Meter Agreement" which states the following:

    1) The meter will be brought to the Meter Shop at 2797 Caminito Chollas, San Diego on the third week of each month for the monthly read by Meter Shop personnel.

    2) Every other month the meter will be read and the backflow will be tested. This date will be determined by the start date of the agreement.

If any of the conditions stated above are not met the Meter Shop has the right to cancel the contract for floating meter use and close the account associated with the meter. The Meter Shop will also exercise the right to refuse the issuance of another floating meter to the company in question.

Any Fire Hydrant Meter using reclaimed water shall not be allowed use again with any potable water supply. The customer shall incur the cost of replacing the meter and backflow device in this instance.

7. FEE AND DEPOSIT SCHEDULES

7.1 **Fees and Deposit Schedules:** The fees and deposits, as listed in the Rate Book of Fees and Charges, on file with the Office of the City Clerk, are based on actual reimbursement of costs of services performed, equipment and materials. Theses deposits and fees will be amended, as needed, based on actual costs. Deposits, will be refunded at the end of the use of the fire hydrant meter, upon return of equipment in good working condition and all outstanding balances on account are paid. Deposits can also be used to cover outstanding balances.

All fees for equipment, installation, testing, relocation and other costs related to this program are subject to change without prior notification. The Mayor and Council will be notified of any future changes.

8. UNAUTHORIZED USE OF WATER FROM A HYDRANT

8.1 Use of water from any fire hydrant without a properly issued and installed fire hydrant meter is theft of City property. Customers who use water for unauthorized purposes or without a City of San Diego issued meter will be prosecuted.

8.2 If any unauthorized connection, disconnection or relocation of a fire hydrant meter, or other connection device is made by anyone other than authorized Water Department personnel, the person making the connection will be prosecuted for a violation of San Diego Municipal Code, Section 67.15. In the case of a second offense, the customer's fire hydrant meter shall be confiscated and/or the deposit will be forfeited.

8.3 Unauthorized water use shall be billed to the responsible party. Water use charges shall be based on meter readings, or estimates when meter readings are not available.

8.4 In case of unauthorized water use, the customer shall be billed for all applicable charges as if proper authorization for the water use had been obtained, including but not limited to bi-monthly service charges, installation charges and removal charges.

8.5 If damage occurs to Water Department property (i.e. fire hydrant meter, backflow, various appurtenances), the cost of repairs or replacements will be charged to the customer of record (applicant).

Water Department Director

Tabs: 1. Fire Hydrant Meter Application
2. Construction & Maintenance Related Activities With No Return To Sewer
3. Notice of Discontinuation of Service

APPENDIX

Administering Division: Customer Support Division

Subject Index:
Construction Meters
Fire Hydrant
Fire Hydrant Meter Program
Meters, Floating or Vehicle Mounted
Mobile Meter
Program, Fire Hydrant Meter

Distribution: DI Manual Holders

City of San Diego
Water Department

Application For Fire Hydrant Meter

(EXHIBIT A)

For Office Use Only	
NS Rec:	FAC #:
Date:	By:

2797 Caminito Chollas • San Diego, California 92105-5097 METER SHOP 619 527 7449 FAX 619 527 3125

Meter Information

Application Date:	Requested Install Date:

Fire Hydrant Location: (Attach detailed map, Thomas Bros. map location or construction drawing.)

Specific Use of Water:

Any return to Sewer or Storm Drain, if so, explain:

Estimated Duration of Meter Use: ☐ ☐ Check Box if Reclaimed Water

Company Information

Company Name:			
Mailing Address:			
City:	State:	Zip Code:	Phone: ( )
*Business License #:		*Contractor License #:	

*A copy of the Contractor's License and/or Business License is required at the time of meter issuance.

Name and Title of Agent:	Phone: ( )
Site Contact Name and Title:	Phone: ( )
Pager #:	Cell : ( )
Responsible Party Name:	Title:
Social Security or Cal ID #:	Phone: ( )

Signature: Date:

Guarantees payment of all charges resulting from the use of this meter. Insures that employees of this organization understand the proper use of Fire Hydrant Meter.

Fire Hydrant Meter Removal Request

☐ Check Box to Request Removal of Above Meter | Requested Removal Date:

Provide current Meter location if different from above:

Signature:	Title:	Date:
Phone: ( )	Pager: ( )	

For Office Use Only

☐ City Meter ☐ Private Meter

CIS Account #:	Deposit Amount: $	Fees Amount: $	
Meter Serial #:	Meter Size:	Meter Make & Style:	
Backflow #:	Backflow Size:	Meter Make & Style:	
Name:	Signature:	Date:	

$1,108.45 - FOR 24 HR INSTALLATION
$1,052.26 - FOR 48 HR INSTALLATION

FHM App Created: 11/2/00-htp

"Exhibit B"

CONSTRUCTION AND MAINTENANCE RELATED ACTIVITIES WITH NO RETURN TO SEWER:

Auto Detailing
Backfilling
Combination Cleaners (Vactors)
Compaction
Concrete Cutters
Construction Trailers
Cross Connection Testing
Dust Control
Flushing Water Mains
Hydro blasting
Hydro Seeding
Irrigation (for establishing irrigation only; not continuing irrigation)
Mixing Concrete
Mobile Car Washing
Special Events
Street Sweeping
Water Tanks
Water Trucks
Window Washing

Note: If there is any return to sewer or storm drain, then sewer and/or storm drain fees will be charged.

"Exhibit C"

Date

Name of Responsible Party
Company Name and address
Account Number: _____

Subject: Discontinuation of Fire Hydrant Meter Service

Dear Water Department Customer:

The authorization for use of Fire Hydrant Meter #_____, located at (Meter location address) ends in 60 days and will be removed on or after (Date authorization expires). Extension requests for an additional 90 days must be submitted in writing for consideration 30 days prior to the discontinuation date. If you require an extension, please refer to the Water Departments', Department Instruction (D.I.) 55.27 for further information and procedure.

Mail your request for an extension to :

City of San Diego, Water Department
Attn: Meter Services
2797 Caminito Chollas
San Diego, Ca. 92105-5097

Should you have any questions regarding this matter, please call the Fire Hydrant "Hot Line" at: (xxx) xxx-xxxx.

Sincerely,

City of San Diego Water Department

City of San Diego Water Department

Fire Hydrant Meter Relocate/Removal Request

(EXHIBIT D)

For Office Use Only	
NS Req:	FHM Fac #:
Date	By

Date:

Instruction: Complete pertinent information then FAX both form and map to (xxx) xxx-xxxx, mail, or hand-deliver to the City of San Diego, Water Deparmtnet/Meter Shop at: 2707 Caminito Chollas San Diego, CA 92105

Meter Information

Billing Account #:	Requested Move Date:
Current Fire Hydrant Meter Location:	
New Meter Location: (Attach a detailed map, Thomas Bros map location or construction drawing.)	

Company Information

Company Name:			
Mailing Address			
City:	State:	Zip Code:	Phone: ( )
Name and Title of Requestor:			Phone: ( )
Site Contact Name and Title			Phone: ( )
Pager #:			Cell : ( )
Responsible Party Name authorizing relocation fee:			
Signature:	Title:		Date:

Fire Hydrant Meter Removal Request

☐ Check Box to Request Removal of Above Meter	Requested Removal Date:
Provide current Meter location if different from above:	

Signature:	Title:	Date:
Phone: ( )	Pager: ( )	

For Office Use Only

CIS Account #:	Fees Amount: $		
Meter Serial #:	Size:	Make/Style	
Backflow #:	Size:	Make/Style	
Name:	Signature:		Date:

FHM Relocate_Removal Form

FHM App Created: 11/2/00-htp

APPENDIX C

Materials Typically Accepted by Certificate of Compliance

Materials Typically Accepted by Certificate of Compliance

1. Soil amendment
2. Fiber mulch
3. PVC or PE pipe up to 16 inch diameter
4. Stabilizing emulsion
5. Lime
6. Preformed elastomeric joint seal
7. Plain and fabric reinforced elastomeric bearing pads
8. Steel reinforced elastomeric bearing pads
9. Waterstops (Special Condition)
10. Epoxy coated bar reinforcement
11. Plain and reinforcing steel
12. Structural steel
13. Structural timber and lumber
14. Treated timber and lumber
15. Lumber and timber
16. Aluminum pipe and aluminum pipe arch
17. Corrugated steel pipe and corrugated steel pipe arch
18. Structural metal plate pipe arches and pipe arches
19. Perforated steel pipe
20. Aluminum underdrain pipe
21. Aluminum or steel entrance tapers, pipe downdrains, reducers, coupling bands and slip joints
22. Metal target plates
23. Paint (traffic striping)
24. Conductors
25. Painting of electrical equipment
26. Electrical components
27. Engineering fabric
28. Portland Cement
29. PCC admixtures
30. Minor concrete, asphalt
31. Asphalt (oil)
32. Liquid asphalt emulsion
33. Epoxy

APPENDIX D

Sample City Invoice

City of San Diego, Field Engineering Div., 9485 Aero Drive, SD CA 92123						Contractor's Name:					
Project Name:						Contractor's Address:					
SAP No. (WBS/IO/CC):											
City Purchase Order No. :						Contractor's Phone #:				Invoice No.	
Resident Engineer (RE):						Contractor's Fax #:				Invoice Date:	
RE Phone#:		RE Fax#:				Contact Name:			Billing Period:		
Item #	Item Description	Contract Authorization				Previous Estimate		This Estimate		Totals to Date	
		Unit	Qty	Price	Extension	%/QTY	Amount	% / QTY	Amount	% / QTY	Amount
1	2 Parallel 4" PVC C900	LF	1,380	$34.00	$46,920.00						
2	48" Primary Steel Casing	LF	500	$1,000.00	$500,000.00						
3	2 Parallel 12" Secondary Steel	LF	1,120	$53.00	$59,360.00						
4	Construction and Rehab of PS 49	LS	1	$150,000.00	$150,000.00						
5	Demo	LS	1	$14,000.00	$14,000.00						
6	Install 6' High Chain Link Fence	LS	1	$5,600.00	$5,600.00						
7	General Site Restoration	LS	1	$3,700.00	$3,700.00						
8	10" Gravity Sewer	LF	10	$292.00	$2,920.00						
9	4" Blow Off Valves	EA	2	$9,800.00	$19,600.00						
10	Bonds	LS	1	$16,000.00	$16,000.00						
11	Field Orders	AL	1	80,000	$80,000.00						
11.1	**Field Order 1**	**LS**	**5,500**	**$1.00**	$5,500.00						
11.2	**Field Order 2**	**LS**	**7,500**	**$1.00**	$7,500.00						
11.3	**Field Order 3**	**LS**	**10,000**	**$1.00**	$10,000.00						
11.4	**Field Order 4**	**LS**	**6,500**	**$1.00**	$6,500.00						
12	**Certified Payroll**	**LS**	**1**	**$1,400.00**	$1,400.00						
CHANGE ORDERS											
Change Order 1		**4,890**									
Items 1-4					**$11,250.00**						
Item 5-Deduct Bid Item 3		**LF**	**120**	**-$53.00**	**($6,360.00)**						
Change Order 2		**160,480**									
Items 1-3					**$95,000.00**						
Item 4 Deduct Bid Item 1		**LF**	**380**	**-$340.00**	**($12,920.00)**						
Item 5-Encrease bid Item 9		**LF**	**8**	**$9,800.00**	**$78,400.00**						
Change Order 3 (Close Out)		**-121,500**									
Item 1 Deduct Bid Item 3			**53**	**-500.00**	**($26,500.00)**						
Item 2 Deduct Bid Item 4		**LS**	**-1**	**45,000.00**	**($45,000.00)**						
Items 3-9			**1**	**-50,500.00**	**($50,500.00)**						
SUMMARY								Total This	$ -	**Total Billed**	$0.00
A. Original Contract Amount							**Retention and/or Escrow Payment Schedule**				
B. Approved Change Order 1 Thru 3							Total Retention Required as of this billing				
C. Total Authorized Amount (A+B)							Previous Retention Withheld in PO or in Escrow				
D. Total Billed to Date							Add'l Amt to Withhold in PO/Transfer in Escrow:				
E. Less Total Retention (5% of D)							Amt to Release to Contractor from PO/Escrow:				
F. Less Total Previous Payments											
G. Payment Due Less Retention						**Contractor Signature and Date:**					
H. Remaining Authorized Amount											

APPENDIX E

Hazardous Label/Forms

INCIDENT/RELEASE ASSESSMENT FORM [1]

If you have an emergency, Call 911

Handlers of hazardous materials are required to report releases. The following is a tool to be used for assessing if a release is reportable. Additionally, a non-reportable release incident form is provided to document why a release is not reported (see back).

Questions for Incident Assessment:	YES	NO
1. Was anyone killed or injured, or did they require medical care or admitted to a hospital for observation?	❒	❒
2. Did anyone, other than employees in the immediate area of the release, evacuate?	❒	❒
3. Did the release cause off-site damage to public or private property?	❒	❒
4. Is the release greater than or equal to a reportable quantity (RQ)?	❒	❒
5. Was there an uncontrolled or unpermitted release to the air?	❒	❒
6. Did an uncontrolled or unpermitted release escape secondary containment, or extend into any sewers, storm water conveyance systems, utility vaults and conduits, wetlands, waterways, public roads, or off site?	❒	❒
7. Will control, containment, decontamination, and/or clean up require the assistance of federal, state, county, or municipal response elements?	❒	❒
8. Was the release or threatened release involving an unknown material or contains an unknown hazardous constituent?	❒	❒
9. Is the incident a threatened release (a condition creating a substantial probability of harm that requires immediate action to prevent, reduce, or mitigate damages to persons, property, or the environment)?	❒	❒
10. Is there an increased potential for secondary effects including fire, explosion, line rupture, equipment failure, or other outcomes that may endanger or cause exposure to employees, the general public, or the environment?	❒	❒

If the answer is YES to any of the above questions – report the release to the California Office of Emergency Services at 800-852-7550 and the local CUPA daytime: (619) 338-2284, after hours: (858) 565-5255. Note: other state and federal agencies may require notification depending on the circumstances.

Call 911 in an emergency

If all answers are NO, complete a Non Reportable Release Incident Form (page 2 of 2) and keep readily available. Documenting why a "no" response was made to each question will serve useful in the event questions are asked in the future, and to justify not reporting to an outside regulatory agency.

If in doubt, report the release.

[1] This document is a guide for accessing when hazardous materials release reporting is required by Chapter 6.95 of the California Health and Safety Code. It does not replace good judgment, Chapter 6.95, or other state or federal release reporting requirements.

NON REPORTABLE RELEASE INCIDENT FORM

1. RELEASE AND RESPONSE DESCRIPTION Incident #_____

Date/Time Discovered	Date/Time Discharge	Discharge Stopped ☐ Yes ☐ No
Incident Date / Time:		
Incident Business / Site Name:		
Incident Address:		
Other Locators (Bldg, Room, Oil Field, Lease, Well #, GIS)		
Please describe the incident and indicate specific causes and area affected. Photos Attached?: ☐Yes ☐No		
Indicate actions to be taken to prevent similar releases from occurring in the future.		

2. ADMINISTRATIVE INFORMATION

Supervisor in charge at time of incident:	Phone:
Contact Person:	Phone:

3. CHEMICAL INFORMATION

Chemical	Quantity ☐ GAL ☐ LBS ☐ FT^3
Chemical	Quantity ☐ GAL ☐ LBS ☐ FT^3
Chemical	Quantity ☐ GAL ☐ LBS ☐ FT^3
Clean-Up Procedures & Timeline:	
Completed By:	Phone:
Print Name:	Title:

EMERGENCY RELEASE FOLLOW - UP NOTICE REPORTING FORM

A

BUSINESS NAME	FACILITY EMERGENCY CONTACT & PHONE NUMBER ( ) -

B

INCIDENT DATE MO DAY YR	TIME OES NOTIFIED (use 24 hr time)	OES CONTROL NO.

C

INCIDENT ADDRESS LOCATION	CITY / COMMUNITY	COUNTY ZIP

D

CHEMICAL OR TRADE NAME (print or type)	CAS Number

CHECK IF CHEMICAL IS LISTED IN 40 CFR 355, APPENDIX A ☐	CHECK IF RELEASE REQUIRES NOTIFI - CATION UNDER 42 U.S.C. Section 9603 (a) ☐

PHYSICAL STATE CONTAINED ☐ SOLID ☐ LIQUID ☐ GAS	PHYSICAL STATE RELEASED ☐ SOLID ☐ LIQUID ☐ GAS	QUANTITY RELEASED

ENVIRONMENTAL CONTAMINATION ☐ AIR ☐ WATER ☐ GROUND ☐ OTHER	TIME OF RELEASE	DURATION OF RELEASE ___DAYS ___HOURS ___MINUTES

E

ACTIONS TAKEN

F

KNOWN OR ANTICIPATED HEALTH EFFECTS (Use the comments section for addition information)

☐ ACUTE OR IMMEDIATE (explain) _____

☐ CHRONIC OR DELAYED (explain) _____

☐ NOTKNOWN (explain)

G

ADVICE REGARDING MEDICAL ATTENTION NECESSARY FOR EXPOSED INDIVIDUALS

H

COMMENTS (INDICATE SECTION (A - G) AND ITEM WITH COMMENTS OR ADDITIONAL INFORMATION)

I

CERTIFICATION: I certify under penalty of law that I have personally examined and I am familiar with the information submitted and believe the submitted information is true, accurate, and complete.

REPORTING FACILITY REPRESENTATIVE (print or type) _____

SIGNATURE OF REPORTING FACILITY REPRESENTATIVE _____ DATE: _____

EMERGENCY RELEASE FOLLOW-UP NOTICE
REPORTING FORM INSTRUCTIONS

GENERAL INFORMATION:

Chapter 6.95 of Division 20 of the California Health and Safety Code requires that written emergency release follow-up notices prepared pursuant to 42 U.S.C. § 11004, be submitted using this reporting form. Non-permitted releases of reportable quantities of Extremely Hazardous Substances (listed in 40 CFR 355, appendix A) or of chemicals that require release reporting under section 103(a) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 [42 U.S.C. § 9603(a)] must be reported on the form, as soon as practicable, but no later than 30 days, following a release. The written follow-up report is required in addition to the verbal notification.

BASIC INSTRUCTIONS:

- The form, when filled out, reports follow-up information required by 42 U.S.C § 11004. Ensure that all information requested by the form is provided as completely as possible.
- If the incident involves reportable releases of more than one chemical, prepare one report form for each chemical released.
- If the incident involves a series of separate releases of chemical(s) at different times, the releases should be reported on separate reporting forms.

SPECIFIC INSTRUCTIONS:

Block A: Enter the name of the business and the name and phone number of a contact person who can provide detailed facility information concerning the release.

Block B: Enter the date of the incident and the time that verbal notification was made to OES. The OES control number is provided to the caller by OES at the time verbal notification is made. Enter this control number in the space provided.

Block C: Provide information pertaining to the location where the release occurred. Include the street address, the city or community, the county and the zip code.

Block D: Provide information concerning the specific chemical that was released. Include the chemical or trade name and the Chemical Abstract Service (CAS) number. Check all categories that apply. Provide best available information on quantity, time and duration of the release.

Block E: Indicate all actions taken to respond to and contain the release as specified in 42 U.S.C. § 11004(c).

Block F: Check the categories that apply to the health effects that occurred or could result from the release. Provide an explanation or description of the effects in the space provided. Use Block H for additional comments/information if necessary to meet requirements specified in 42 U.S.C. § 11004(c).

Block G: Include information on the type of medical attention required for exposure to the chemical released. Indicate when and how this information was made available to individuals exposed and to medical personnel, if appropriate for the incident, as specified in 42 U.S.C. § 11004(c).

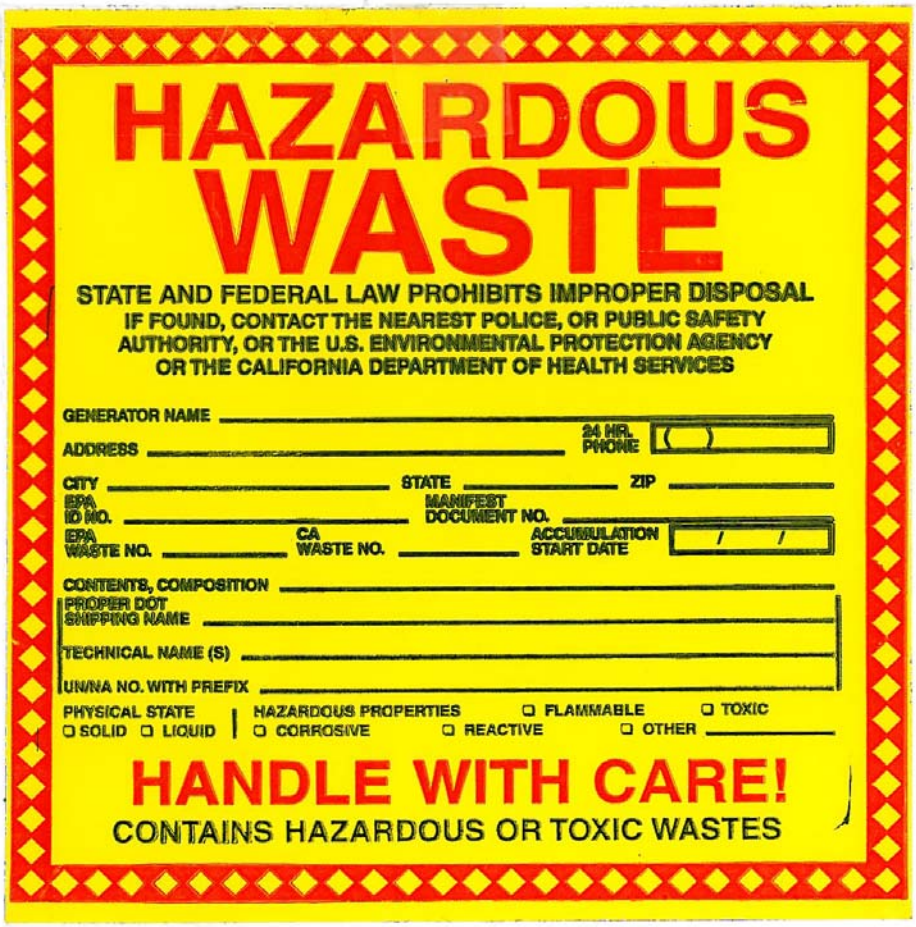
Block H: List any additional pertinent information.

Block I: Print or type the name of the facility representative submitting the report. Include the official signature and the date that the form was prepared.

MAIL THE COMPLETED REPORT TO:

State Emergency Response Commission (SERC)
Attn: Section 304 Reports
Hazardous Materials Unit
3650 Schriever Avenue
Mather, CA 95655

NOTE: Authority cited: Sections 25503, 25503.1 and 25507.1, Health and Safety Code. Reference: Sections 25503(b)(4), 25503.1, 25507.1, 25518 and 25520, Health and Safety Code.


HAZARDOUS
WASTE
STATE AND FEDERAL LAW PROHIBITS IMPROPER DISPOSAL
IF FOUND, CONTACT THE NEAREST POLICE, OR PUBLIC SAFETY
AUTHORITY, OR THE U.S. ENVIRONMENTAL PROTECTION AGENCY
OR THE CALIFORNIA DEPARTMENT OF HEALTH SERVICES
GENERATOR NAME
ADDRESS
24 HR. PHONE
CITY
STATE
ZIP
EPA ID NO.
MANIFEST DOCUMENT NO.
EPA WASTE NO.
CA WASTE NO.
ACCUMULATION START DATE
CONTENTS, COMPOSITION
PROPER DOT SHIPPING NAME
TECHNICAL NAME (S)
UN/NA NO. WITH PREFIX
PHYSICAL STATE
SOLID LIQUID
HAZARDOUS PROPERTIES
CORROSIVE
FLAMMABLE
REACTIVE
TOXIC
OTHER
HANDLE WITH CARE!
CONTAINS HAZARDOUS OR TOXIC WASTES

City of San Diego

CITY CONTACT: **Damian Singleton,** Contract Specialist, **Email:** dsingleton@sandiego.gov
Phone No. (619) 533-3482, **Fax No.** (619) 533-3633

ADDENDUM "A"

FOR

MEMORIAL POOL IMPROVEMENTS

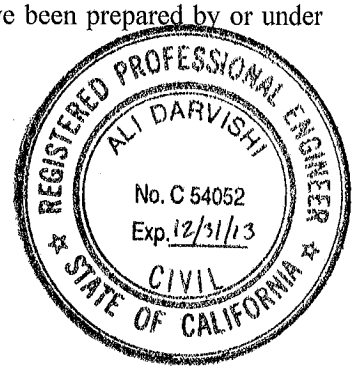
BID NO.:	**K-13-5286-DBB-3-A**
SAP NO. (WBS/IO/CC):	**S-00970**
CLIENT DEPARTMENT:	**1714**
COUNCIL DISTRICT:	**8**
PROJECT TYPE:	**BE**
CDBG #:	**B-12-MC-06-0542**

BID DUE DATE:

2:00 PM
JANUARY 24, 2013
CITY OF SAN DIEGO
PUBLIC WORKS DEPARTMENT
1010 SECOND AVENUE, SUITE 1400, MS 614C
SAN DIEGO, CA 92101

ENGINEER OF WORK

The engineering Specifications and Special Provisions contained herein have been prepared by or under the direction of the following Registered Engineer:



For City Engineer

12/17/12
Date

Seal:

A. CHANGES TO CONTRACT DOCUMENTS

The following changes to the Contract Documents are hereby made effective as though originally issued with the bid package. Bidders are reminded that all previous requirements to this solicitation remain in full force and effect.

THE SUBMITTAL DATE FOR THIS PROJECT HAS BEEN **EXTENDED AS STATED ABOVE.**

B. BIDDER's QUESTIONS

Q1. Can Water Odyssey Aquatic Playground Equipment be considered an "equal" to the wet play equipment specified?

A1. Yes

Q2: Can GT Grandstands be considered an "equal" to the 15-foot, 5 row bleachers specified?

A2: Yes

Q3: Sheet DP-1 note 14 says to remove existing perimeter chain link and steel fencing. The plan looks like it shows the chain link fencing remaining based upon the hatched limits of work. Plan DP-2 shows the chain link fencing remaining on east side with new steel fencing inside the chain link fencing. Please clarify this item.

A3. All fencings shall be removed and replaced except for offsite tennis courts on west side.

Q4. Sheet DP-1 note 14 indicates fencing on the north side is to be removed. Sheet DP-2 says this fencing in this area is to be removed and replace. We are interpreting this to mean the old fence is demolished and new fence is installed. Is this correct?

A4. Yes, that is correct.

Q5. Sheet DP-2 on the north side by the surge chamber shows a gate location – there is no reference here to the type and height of fencing. We would assume if gates are shown there is fencing as well?

A5. Yes. The area around the surge chamber is a fenced storage area. Fence and gate shall be 10 feet high.

Q6. Sheet DP-2 shows new inside fencing on the west side. The details reference both 10' and 4' fence, what is the correct fence height?

A6. Perimeter fence is 10 feet high; interior fence is 4 feet high.

Q7. Sheet DP-4 concrete color schedule says for pool decks "pool decks shall be slightly darker than natural concrete color to negate glare" – Please specify the color for this location. Are the area walls and curbs to be this same color?

A7. Only decking around the pool shall have Lee Davis Colors "Pewter" 1-lb #860.

Q8. The sheets DP-2 and C-1 don't show the same areas of AC paving. Please clarify which sheet depicts this correctly.

A8. Refer to drawing number 36152-9A-D, C-1 of this addendum for the correct areas.

Q9. Sheet E-2 note 2 indicates existing power service conduit is to be re-used. Sheet E-2 note 3 does not indicate whether the wire for this service is existing or new. Please clarify. If existing conduit and wire are not up to SDG&E requirement, who is responsible for replacement and cost of replacement?

A9**.** Single line diagram on sheet E-3 shows wiring as new per the feeder schedule. The cost shall be included in the Security Lighting Bid item.

C. VOLUME 1:

1. To All references of 1200 Third Avenue, Suite 200, MS 56P, San Diego, CA 92101, and phone number (619) 236-6000, **DELETE** in their entirety and **SUBSTITUTE** with the following:

   1010 Second Avenue, Suite 1400, MS 614C, San Diego 92101
   Phone Number (619) 533-3450

2. To Invitation To Bids, page 9, Item 7 Pre-Bid Conference, **DELETE** in its entirety and **SUBSTITUT**E with the following:

   NOTE: Contractors who attended the first mandatory pre-bid meeting **will not** be required to attend the second mandatory pre-bid meeting.

   PRE-BID CONFERENCE: There will be a second Pre-Bid Conference to discuss the scope of the project, bidding requirements, and Equal Opportunity Contracting Program requirements and reporting procedures in the **Public Works Contracting Group, Conference Room** at **1010 Second Avenue, Suite 1400, San Diego, CA 92101** at **10:00 A.M.,** on **JANUARY 3rd, 2013.**

   The Pre-Bid Conference has been designated as MANDATORY. All potential bidders are required to attend. Bid will be declared **non-responsive** if the Bidder fails to attend the Pre-Bid Conference when specified to be mandatory. Attendance at the Pre-Bid Conference will be evidenced by the representative's signature on the attendance roster. It shall be the responsibility of the Bidder's representative to complete and sign the attendance roster. No Bidder will be admitted after the official start time of the mandatory Pre-Bid Conference.

To request a copy of the agenda on an alternative format, or to request a sign language or oral interpreter for this meeting, call the Public Works Contracting Group at (619) 533-3450 at least 5 Working Days prior to the Pre-Bid Conference to ensure availability.

3. To INSTRUCTIONS TO BIDDERS, **ADD** page 6 of 78 through 9 of 78 of this Addendum.

4. To FUNDING AGENCY PROVISIONS, Item 10, WAGE RATES, page 27, **DELETE** in its entirety and **SUBSTITUTE** with the following:

   10. WAGE RATES. This contract shall be subject to the following Davis-Bacon Wage Decisions:

   - Wage Determination Number: **CA120001 CA1**
   - Modification Number: **12**
   - Publication Date: **11/16/2012**

   The required wage information may be accessed and downloaded from: http://www.wdol.gov/

5. To SUPPLEMENTARY SPECIAL PROVISIONS (SSP), APPENDICES, **ADD** pages 10 of 78 through 76 of 78 of this Addendum.

D. PLANS

1. To Drawing sheet 36152-09-D, **DELETE** in their entirety and **REPLACE** with pages 77 of 78 through 78 of 78 of this Addendum.

Tony Heinrichs, Director
Public Works Department

Dated: *December 17, 2012*
San Diego, California

TH/nb/ds/ls/egz

27. EQUAL OPPORTUNITY

To The WHITEBOOK, Chapter 10, Sections D and E, DELETE in their entirety and SUBSTITUTE with the following:

D. CITY'S EQUAL OPPORTUNITY COMMITMENT.

1. Nondiscrimination in Contracting Ordinance.

1. The Contractor, Subcontractors and Suppliers shall comply with requirements of the City's Nondiscrimination in Contracting Ordinance, San Diego Municipal Code §§22.3501 through 22.3517.

   The Contractor shall not discriminate on the basis of race, gender, religion, national origin, ethnicity, sexual orientation, age, or disability in the solicitation, selection, hiring, or treatment of subcontractors, vendors, or suppliers. The Contractor shall provide equal opportunity for subcontractors to participate in subcontracting opportunities. The Contractor understands and agrees that violation of this clause shall be considered a material breach of the contract and may result in contract termination, debarment, or other sanctions.

   The Contractor shall include the foregoing clause in all contracts between the Contractor and Subcontractors and Suppliers.

2. Disclosure of Discrimination Complaints. As part of its Bid or Proposal, the Bidder shall provide to the City a list of all instances within the past 10 years where a complaint was filed or pending against Bidder in a legal or administrative proceeding alleging that Bidder discriminated against its employees, subcontractors, vendors, or suppliers, and a description of the status or resolution of that complaint, including any remedial action taken.

3. Upon the City's request, the Contractor agrees to provide to the City, within 60 days, a truthful and complete list of the names of all Subcontractors and Suppliers that the Contractor has used in the past 5 years on any of its contracts that were undertaken within San Diego County, including the total dollar amount paid by the Contractor for each subcontract or supply contract.

4. The Contractor further agrees to fully cooperate in any investigation conducted by the City pursuant to the City's Nondiscrimination in Contracting Ordinance, Municipal Code §§22.3501 through 22.3517. The Contractor understands and agrees that violation of this clause shall be considered a material breach of the Contract and may result in remedies being ordered

against the Contractor up to and including contract termination, debarment and other sanctions for violation of the provisions of the Nondiscrimination in Contracting Ordinance. The Contractor further understands and agrees that the procedures, remedies and sanctions provided for in the Nondiscrimination in Contracting Ordinance apply only to violations of the Ordinance.

E. EQUAL EMPLOYMENT OPPORTUNITY OUTREACH PROGRAM.

1. The Contractor, Subcontractors and Suppliers shall comply with the City's Equal Employment Opportunity Outreach Program, San Diego Municipal Code §§22.2701 through 22.2707.

   The Contractor shall not discriminate against any employee or applicant for employment on any basis prohibited by law. Contractor shall provide equal opportunity in all employment practices. Prime Contractor shall ensure their subcontractors comply with this program. Nothing in this section shall be interpreted to hold a prime contractor liable for any discriminatory practice of its subcontractors.

   The Contractor shall include the foregoing clause in all contracts between the Contractor and Subcontractors and Suppliers.

2. If the Contract is competitively solicited, the selected Bidder shall submit a Work Force Report (Form BB05), within 10 Working Days after receipt by the Bidder of Contract forms to the City for approval as specified in the Notice of Intent to Award letter from the City.

3. If a Work Force Report is submitted, and the City determines there are under-representations when compared to County Labor Force Availability data, the selected Bidder shall submit an Equal Employment Opportunity Plan.

4. If the selected Bidder submits an Equal Employment Opportunity Plan, it shall include the following assurances:

   1. The Contractor shall maintain a working environment free of discrimination, harassment, intimidation and coercion at all sites and in all facilities at which the Contractor's employees are assigned to work.

   2. The Contractor reviews its EEO Policy, at least annually, with all on-site supervisors involved in employment decisions.

3. The Contractor disseminates and reviews its EEO Policy with all employees at least once a year, posts the policy statement and EEO posters on all company bulletin boards and job sites, and documents every dissemination, review and posting with a written record to identify the time, place, employees present, subject matter, and disposition of meetings.

4. The Contractor reviews, at least annually, all supervisors' adherence to and performance under the EEO Policy and maintains written documentation of these reviews.

5. The Contractor discusses its EEO Policy Statement with subcontractors with whom it anticipates doing business, includes the EEO Policy Statement in its subcontracts, and provides such documentation to the City upon request.

6. The Contractor documents and maintains a record of all bid solicitations and outreach efforts to and from subcontractors, contractor associations and other business associations.

7. The Contractor disseminates its EEO Policy externally through various media, including the media of people of color and women, in advertisements to recruit, maintains files documenting these efforts, and provides copies of these advertisements to the City upon request.

8. The Contractor disseminates its EEO Policy to union and community organizations.

9. The Contractor provides immediate written notification to the City when any union referral process has impeded the Contractor's efforts to maintain its EEO Policy.

10. The Contractor maintains a current list of recruitment sources, including those outreaching to people of color and women, and provides written notification of employment opportunities to these recruitment sources with a record of the organizations' responses.

11. The Contractor maintains a current file of names, addresses and phone numbers of each walk-in applicant, including people of color and women, and referrals from unions, recruitment sources, or community organizations with a description of the employment action taken.

12. The Contractor encourages all present employees, including people of color and women employees, to recruit others.

13. The Contractor maintains all employment selection process information with records of all tests and other selection criteria.

14. The Contractor develops and maintains documentation for on-the-job training opportunities, participates in training programs, or both for all of its employees, including people of color and women, and establishes apprenticeship, trainee, and upgrade programs relevant to the Contractor's employment needs.

15. The Contractor conducts, at least annually, an inventory and evaluation of all employees for promotional opportunities and encourages all employees to seek and prepare appropriately for such opportunities.

16. The Contractor ensures the company's working environment and activities are non-segregated except for providing separate or single-user toilets and necessary changing facilities to assure privacy between the sexes.

APPENDIX F

Geotechnical Report

GEOTECHNICAL EVALUATION
MEMORIAL COMMUNITY PARK
POOL IMPROVEMENTS
2902 MARCY STREET
SAN DIEGO, CALIFORNIA

PREPARED FOR:
Aquatic Design Group
2226 Faraday Avenue
Carlsbad, California 92008

PREPARED BY:
Ninyo & Moore
Geotechnical and Environmental Sciences Consultants
5710 Ruffin Road
San Diego, California 92123

August 28, 2009
Project No. 106656001

August 28, 2009
Project No. 106656001

Mr. Randy Mendioroz
Aquatic Design Group
2226 Faraday Avenue
Carlsbad, California 92008

Subject: Geotechnical Evaluation
Memorial Community Park Pool Improvements
2902 Marcy Avenue
San Diego, California

Dear Mr. Mendioroz:

In accordance with your request and authorization, we have performed a geotechnical evaluation for the proposed improvements to the Memorial Community Park pool located in San Diego, California. This report presents our geotechnical findings, conclusions, and recommendations regarding the proposed project. We appreciate the opportunity to be of service on this project.

Sincerely,
NINYO & MOORE

Christina Tretinjak, P.G.
Project Geologist

PROFESSIONAL GEOLOGIST
CHRISTINA A. TRETINJAK
No. 8478
Exp. 11/30/09
STATE OF CALIFORNIA

Andres Bernal, G.E.
Senior Project Engineer

REGISTERED PROFESSIONAL ENGINEER
ANDRES BERNAL
No. 2715
Exp. 9/30/09
GEOTECHNICAL
STATE OF CALIFORNIA

Randal L. Irwin, C.E.G.
Chief Engineering Geologist

CAT/ABS/RI/KHM/lc

Distribution: (5) Addressee

TABLE OF CONTENTS

Tables

Figures

Appendices

1. INTRODUCTION

In accordance with your request, Ninyo & Moore has performed a geotechnical evaluation for the Memorial Community Park pool renovation project in San Diego, California (Figure 1). The purpose of this study was to evaluate the geotechnical conditions at the project site. This report presents our findings, conclusions, and recommendations regarding geotechnical aspects of this project.

2. SCOPE OF SERVICES

Our scope of services included the following:

- Review of readily available published and in-house geotechnical literature, topographic maps, geologic maps, fault maps, and stereoscopic aerial photographs.
- Performing a field reconnaissance to observe site conditions and to locate and mark exploratory boring locations.
- Coordinating with the County of San Diego Department of Environmental Health (DEH) to obtain permits for our subsurface borings. Work was conducted under DEH boring permit #LMON106606.
- Obtaining utility clearance of the exploratory boring locations through Underground Service Alert (USA) as well as by a private utility locator.
- Performing a subsurface evaluation consisting of the excavating, logging, and sampling of three small diameter exploratory borings with a limited-access hollow-stem auger drill rig. Relatively undisturbed and bulk samples were obtained at selected intervals from the borings.
- Performing geotechnical laboratory testing on selected soil samples.
- Preparing this report presenting our findings, conclusions, and recommendations relative to the geotechnical aspects of this project.

3. SITE DESCRIPTION

Memorial Community Park is located southwest of the intersection of Ocean View Boulevard and South 30th Street in San Diego, California. The existing pool is located near the center of the park, north of the recreation center building and basketball courts and east of Memorial Junior High School. We understand that the proposed improvements will encompass the area of the ex-

isting pool as well as the basketball courts to the south. Existing improvements at the project site consist of an approximately 4,000 square foot pool and surrounding concrete deck, bleachers, shade structures, fencing, and various underground utilities. A pool administration/bathhouse building is located to the east of the existing pool; we understand that this building will not be a part of the renovation project.

Topographically, the project area has a gentle downward slope to the southeast. The elevation of the pool deck is approximately 86 feet above mean sea level (MSL). A 3-foot high block retaining wall separates the pool area from the basketball courts to the south. The elevation at the basketball courts is approximately 83 feet MSL.

4. PROJECT DESCRIPTION

We understand that the proposed project will consist of the demolition and replacement of the existing swimming pool. The proposed new pool is anticipated to be eight lanes by 25 yards and approximately 6½ feet deep. Detailed plans were not available for our review, however, it is anticipated that associated improvements will include a wet playground area, concrete pool decks, deck drainage system, perimeter fencing, safety lighting, and shade structures. We understand that the City of San Diego would like to reuse existing pool mechanical equipment in the construction of the new pool. At the time of our evaluation, the exact locations of the proposed improvements were not known.

5. SUBSURFACE EVALUATION AND LABORATORY TESTING

Our subsurface exploration was conducted on August 12, 2009, and consisted of the drilling, logging, and sampling three, small-diameter borings to depths of up to approximately 25 feet. The borings were advanced using a limited-access hollow-stem auger drill rig. The purpose of the borings was to perform a subsurface evaluation of various earth materials within the project area and collect bulk and relatively undisturbed soil samples for laboratory testing. The approximate locations of the borings are shown on Figure 2. The geotechnical boring logs are presented in Appendix A.

Laboratory testing of representative soil samples obtained during our subsurface exploration included in-situ moisture content and dry density, gradation analysis, shear strength, and soil corrosivity. The results of the in-situ moisture content and dry density tests are shown at the corresponding sample depth on the boring logs in Appendix A. The results of the other geotechnical laboratory testing performed are presented in Appendix B.

6. SITE GEOLOGIC CONDITIONS

Geologic units encountered during our subsurface evaluation at the site included fill materials and old paralic deposits. Generalized descriptions of the earth units encountered are provided in the subsequent sections. More detailed descriptions are provided on the boring logs in Appendix A.

6.1. Fill

Fill was encountered in each of our borings up to approximately 6½ feet. As encountered, the fill materials generally consisted of yellowish and reddish brown, damp to moist, medium dense silty and clayey sand as well as poorly graded sand. Gravel- and cobble-sized debris consisting of asphalt and concrete fragments were encountered in the fill materials.

6.2. Old Paralic Deposits

Old paralic deposits were encountered in each of our borings underlying the fill materials to the total depth explored. As encountered, the material generally consisted of brown and grayish brown, damp to moist, medium dense to dense, silty sand and sandy silt as well as hard silt. The old paralic deposits occur as marine terrace deposits laid down by shore or nearshore processes during the Pleistocene Epoch at sea levels that were higher than today.

6.3. Excavation Characteristics

Based on our field exploration and experience, we anticipate that excavations within the fill materials and old paralic deposits may be accomplished with heavy-duty earthmoving equipment in good working condition. However, cemented zones within the old paralic deposits may be encountered and would entail the use of heavy ripping or rock breaking equipment.

6.4. Groundwater

Groundwater was not encountered in our borings at the time of drilling for this project, or during our referenced geotechnical evaluation for the adjacent infiltration project (Ninyo & Moore, 2008). In addition, there is no groundwater data available for the immediate area according to the referenced Geotracker website. Fluctuations in the groundwater level may occur due to variations in ground surface topography, subsurface geologic conditions and structure, rainfall, irrigation, and other factors.

7. FAULTING AND SEISMICITY

The subject site is not located within a State of California Earthquake Fault Zone (formerly known as an Alquist-Priolo Special Studies Zone) (Hart and Bryant, 1997). However, the site is located in a seismically active area, as is the majority of southern California, and the potential for strong ground motion in the project area is considered significant during the design life of the proposed structure. Figure 3 shows the approximate site location relative to the major faults in the region. The active Rose Canyon fault is located approximately 2 miles west of the site.

Table 1 lists selected principal known active faults that may affect the subject site, the maximum moment magnitude (M_{max}) as published by the Cao, et al. (2003) for the California Geological Survey (CGS). The approximate fault-to-site distances were calculated using the computer program FRISKSP (Blake, 2001).

Table 1 – Principal Active Faults

Fault	Approximate Distance miles (kilometers) [1]	Moment Magnitude/ Fault Type [1,2]
Rose Canyon	2 (3)	7.2/B
Coronado Bank	13 (21)	7.4/B
Newport-Inglewood (Offshore)	38 (61)	6.9/B
Elsinore (Julian)	43 (70)	7.1/A
Earthquake Valley	48 (77)	6.5/B
Elsinore (Temecula)	49 (79)	6.8/A
Elsinore (Coyote Mountain)	49 (79)	6.8/A
Notes: [1] Blake (2001) [2] Cao, et al. (2003)		

The principal seismic hazards at the subject site are surface fault rupture, ground motion, liquefaction, landslides, and tsunamis. A brief description of these hazards and the potential for their occurrences on site are discussed below.

7.1. Surface Fault Rupture

Based on our review of the referenced literature and our site reconnaissance, no active faults are known to cross the project site. Therefore, the probability of damage from surface fault rupture is considered to be low. However, lurching or cracking of the ground surface as a result of nearby seismic events is possible.

7.2. Ground Motion

The 2007 California Building Code (CBC) recommends that the design of structures be based on the horizontal peak ground acceleration (PGA) having a 2 percent probability of exceedance in 50 years which is defined as the Maximum Considered Earthquake (MCE). The statistical return period for PGA_{MCE} is approximately 2,475 years. The probabilistic PGA_{MCE} for the site was calculated as 0.60g using the United States Geological Survey (USGS) (USGS, 2008) ground motion calculator (web-based). The design PGA was estimated to be 0.40g using the USGS ground motion calculator. These estimates of ground motion do not include near-source factors that may be applicable to the design of structures on site.

7.3. Liquefaction

Liquefaction is the phenomenon in which loosely deposited granular soils with silt and clay contents of less than approximately 35 percent and non-plastic silts located below the water table undergo rapid loss of shear strength when subjected to strong earthquake-induced ground shaking. Liquefaction is known generally to occur in saturated or near-saturated cohesionless soils at depths shallower than 50 feet below the ground surface.

Our subsurface exploration and laboratory testing indicate that the pool site is underlain by relatively dense sands and silts and old paralic deposits. Accordingly, it is our opinion that

liquefaction and liquefaction-related seismic hazards (e.g., dynamic settlement, ground subsidence, and/or lateral spreading) are not design considerations for the pool and associated improvements.

7.4. Landslides

Landslides may be induced by strong vibratory motion produced by earthquakes. Research and historical data indicate that seismically induced landslides tend to occur in weak soil and rock on sloping terrain. The process for zoning earthquake-induced landslides incorporates expected future earthquake shaking, existing landslide features, slope gradient, and strength of earth materials on the slope. The project area is not mapped in an area considered susceptible to seismically induced landslides. Based on our review of the relevant geologic maps, aerial photographs, and our subsurface evaluation, landslide hazards are not a design consideration for the project.

7.5. Tsunamis

Tsunamis are long wavelength seismic sea waves (long compared to ocean depth) generated by the sudden movements of the ocean floor during submarine earthquakes, landslides, or volcanic activity. Based on our review of tsunami hazards maps (Legg, Borrero, and Synolakis, 2003) and the distance of the site from the ocean, damage due to tsunamis is not a design consideration.

7.6. Seismic Design Parameters

Design of the proposed improvements should be performed in accordance with the requirements of governing jurisdictions and applicable building codes. Table 3 presents the seismic design parameters for the site in accordance with CBC (2007) guidelines and mapped spectral acceleration parameters (USGS, 2008).

Table 2 – Seismic Design Factors

Factors	Values
Site Class	D
Site Coefficient, F_a	1.0
Site Coefficient, F_v	1.5
Mapped Short Period Spectral Acceleration, S_S	1.487g
Mapped One-Second Period Spectral Acceleration, S_1	0.581g
Short Period Spectral Acceleration Adjusted For Site Class, S_{MS}	1.487g
One-Second Period Spectral Acceleration Adjusted For Site Class, S_{M1}	0.872g
Design Short Period Spectral Acceleration, S_{DS}	0.991g
Design One-Second Period Spectral Acceleration, S_{D1}	0.581g

8. CONCLUSIONS

Based on the results of our geotechnical evaluation, it is our opinion that the proposed improvements are feasible from a geotechnical perspective with the current site conditions. Our preliminary findings and conclusions pertaining to the geotechnical aspects of the property are presented below.

- The site is generally underlain by fill and old paralic deposits. The existing fills are compressible and not suitable for structural support. Competent old paralic deposits are considered suitable for structural support or support of compacted fill.

- The on-site materials should be generally excavatable with conventional heavy-duty earth moving construction equipment in generally good condition. However, cemented zones within the old paralic deposits may be encountered and would entail the use of heavy ripping or rock breaking equipment.

- It is anticipated that the proposed pool may straddle a cut/fill transition. To reduce the potential for differential settlement undercut recommendations are provided.

- Groundwater was not encountered in our borings at the time of drilling. Fluctuations in the groundwater level may occur due to variations in ground surface topography, subsurface geologic conditions and structure, rainfall, irrigation, and other factors.

- The active Rose Canyon fault zone is located approximately 2 miles west of the site. Accordingly, the potential for relatively strong seismic ground motions should be considered in the project design.

- Due to the density of the underlying formational materials, the project site is not considered susceptible to liquefaction.

- Based on the results of our soil corrosivity tests presented in the following sections and Caltrans corrosion guidelines (2003), the site would be classified as corrosive.

9. RECOMMENDATIONS

Based on our understanding of the project, the following recommendations are provided for the design and construction of the proposed pool renovation at Memorial Community Park. The proposed site improvements should be constructed in accordance with the requirements of the applicable governing agencies.

9.1. Earthwork

Earthwork at the project site is anticipated to prepare the site for the proposed improvements. Due to the undocumented nature of the existing fill, we recommend earthwork be performed to remove and re-compact the fill material. In general, earthwork should be performed in accordance with the recommendations presented in this report. The geotechnical consultant should be contacted for questions regarding the recommendations or guidelines presented herein. In addition, Typical Earthwork Guidelines for the project are included as Appendix C. In the event of a conflict in recommendations, the recommendations presented below should supersede those in Appendix C.

9.1.1. Site Preparation

Site preparation should begin with the removal of existing asphalt concrete, concrete, utility lines and other deleterious debris from project areas. Vegetation should be removed to such a depth that organic material is generally not present. Clearing and grubbing should extend to the outside of the proposed excavation and fill areas. The debris and unsuitable material generated during clearing and grubbing should be removed from the project area and disposed of at a legal dumpsite away from the project area.

In the area of the proposed new pool, we recommend that existing fill be removed to the depth of competent materials (old paralic deposits). In general, this depth is anticipated to be approximately 9 feet or more. Due to the relative proximity of the bathhouse/pool

administration and recreation center buildings, grading removals should set back from an imaginary plane extending from the top of the foundation down and away at a 2:1 gradient. Where such removals are not practical, the geotechnical consultant should be consulted for slot cutting recommendations. Following removals, the resulting surface should be evaluated. Deeper removals may be needed if unsuitable materials are exposed. The exposed soil subgrade, where fill placement or architectural flatwork is planned, should be scarified to a depth of 12 inches, moisture conditioned near the optimum moisture content, and compacted to 90 percent relative compaction as evaluated in accordance with American Society for Testing and Materials (ASTM) Test Method D 1557. Sloping ground should be benched in accordance with the recommendations in Appendix C.

9.1.2. Removals

Due to the relatively compressible nature of the existing fill, we recommend that these soils be removed to competent old paralic deposits, moisture conditioned, and placed as compacted fill. Removal depths should be observed and confirmed by representatives of Ninyo & Moore.

After removal of the fill, the resulting surface should be scarified to a depth of approximately 8 inches, moisture conditioned, and compacted to 90 percent relative compaction, as evaluated by ASTM D1557.

9.1.3. Cut/Fill Transition

It is anticipated that the proposed removals could result in a cut/fill transition across the pool site. If this occurs, there is the possibility of differential settlement between the fill and cut portions. If a cut/fill transition is created, we recommend that the cut portion be overexcavated to a depth of H/3 below the bottom of pool elevation (where H is the maximum depth of fill underlying the pool) or 3 feet, whichever is greater. The overexcavated area may then be rebuilt to pool bottom grade with compacted fill soils to create a relatively smooth fill transition beneath the pool.

9.1.4. Materials for Fill

On-site soils with an organic content of less than approximately 3 percent by volume (or 1 percent by weight) are suitable for reuse as fill. In general, fill material should not contain rocks or lumps over approximately 4 inches, and not more than approximately 30 percent larger than ¾-inch. Larger chunks, if generated during excavation, may be broken into acceptably sized pieces or disposed of off site. Imported fill material, if needed for the project, should generally be granular soils with a very low to low expansion potential (i.e., an expansion index [EI] of 50 or less) as evaluated in accordance with ASTM D 4829. Import material should also be non-corrosive in accordance with the Caltrans (2003) corrosion guidelines. Materials for use as fill should be evaluated by Ninyo & Moore's representative prior to filling or importing.

9.1.5. Compacted Fill

Prior to placement of compacted fill the contractor should request an evaluation of the exposed ground surface by Ninyo & Moore. Unless otherwise recommended, the exposed ground surface should then be scarified to a depth of approximately 8 inches and watered or dried, as needed, to achieve moisture contents generally above the optimum moisture content. The scarified materials should then be compacted to a relative compaction of 90 percent as evaluated in accordance with ASTM D 1557. The evaluation of compaction by the geotechnical consultant should not be considered to preclude any requirements for observation or approval by governing agencies. It is the contractor's responsibility to notify the geotechnical consultant and the appropriate governing agency when project areas are ready for observation, and to provide reasonable time for that review.

Fill materials should be moisture conditioned to generally above the laboratory optimum moisture content prior to placement. The optimum moisture content will vary with material type and other factors. Moisture conditioning of fill soils should be generally consistent within the soil mass.

Prior to placement of additional compacted fill materials following a delay in the grading operations, the exposed surface of previously compacted fill should be prepared to receive fill. Preparation may include scarification, moisture conditioning, and recompaction.

Compacted fill should be placed in horizontal lifts of approximately 8 inches in loose thickness. Prior to compaction, each lift should be watered or dried as needed to achieve a moisture content generally above the laboratory optimum, mixed, and then compacted by mechanical methods, using sheepsfoot rollers or other appropriate compacting rollers, to a relative compaction of 90 percent as evaluated by ASTM D 1557. Successive lifts should be treated in a like manner until the desired finished grades are achieved.

9.1.6. Temporary Excavations, Braced Excavations, and Shoring

For temporary excavations, we recommend that the following Occupational Safety and Health Administration (OSHA) soil classifications be used:

Fill	*Type C*
Old Paralic Deposits	*Type C*

Upon making the excavations, the soil classifications and excavation performance should be evaluated in the field by the geotechnical consultant in accordance with the OSHA regulations. Temporary excavations should be constructed in accordance with OSHA recommendations. For trench or other excavations, OSHA requirements regarding personnel safety should be met using appropriate shoring (including trench boxes) or by laying back the slopes to no steeper than 1.5:1 (horizontal:vertical) in fill materials and old paralic deposits. Temporary excavations that encounter seepage may be shored or stabilized by placing sandbags or gravel along the base of the seepage zone. Excavations encountering seepage should be evaluated on a case-by-case basis. On-site safety of personnel is the responsibility of the contractor.

9.1.7. Utility Trench Backfill

Based on our subsurface evaluation, the on-site earth materials should be generally suitable for re-use as trench zone backfill provided they are free of organic material, clay

lumps, debris, and rocks greater than approximately 3 inches in diameter. Soils classified as silts or clays should not be used for backfill in the pipe zone. Fill should be moisture-conditioned to generally above the laboratory optimum. Trench backfill should be compacted to a relative compaction of 90 percent as evaluated by ASTM D 1557. Lift thickness for backfill will depend on the type of compaction equipment utilized, but fill should generally be placed in lifts not exceeding 8 inches in loose thickness. Special care should be exercised to avoid damaging the pipe during compaction of the backfill.

9.2. Swimming Pool Recommendations

Detailed design plans were not available for our review, however, based on our discussions with the client, we anticipate that the pool will consist of a 6-inch gunite or concrete reinforced wall and floor. Design recommendations are presented below.

9.2.1. Bearing Capacity

Based on our earthwork recommendations, the pool will be founded in compacted fill and may be designed using an allowable bearing capacity of 3,000 pounds per square foot (psf). These allowable bearing capacities may be increased by one-third when considering loads of short duration such as wind or seismic forces. The pool wall and floor should be reinforced in accordance with the recommendations of the project structural engineer.

9.2.2. Lateral Resistance

For resistance of footings to lateral loads, we recommend an allowable passive pressure of 350 psf per foot of depth be used with a value of up to 3,500 psf. This value assumes that the ground is horizontal for a distance of 10 feet, or three times the height generating the passive pressure, whichever is greater. We recommend that the upper 1 foot of soil not protected by pavement or a concrete slab be neglected when calculating passive resistance.

For frictional resistance to lateral loads, we recommend a coefficient of friction of 0.35 be used between soil and concrete. The allowable lateral resistance can be taken as the sum of the frictional resistance and passive resistance provided the passive resistance does not exceed

one-half of the total allowable resistance. The passive resistance values may be increased by one-third when considering loads of short duration such as wind or seismic forces.

9.2.3. Lateral Earth Pressures

Swimming pool walls bordered by concrete decking (level conditions) may be designed using an at-rest earth pressure represented by an equivalent fluid weight of 60 pounds per cubic foot (pcf). Active and passive earth pressure represented by equivalent fluid weights of 40 and 350 pcf, respectively, may also be used for design. Pool walls should also be designed to resist lateral surcharge pressures imposed by any adjacent footings or structures in addition to the above lateral earth pressures.

9.2.4. Existing Pool Removal

Based on our discussions with the client, it is anticipated that the proposed pool will be shallower than the existing pool. At this time, complete removal of the existing pool is recommended. Additional recommendations may be provided when more detailed plans are available.

9.2.5. Stability of Temporary Pool Excavations

Temporary excavations in site soils may be performed with near-vertical sidewalls up to a depth of 4 feet, and at an inclination of 1:1 (horizontal to vertical) or flatter for slopes ranging in depth from 4 to 10 feet. Temporary excavations deeper than 10 feet should be performed at a slope inclination of 1.5:1 (horizontal to vertical) or flatter. Some surficial sloughing may, however, occur depending on the excavation depths and actual soil conditions encountered. Temporary slope excavations should be evaluated in the field by Ninyo & Moore. Forming of the pool walls may be required.

Slope setback requirements of the governing jurisdictions and applicable building codes should be followed during pool excavation operations. Any cuts exposed to seasonal precipitation or uncontrolled surface runoff may be easily eroded. Excavations should

be performed in accordance with OSHA's regulations. As indicated previously, the site soils should be considered as Type C soils in accordance with OSHA guidelines.

After the swimming pool walls are constructed, the backfill placed between the walls and temporary excavated slopes should be compacted. Backfill materials should be placed in uniform lifts not exceeding 8 inches in loose thickness, moisture conditioned as appropriate to achieve in-place moisture contents slightly above the laboratory optimum, and then mechanically compacted to a relative compaction of 90 percent or more as evaluated by the latest edition of ASTM D 1557. Flooding or jetting of the backfill should be avoided.

9.2.6. Temporary Access Ramps

Backfill materials placed within temporary access ramps extending into the pool excavations should be properly compacted and tested. This will mitigate excessive settlement of the backfill and subsequent damage to pool decking or other structures placed on the backfill.

9.2.7. Pool Bottom

The pool bottom should rest completely on compacted fill to reduce the potential for differential settlement of the pool. The pool subgrade should be evaluated by Ninyo & Moore prior to placement of reinforcement.

9.2.8. Pool Decking

In order to reduce the potential for shrinkage cracking, the pool decking should be 5 inches thick and shall be underlain with at least 4 inches of clean sand. Construction joints or expansion joints should be provided at an interval of every 6 feet or less. As a further measure to reduce cracking of pool decking, the subgrade soils to a depth of approximately 12 inches below the decking should be compacted to a relative compaction of 90 percent or more in accordance with the latest edition of ASTM D 1557 at moisture contents generally above the laboratory optimum. The subgrade soils should be shaped

to provide a minimum gradient of one percent away from the pool shell and towards a subsurface drainage system.

9.2.9. Plumbing Fixtures

Leakage from the swimming pool or the appurtenant plumbing fixtures could create adverse saturated conditions of the surrounding subgrade soils. Areas of over-saturation can lead to differential settlement of the subgrade soils and subsequent shifting of pool decking. Therefore, it is recommended that the plumbing and pool fixtures be inspected and maintained during the design life of the project. For similar reasons, drainage from the pool deck areas should be directed to area drains and/or swales designed to carry runoff water to suitable discharge locations.

9.3. Soil Corrosivity

Laboratory testing was performed to evaluate soil pH, electrical resistivity, water-soluble chloride content, and water-soluble sulfate content. The soil pH and electrical resistivity tests were performed in general accordance with the California Test (CT) 643. Sulfate and chloride content tests were performed in general accordance with CT 417 and 422, respectively. The laboratory test results are presented in Appendix B.

The pH of the tested sample was 8.0. The electrical resistivity of the tested sample was approximately 1,300 ohm-centimeters. The chloride content of the tested sample was approximately 305 parts per million (ppm). Tests performed on samples from the infiltration field project in the vicinity of the site (Ninyo & Moore, 2008) indicated a chloride content of 910 ppm. The sulfate content of the tested sample was approximately 0.010 percent by weight (i.e., 100 ppm). Based on the laboratory test results and Caltrans (2003) corrosion criteria, the project site would be classified as corrosive, which is defined as having earth materials with more than 500 ppm chlorides, more than 0.20 percent sulfates (i.e., 2,000 ppm), or a pH of 5.5 or less. We recommend that corrosion protection for improvements in contact with site soils be designed by a corrosion engineer.

9.4. Concrete

Concrete in contact with soil or water that contains high concentrations of soluble sulfates can be subject to chemical deterioration. Laboratory testing indicated the sulfate content of the sample tested was approximately 0.010 percent, which is considered negligible for sulfate attack based on the CBC (2007) criteria. Although significant sulfate content was not indicated, we recommend that Type V cement be used for concrete structures in contact with soil. The water-cement ratio of the concrete should be 0.45 or less and the slump should be 4 inches or less.

In order to reduce the potential for shrinkage cracks in the concrete during curing, we recommend that crack control joints be provided in slabs in accordance with the recommendations of the structural engineer to reduce the potential for distress due to minor soil movement and concrete shrinkage. We further recommend that concrete cover over reinforcing steel for slabs-on-grade and foundations be in accordance with CBC Section 1907.7.1. The structural engineer should be consulted for additional concrete specifications.

9.5. Exterior Flatwork

We recommend that concrete flatwork, other than the pool deck, be approximately 4 inches thick with No. 3 steel reinforcing bars placed 24 inches on center each way. Flatwork should be installed with frequent crack-control joints at appropriate spacing as designed by the project architect. Flatwork includes sidewalks and architectural features. Due to the nature of the design, some relative differential settlement of the flatwork relative to the pool may occur.

Prior to placement of flatwork, the subgrade soils should be scarified to a depth of 12 inches or more, moisture conditioned to above the optimum moisture content, and compacted to 90 percent relative compaction. Positive drainage should be established and maintained next to flatwork. A root barrier system should be considered between planned trees and flatwork.

9.6. Site Drainage

Sufficient site drainage is imperative for satisfactory performance of the proposed pool project. Water should not be allowed to pond near the improvements. The project civil engineer

or landscape architect should carefully evaluate the site in order to establish positive surface drainage around the improvements. Positive drainage is generally considered as a gradient of 2 percent for 5 feet away from the improvements leading to erosion reducing drainage systems, such as concrete swales or subsurface drains.

9.7. Pre-Construction Conference

We recommend that a pre-construction conference be held prior to commencement of grading. The owner and/or their representative, the governing agencies' representatives, the architect, the civil engineer, Ninyo & Moore, and the contractor should be in attendance to discuss the work plan and project schedule.

9.8. Plan Review and Construction Observation

The conclusions and recommendations presented in this report are based on analysis of observed conditions in widely spaced exploratory borings. If conditions are found to vary from those described in this report, Ninyo & Moore should be notified, and additional recommendations will be provided upon request. Ninyo & Moore should review the final project drawings (including grading plans) and specifications prior to the commencement of construction. It should be noted that, upon review of these documents, some recommendations presented in this report may be revised or modified. Ninyo & Moore should also perform observation and testing services during construction operations.

The recommendations provided in this report are based on the assumption that Ninyo & Moore will provide geotechnical observation and testing services during construction. In the event that it is decided not to utilize the services of Ninyo & Moore during construction, we request that the selected consultant provide the owner with a letter (with a copy to Ninyo & Moore) indicating that they fully understand Ninyo & Moore's recommendations, and that they are in full agreement with the design parameters and recommendations contained in this report. Construction of proposed improvements should be performed by qualified subcontractors utilizing appropriate techniques and construction materials.

10. LIMITATIONS

The field evaluation, laboratory testing, and geotechnical analyses presented in this geotechnical report have been conducted in general accordance with current practice and the standard of care exercised by geotechnical consultants performing similar tasks in the project area. No warranty, expressed or implied, is made regarding the conclusions, recommendations, and opinions presented in this report. There is no evaluation detailed enough to reveal every subsurface condition. Variations may exist and conditions not observed or described in this report may be encountered during construction. Uncertainties relative to subsurface conditions can be reduced through additional subsurface exploration. Additional subsurface evaluation will be performed upon request. Please also note that our evaluation was limited to assessment of the geotechnical aspects of the project, and did not include evaluation of structural issues, environmental concerns, or the presence of hazardous materials.

This document is intended to be used only in its entirety. No portion of the document, by itself, is designed to completely represent any aspect of the project described herein. Ninyo & Moore should be contacted if the reader requires additional information or has questions regarding the content, interpretations presented, or completeness of this document.

This report is intended for design purposes only. It does not provide sufficient data to prepare an accurate bid by contractors. It is suggested that the bidders and their geotechnical consultant perform an independent evaluation of the subsurface conditions in the project areas. The independent evaluations may include, but not be limited to, review of other geotechnical reports prepared for the adjacent areas, site reconnaissance, and additional exploration and laboratory testing.

Our conclusions, recommendations, and opinions are based on an analysis of the observed site conditions. If geotechnical conditions different from those described in this report are encountered, our office should be notified and additional recommendations, if warranted, will be provided upon request. It should be understood that the conditions of a site could change with time as a result of natural processes or the activities of man at the subject site or nearby sites. In addition, changes to the applicable laws, regulations, codes, and standards of practice may occur due to government ac-

tion or the broadening of knowledge. The findings of this report may, therefore, be invalidated over time, in part or in whole, by changes over which Ninyo & Moore has no control.

This report is intended exclusively for use by the client. Any use or reuse of the findings, conclusions, and/or recommendations of this report by parties other than the client is undertaken at said parties' sole risk.

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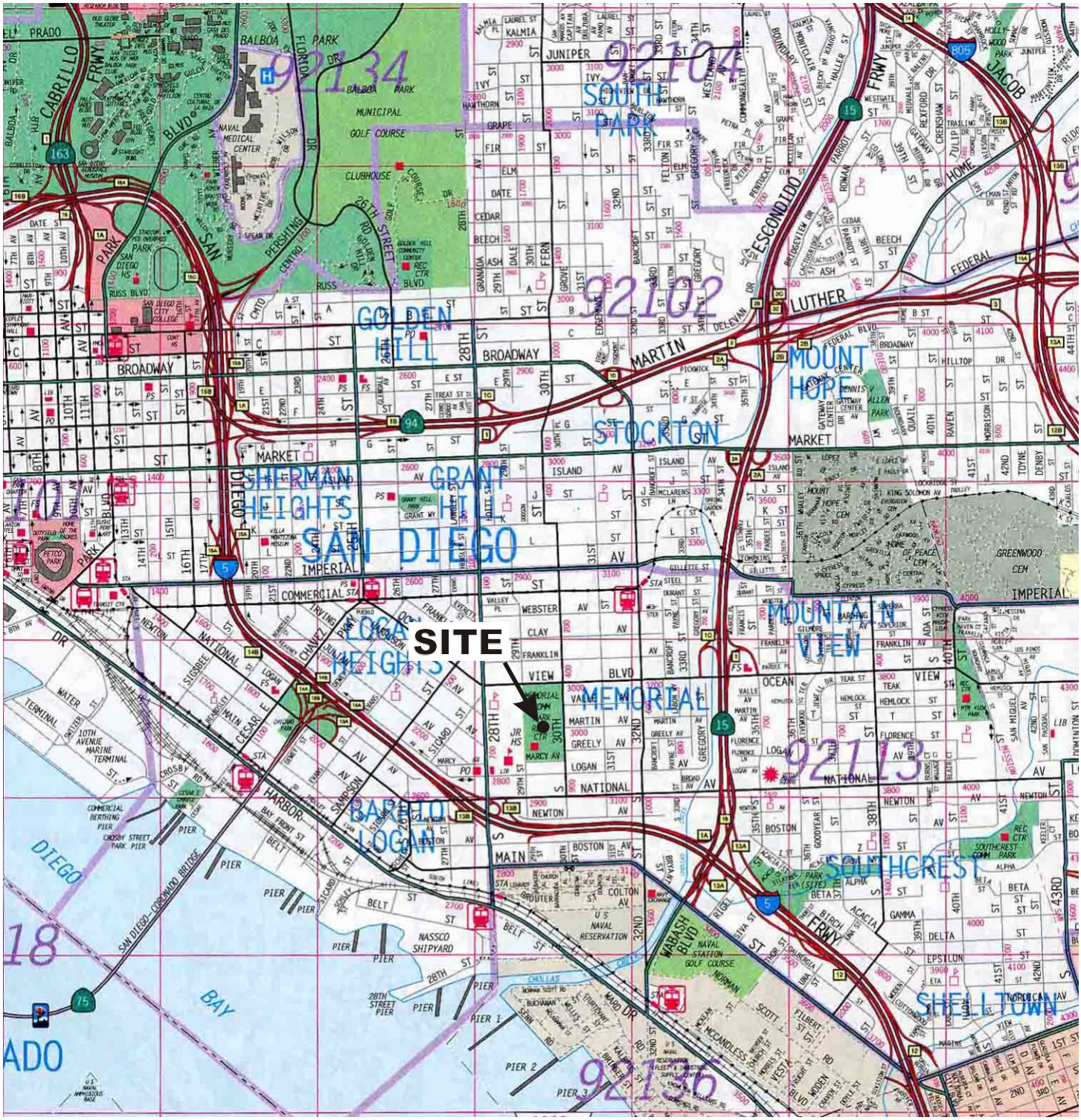
AERIAL PHOTOGRAPHS

Source	Date	Flight	Numbers	Scale
USDA	3-31-53	AXN-3M	92 and 93	1:20,000



REFERENCE: 2005 THOMAS GUIDE FOR SAN DIEGO COUNTY, STREET GUIDE AND DIRECTORY,

0 2400 4800

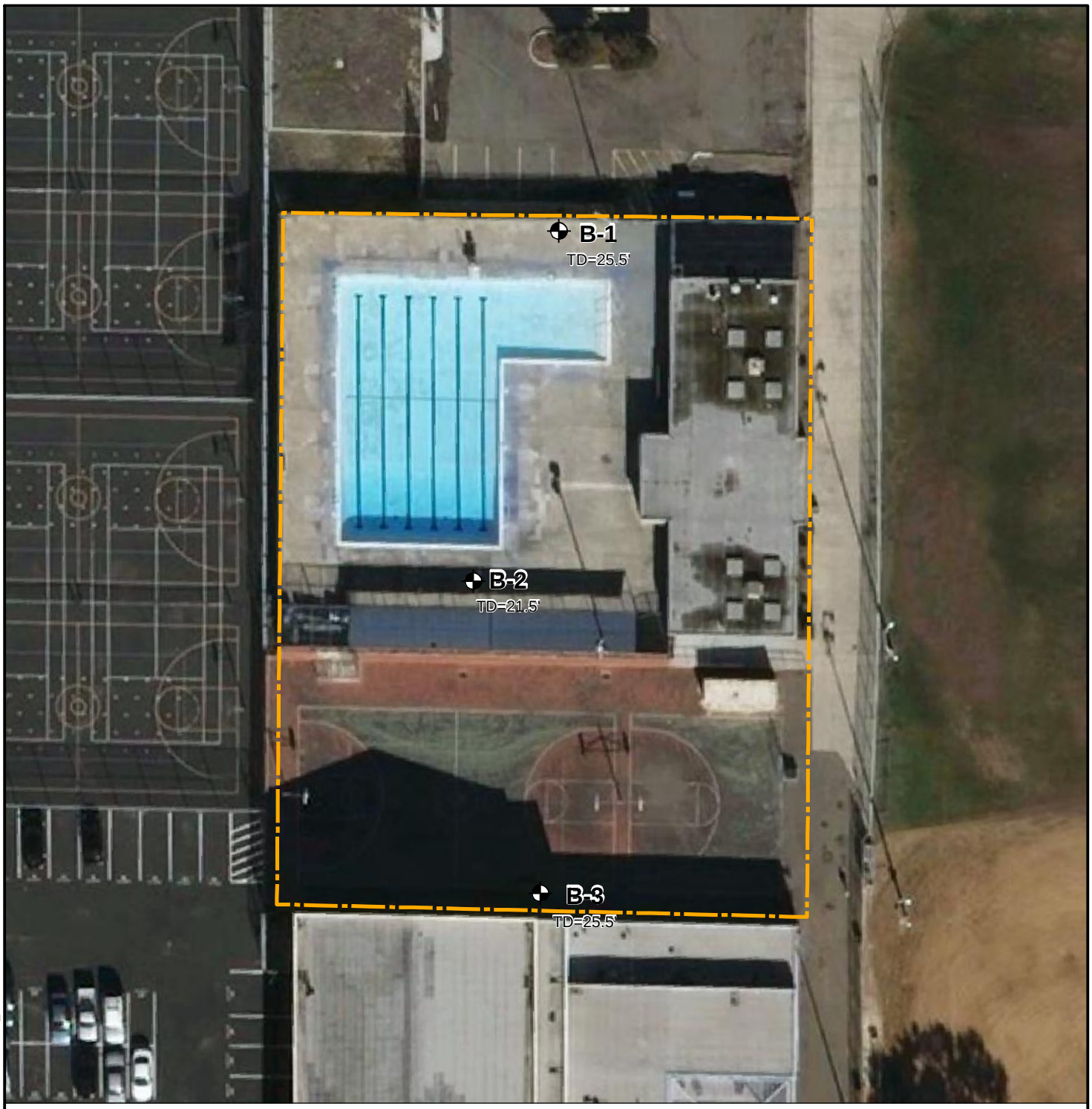
APPROXIMATE SCALE IN FEET

N

NOTE: ALL DIMENSIONS, DIRECTIONS AND LOCATIONS ARE APPROXIMATE.

Fig 1 106656001 slm

Ninyo & Moore	SITE LOCATION MAP	FIGURE
PROJECT NO. 106656001 / DATE 8/09	MEMORIAL COMMUNITY PARK POOL IMPROVEMENTS SAN DIEGO, CALIFORNIA	1



SOURCE: AERIAL IMAGERY - MICROSOFT BING MAPS, 2009; NINYO & MOORE, 2009

LEGEND

B-3 — APPROXIMATE LOCATION OF EXPLORATORY BORING
TD=25.5' — TD=TOTAL DEPTH IN FEET
APPROXIMATE PROJECT LIMIT

N

APPROXIMATE SCALE

0 40 80 FEET

NOTE: ALL DIRECTIONS, DIMENSIONS AND LOCATIONS ARE APPROXIMATE

Ninyo & Moore

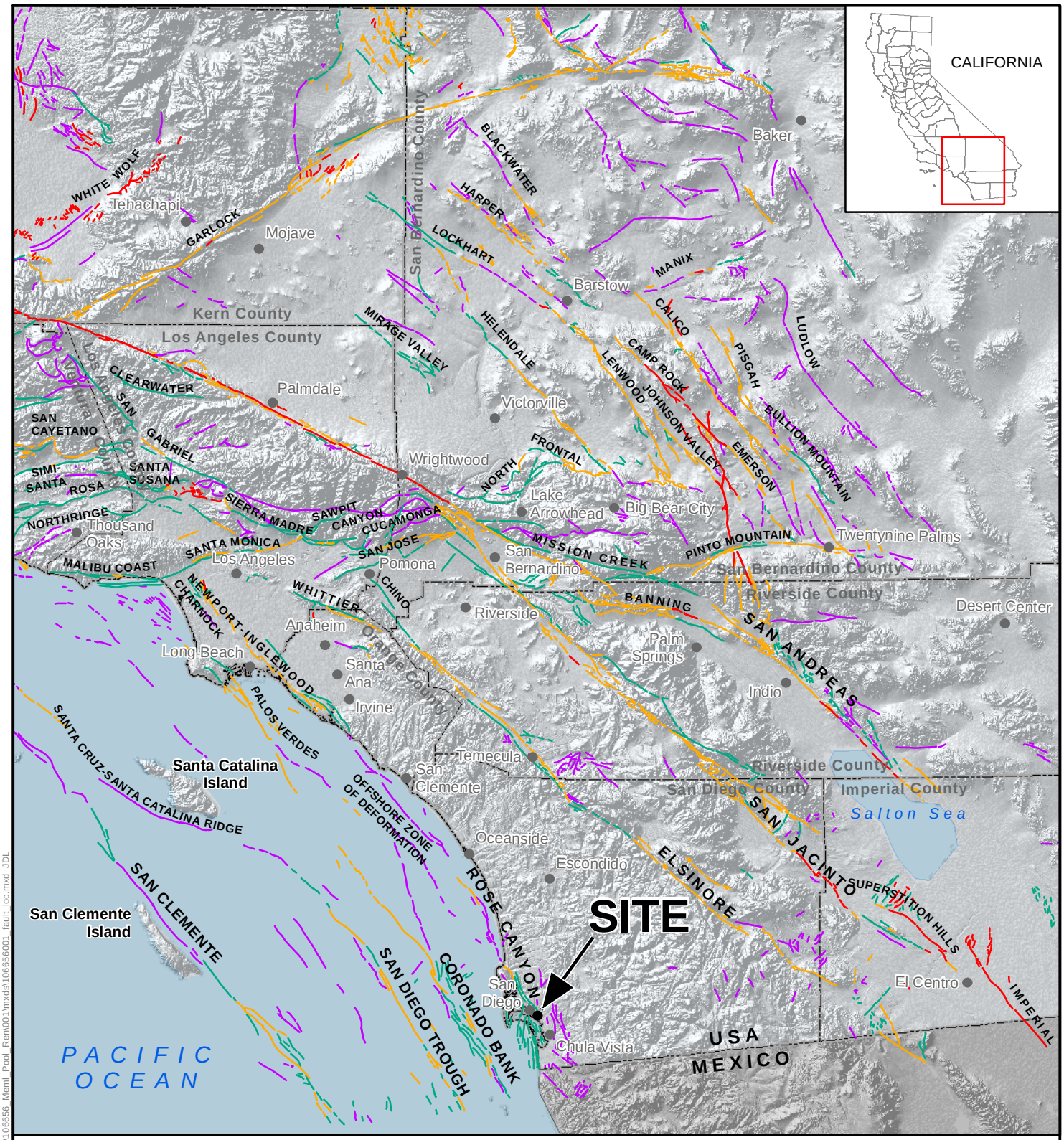
BORING LOCATION MAP

FIGURE 2

PROJECT NO.	DATE
106656001	8/09

MEMORIAL COMMUNITY PARK POOL IMPROVEMENTS
SAN DIEGO, CALIFORNIA

Thursday, August 27, 2009 3:25:17 PM 106656_Meml_Pool_Ren\001\mxds\106656001_blm.mxd JDL



LEGEND

CALIFORNIA FAULT ACTIVITY

- HISTORICALLY ACTIVE
- HOLOCENE ACTIVE
- LATE QUATERNARY (POTENTIALLY ACTIVE)
- QUATERNARY (POTENTIALLY ACTIVE)
- STATE/COUNTY BOUNDARY

NOTES: ALL DIRECTIONS, DIMENSIONS AND LOCATIONS ARE APPROXIMATE

SOURCE: FAULTS - CA DEPT OF CONSERVATION, 2000; BASE - ESRI, 2008

N

APPROXIMATE SCALE

0 25 50 MILES

Thursday, August 13, 2009 11:43:44 AM 100000_SD\106000-106999\106656_Meml_Pool_Ren\001\mxds\106656001_fault_loc.mxd JDL

Ninyo & Moore	FAULT LOCATION MAP	FIGURE
PROJECT NO. 106656001 / DATE 8/09	MEMORIAL PARK POOL RENOVATION PROJECT SAN DIEGO, CALIFORNIA	3

APPENDIX A

BORING LOGS

Field Procedure for the Collection of Disturbed Samples

Disturbed soil samples were obtained in the field using the following methods.

Bulk Samples

Bulk samples of representative earth materials were obtained from the exploratory borings. The samples were bagged and transported to the laboratory for testing.

Field Procedure for the Collection of Relatively Undisturbed Samples

Relatively undisturbed soil samples were obtained in the field using the following method.

The Modified Split-Barrel Drive Sampler

The sampler, with an external diameter of 3.0 inches, was lined with 1-inch long, thin brass rings with inside diameters of approximately 2.4 inches. The sampler barrel was driven into the ground with the weight of the hammer of the drill rig in general accordance with ASTM D 3550. The driving weight was permitted to fall freely. The approximate length of the fall, the weight of the hammer, and the number of blows per foot of driving are presented on the boring logs as an index to the relative resistance of the materials sampled. The samples were removed from the sampler barrel in the brass rings, sealed, and transported to the laboratory for testing.

BORING LOG EXPLANATION SHEET

DEPTH (feet)	SAMPLES: Bulk	SAMPLES: Driven	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	
0	■							Bulk sample.
		■						Modified split-barrel drive sampler.
		⊠						No recovery with modified split-barrel drive sampler.
		▮						Sample retained by others.
		◪						Standard Penetration Test (SPT).
5		╱						No recovery with a SPT.
		▯	XX/XX					Shelby tube sample. Distance pushed in inches/length of sample recovered in inches.
		╲						No recovery with Shelby tube sampler.
		▯						Continuous Push Sample.
				⚲				Seepage.
10				▽				Groundwater encountered during drilling.
				▼				Groundwater measured after drilling.
						▒	SM	ALLUVIUM: Solid line denotes unit change.
								Dashed line denotes material change.
								Attitudes: Strike/Dip b: Bedding c: Contact j: Joint f: Fracture F: Fault cs: Clay Seam s: Shear bss: Basal Slide Surface sf: Shear Fracture sz: Shear Zone sbs: Sheared Bedding Surface
15								
								The total depth line is a solid line that is drawn at the bottom of the boring.
20								

Ninyo & Moore

BORING LOG

EXPLANATION OF BORING LOG SYMBOLS

PROJECT NO.	DATE	FIGURE
	Rev. 01/03	

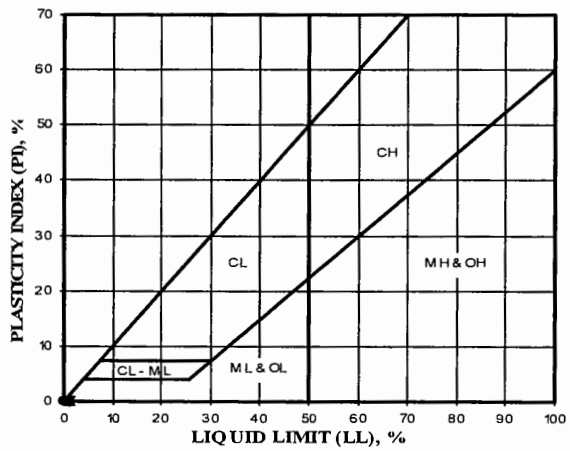
U.S.C.S. METHOD OF SOIL CLASSIFICATION

MAJOR DIVISIONS		SYMBOL	TYPICAL NAMES
COARSE-GRAINED SOILS (More than 1/2 of soil >No. 200 sieve size)	GRAVELS (More than 1/2 of coarse fraction > No. 4 sieve size)	GW	Well graded gravels or gravel-sand mixtures, little or no fines
		GP	Poorly graded gravels or gravel-sand mixtures, little or no fines
		GM	Silty gravels, gravel-sand-silt mixtures
		GC	Clayey gravels, gravel-sand-clay mixtures
	SANDS (More than 1/2 of coarse fraction <No. 4 sieve size)	SW	Well graded sands or gravelly sands, little or no fines
		SP	Poorly graded sands or gravelly sands, little or no fines
		SM	Silty sands, sand-silt mixtures
		SC	Clayey sands, sand-clay mixtures
FINE-GRAINED SOILS (More than 1/2 of soil <No. 200 sieve size)	SILTS & CLAYS Liquid Limit <50	ML	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts with
		CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean
		OL	Organic silts and organic silty clays of low plasticity
	SILTS & CLAYS Liquid Limit >50	MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts
		CH	Inorganic clays of high plasticity, fat clays
		OH	Organic clays of medium to high plasticity, organic silty clays, organic silts
HIGHLY ORGANIC SOILS		Pt	Peat and other highly organic soils

GRAIN SIZE CHART

CLASSIFICATION	RANGE OF GRAIN SIZE	
	U.S. Standard Sieve Size	Grain Size in Millimeters
BOULDERS	Above 12"	Above 305
COBBLES	12" to 3"	305 to 76.2
GRAVEL Coarse Fine	3" to No. 4 3" to 3/4" 3/4" to No. 4	76.2 to 4.76 76.2 to 19.1 19.1 to 4.76
SAND Coarse Medium Fine	No. 4 to No. 200 No. 4 to No. 10 No. 10 to No. 40 No. 40 to No. 200	4.76 to 0.075 4.76 to 2.00 2.00 to 0.420 0.420 to 0.075
SILT & CLAY	Below No. 200	Below 0.075

PLASTICITY CHART



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U.S.C.S. METHOD OF SOIL CLASSIFICATION

DATE DRILLED 8/12/09 BORING NO. B-1

GROUND ELEVATION 86' ± (MSL) SHEET 1 OF 2

METHOD OF DRILLING 6" Diameter Hollow Stem Auger (Mole) (Pacific Drilling Company)

DRIVE WEIGHT 140 lbs. (Cathead) DROP 30"

SAMPLED BY CAT LOGGED BY CAT REVIEWED BY RI

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
0							PORTLAND CEMENT CONCRETE: Approximately 3-1/2 to 5 inches thick; wire reinforcement observed approximately 3-1/4 inches below top.
						SM	FILL: Reddish brown, damp to moist, medium dense, silty fine to medium SAND; trace clay.
		34	14.9	115.7			Moist.
5						SM	OLD PARALIC DEPOSITS: Brown, moist, medium dense, silty fine SAND; trace clay; micaceous.
10		20	14.9	109.3			No clay; trace medium and coarse sand.
15		84					Light grayish brown; damp; dense; scattered pinhole voids; cemented.
20							Light brown; cohesionless.

Ninyo & Moore

BORING LOG

MEMORIAL COMMUNITY PARK POOL IMPROVEMENTS
SAN DIEGO, CALIFORNIA

PROJECT NO.	DATE	FIGURE
106656001	8/09	A-1

DATE DRILLED 8/12/09 BORING NO. B-1

GROUND ELEVATION 86' ± (MSL) SHEET 2 OF 2

METHOD OF DRILLING 6" Diameter Hollow Stem Auger (Mole) (Pacific Drilling Company)

DRIVE WEIGHT 140 lbs. (Cathead) DROP 30"

SAMPLED BY CAT LOGGED BY CAT REVIEWED BY RI

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
20		67				SM	OLD PARALIC DEPOSITS: (Continued) Light brown, damp, dense, silty fine SAND; trace medium and coarse sand; micaceous; cohesionless.
25		72					Damp to moist; no medium or coarse sand.
							Total Depth = 25.5 feet. Groundwater not encountered during drilling. Backfilled with approximately 5 cubic feet of bentonite grout and capped with concrete shortly after drilling on 8/12/09. Note: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report.
30							
35							
40							

Ninyo & Moore

BORING LOG

MEMORIAL COMMUNITY PARK POOL IMPROVEMENTS
SAN DIEGO, CALIFORNIA

PROJECT NO.	DATE	FIGURE
106656001	8/09	A-2

DATE DRILLED 8/12/09 BORING NO. B-2

GROUND ELEVATION 86' ± (MSL) SHEET 1 OF 2

METHOD OF DRILLING 6" Diameter Hollow Stem Auger (Mole) (Pacific Drilling Company)

DRIVE WEIGHT 140 lbs. (Cathead) DROP 30"

SAMPLED BY CAT LOGGED BY CAT REVIEWED BY RI

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
0							PORTLAND CEMENT CONCRETE: Approximately 3-1/2 to 4 inches thick; wire reinforcement observed approximately 3-1/2 inches below top.
						SM	FILL: Reddish brown, moist, medium dense, clayey, silty fine to medium SAND; scattered asphalt and concrete debris up to 8 inches in diameter.
5		52	13.6	115.5			
						SM	OLD PARALIC DEPOSITS: Brown, moist, medium dense, silty fine SAND; trace of clay; micaceous.
10		80/11"	12.3	101.5			Light grayish brown; damp; dense; trace medium and coarse sand.
							Brown mottling; cemented.
15		80/11"					
							Grayish brown; damp to moist; not cemented.
20							

Ninyo & Moore

BORING LOG

MEMORIAL COMMUNITY PARK POOL IMPROVEMENTS
SAN DIEGO, CALIFORNIA

PROJECT NO.	DATE	FIGURE
106656001	8/09	A-3

DATE DRILLED 8/12/09 BORING NO. B-2

GROUND ELEVATION 86' ± (MSL) SHEET 2 OF 2

METHOD OF DRILLING 6" Diameter Hollow Stem Auger (Mole) (Pacific Drilling Company)

DRIVE WEIGHT 140 lbs. (Cathead) DROP 30"

SAMPLED BY CAT LOGGED BY CAT REVIEWED BY RI

DEPTH (feet)	SAMPLES Bulk	SAMPLES Driven	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
20			77				SM	OLD PARALIC DEPOSITS: (Continued) Grayish brown, damp to moist, dense, silty fine SAND; micaceous; trace medium and coarse sand.
								Total Depth = 21.5 feet. Groundwater not encountered during drilling. Backfilled with approximately 4 cubic feet of bentonite grout and capped with concrete shortly after drilling on 8/12/09. Note: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report.
25								
30								
35								
40								

Ninyo & Moore

BORING LOG

MEMORIAL COMMUNITY PARK POOL IMPROVEMENTS
SAN DIEGO, CALIFORNIA

PROJECT NO.	DATE	FIGURE
106656001	8/09	A-4

DATE DRILLED 8/12/09 BORING NO. B-3

GROUND ELEVATION 83' ± (MSL) SHEET 1 OF 2

METHOD OF DRILLING 6" Diameter Hollow Stem Auger (Mole) (Pacific Drilling Company)

DRIVE WEIGHT 140 lbs. (Cathead) DROP 30"

SAMPLED BY CAT LOGGED BY CAT REVIEWED BY RI

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
0						GP	ASPHALT CONCRETE: Approximately 2-1/2 inches thick.
						SP	AGGREGATE BASE: Approximately 3/4 inches in diameter; approximately 2 inches thick.
						SC	FILL: Yellowish brown, damp to moist, medium dense, fine to coarse SAND.
						SP	Reddish brown, damp to moist, medium dense, clayey medium to coarse SAND. Reddish brown, damp to moist, medium dense, medium to coarse SAND.
						SC	Reddish brown, moist, medium dense, clayey medium to coarse SAND.
5		68	13.4	115.5		ML	OLD PARALIC DEPOSITS: Brown, damp, hard, SILT; trace clay; micaceous; scattered iron-oxide staining and manganese nodules.
10		56	13.3	116.9		SM	Brown, moist, medium dense, silty fine SAND; micaceous; cemented.
						ML	Brown, damp, hard, SILT; trace clay; micaceous.
15		45				SM	Brown, damp, medium dense, silty fine to medium SAND; micaceous; slightly cemented.
20							Fine sand.

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BORING LOG

MEMORIAL COMMUNITY PARK POOL IMPROVEMENTS
SAN DIEGO, CALIFORNIA

PROJECT NO.	DATE	FIGURE
106656001	8/09	A-5

DATE DRILLED 8/12/09 BORING NO. B-3

GROUND ELEVATION 83' ± (MSL) SHEET 2 OF 2

METHOD OF DRILLING 6" Diameter Hollow Stem Auger (Mole) (Pacific Drilling Company)

DRIVE WEIGHT 140 lbs. (Cathead) DROP 30"

SAMPLED BY CAT LOGGED BY CAT REVIEWED BY RI

DEPTH (feet)	SAMPLES (Bulk / Driven)	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DESCRIPTION/INTERPRETATION
20		38				SM	OLD PARALIC DEPOSITS: (Continued) Brown, damp, medium dense, silty fine SAND; micaceous; scattered interlayers of silt.
		83				ML	Brown, damp, dense, fine sandy SILT; micaceous; trace medium sand.
25							Total Depth = 25.5 feet. Groundwater not encountered during drilling. Backfilled with approximately 5 cubic feet of bentonite grout and capped with concrete shortly after drilling on 8/12/09. Note: Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report.
30							
35							
40							

Ninyo & Moore

BORING LOG

MEMORIAL COMMUNITY PARK POOL IMPROVEMENTS
SAN DIEGO, CALIFORNIA

PROJECT NO.	DATE	FIGURE
106656001	8/09	A-6

APPENDIX B

LABORATORY TESTING

Classification

Soils were visually and texturally classified in accordance with the Unified Soil Classification System (USCS) in general accordance with ASTM D 2488. Soil classifications are indicated on the logs of the exploratory borings in Appendix A.

In-Place Moisture and Density Tests

The moisture content and dry density of relatively undisturbed samples obtained from the borings were evaluated in general accordance with ASTM D 2937. The test results are presented on the logs of the borings in Appendix A.

Gradation Analysis

Gradation analysis tests were performed on selected representative soil samples in general accordance with ASTM D 422. The grain-size distribution curves are shown on Figures B-1 and B-2. These test results were utilized in evaluating the soil classifications in accordance with the USCS.

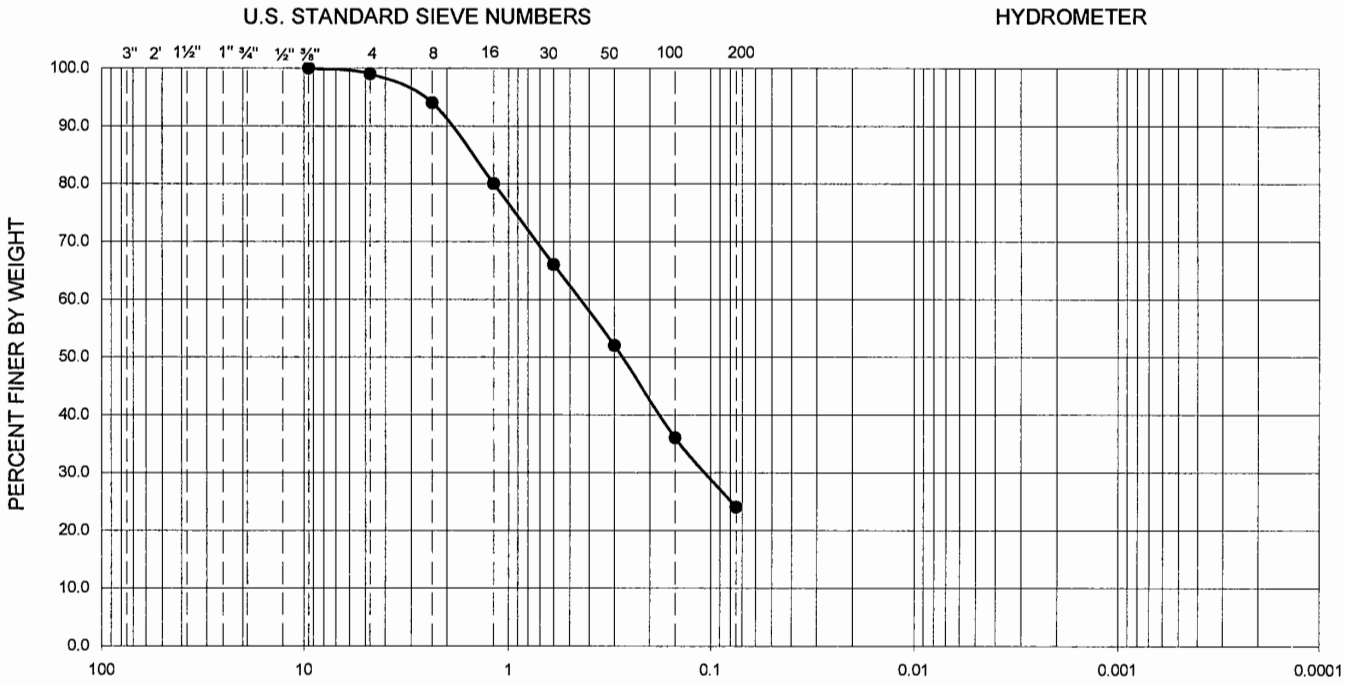
Direct Shear Test

A direct shear test was performed on a relatively undisturbed sample in general accordance with ASTM D 3080 to evaluate the shear strength characteristics of the selected material. The sample was inundated during shearing to represent adverse field conditions. The results are shown on Figure B-3.

Soil Corrosivity Tests

Soil pH, and resistivity tests were performed on a representative sample in general accordance with CT 643. The soluble sulfate and chloride content of selected sample were evaluated in general accordance with CT 417 and CT 422, respectively. The test results are presented on Figure B-4.

GRAVEL		SAND			FINES	
Coarse	Fine	Coarse	Medium	Fine	SILT	CLAY



Symbol	Sample Location	Depth (ft)	Liquid Limit	Plastic Limit	Plasticity Index	D_{10}	D_{30}	D_{60}	C_u	C_c	Passing No. 200 (%)	USCS
●	B-1	10.0-11.5	--	--	--	--	--	--	--	--	24	SM

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 422

Ninyo & Moore	GRADATION TEST RESULTS	FIGURE
PROJECT NO. 106656001 / DATE 8/09	MEMORIAL COMMUNITY PARK POOL IMPROVEMENTS SAN DIEGO, CALIFORNIA	B-1

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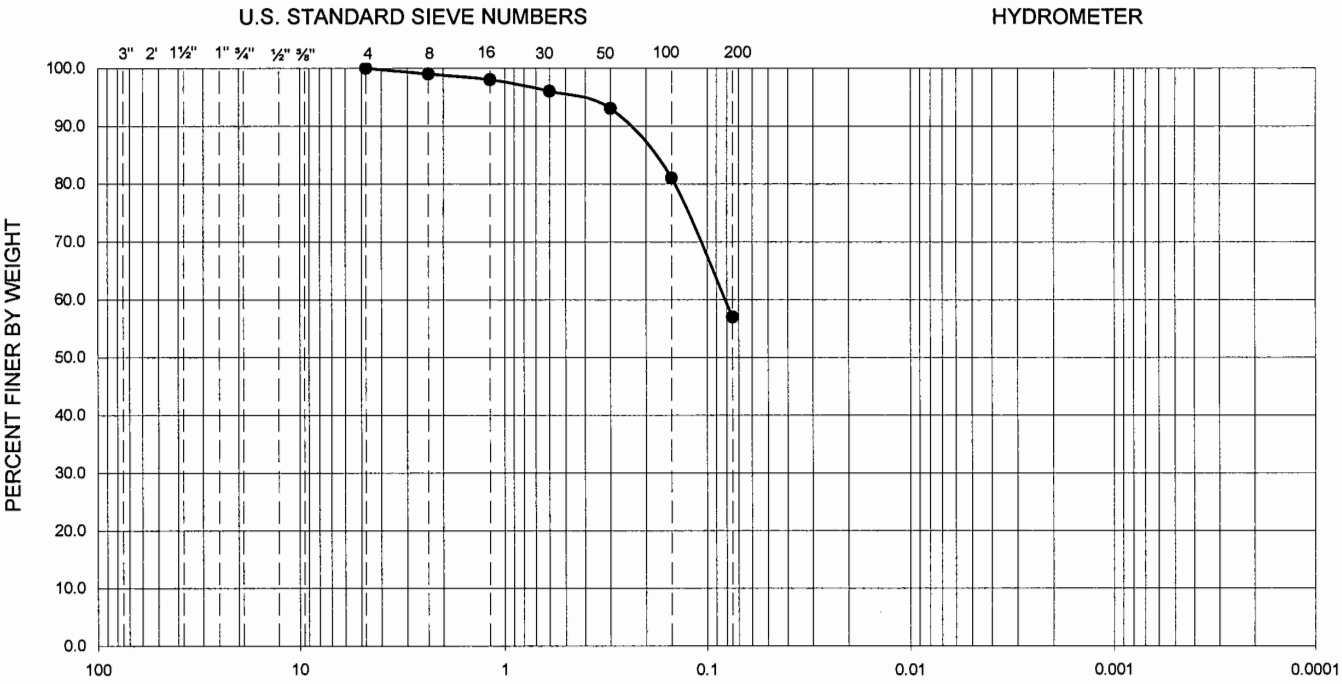
GRAVEL		SAND			FINES	
Coarse	Fine	Coarse	Medium	Fine	SILT	CLAY



Symbol	Sample Location	Depth (ft)	Liquid Limit	Plastic Limit	Plasticity Index	D_{10}	D_{30}	D_{60}	C_u	C_c	Passing No. 200 (%)	USCS
●	B-3	6.0-8.0	--	--	--	--	--	--	--	--	57	ML

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 422

Ninyo & Moore	GRADATION TEST RESULTS	FIGURE
PROJECT NO.	DATE	MEMORIAL COMMUNITY PARK POOL IMPROVEMENTS SAN DIEGO, CALIFORNIA	B-2
106656001	8/09		

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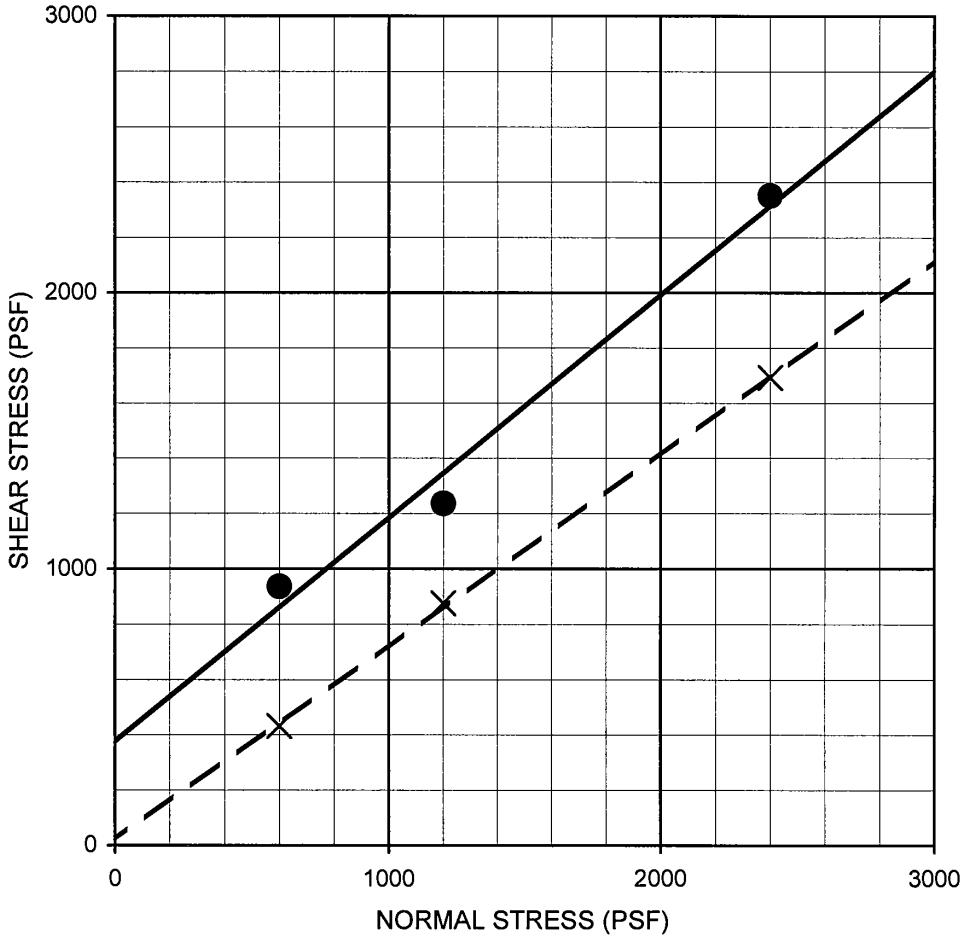


Description	Symbol	Sample Location	Depth (ft)	Shear Strength	Cohesion, c (psf)	Friction Angle, ϕ (degrees)	Soil Type
Silty SAND	—●—	B-2	4.0-5.5	Peak	380	39	SM
Silty SAND	- - X - -	B-2	4.0-5.5	Ultimate	20	35	SM

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 3080

Ninyo & Moore		DIRECT SHEAR TEST RESULTS	FIGURE
PROJECT NO.	DATE	MEMORIAL COMMUNITY PARK POOL IMPROVEMENTS SAN DIEGO, CALIFORNIA	B-3
106656001	8/09		

SAMPLE LOCATION	SAMPLE DEPTH (FT)	pH [1]	RESISTIVITY [1] (Ohm-cm)	SULFATE CONTENT [2]		CHLORIDE CONTENT [3] (ppm)
				(ppm)	(%)	
B-2	0.5-4.0	8.0	1,300	100	0.010	305

[1] PERFORMED IN GENERAL ACCORDANCE WITH CALIFORNIA TEST METHOD 643
[2] PERFORMED IN GENERAL ACCORDANCE WITH CALIFORNIA TEST METHOD 417
[3] PERFORMED IN GENERAL ACCORDANCE WITH CALIFORNIA TEST METHOD 422

Ninyo & Moore	CORROSIVITY TEST RESULTS	FIGURE
PROJECT NO. 106656001 / DATE 8/09	MEMORIAL COMMUNITY PARK POOL IMPROVEMENTS SAN DIEGO, CALIFORNIA	B-4

APPENDIX C

TYPICAL EARTHWORK GUIDELINES

TABLE OF CONTENTS

TYPICAL EARTHWORK GUIDELINES

1. GENERAL

These guidelines and the standard details attached hereto are presented as general procedures for earthwork construction for sites having slopes less than 10 feet high. They are to be utilized in conjunction with the project grading plans. These guidelines are considered a part of the geotechnical report, but are superseded by recommendations in the geotechnical report in the case of conflict. Evaluations performed by the consultant during the course of grading may result in new recommendations which could supersede these specifications and/or the recommendations of the geotechnical report. It is the responsibility of the contractor to read and understand these guidelines as well as the geotechnical report and project grading plans.

1.1. The contractor shall not vary from these guidelines without prior recommendations by the geotechnical consultant and the approval of the client or the client's authorized representative. Recommendations by the geotechnical consultant and/or client shall not be considered to preclude requirements for approval by the jurisdictional agency prior to the execution of any changes.

1.2. The contractor shall perform the grading operations in accordance with these specifications, and shall be responsible for the quality of the finished product notwithstanding the fact that grading work will be observed and tested by the geotechnical consultant.

1.3. It is the responsibility of the grading contractor to notify the geotechnical consultant and the jurisdictional agencies, as needed, prior to the start of work at the site and at any time that grading resumes after interruption. Each step of the grading operations shall be observed and documented by the geotechnical consultant and, where needed, reviewed by the appropriate jurisdictional agency prior to proceeding with subsequent work.

1.4. If, during the grading operations, geotechnical conditions are encountered which were not anticipated or described in the geotechnical report, the geotechnical consultant shall be notified immediately and additional recommendations, if applicable, may be provided.

1.5. An as-graded report shall be prepared by the geotechnical consultant and signed by a registered engineer and registered engineering geologist. The report documents the geotechnical consultants' observations, and field and laboratory test results, and provides conclusions regarding whether or not earthwork construction was performed in accordance with the geotechnical recommendations and the grading plans. Recom-

mendations for foundation design, pavement design, subgrade treatment, etc., may also be included in the as-graded report.

1.6. For the purpose of evaluating quantities of materials excavated during grading and/or locating the limits of excavations, a licensed land surveyor or civil engineer shall be retained.

1.7. Definitions of terms utilized in the remainder of these specifications have been provided in Section 11.

2. OBLIGATIONS OF PARTIES

The parties involved in the projects earthwork activities shall be responsible as outlined in the following sections.

2.1. The client is ultimately responsible for each of the aspects of the project. The client or the client's authorized representative has a responsibility to review the findings and recommendations of the geotechnical consultant. The client shall authorize the contractor and/or other consultants to perform work and/or provide services. During grading the client or the client's authorized representative shall remain on site or remain reasonably accessible to the concerned parties to make the decisions that may be needed to maintain the flow of the project.

2.2. The contractor is responsible for the safety of the project and satisfactory completion of grading and other associated operations, including, but not limited to, earthwork in accordance with the project plans, specifications, and jurisdictional agency requirements. During grading, the contractor or the contractor's authorized representative shall remain on site. The contractor shall further remain accessible during non-working hours, including at night and during days off.

2.3. The geotechnical consultant shall provide observation and testing services and shall make evaluations to advise the client on geotechnical matters. The geotechnical consultant shall report findings and recommendations to the client or the client's authorized representative.

2.4. Prior to proceeding with any grading operations, the geotechnical consultant shall be notified two working days in advance to schedule the needed observation and testing services.

2.4.1. Prior to any significant expansion or reduction in the grading operation, the geotechnical consultant shall be provided with two working days notice to make appropriate adjustments in scheduling of on-site personnel.

2.4.2. Between phases of grading operations, the geotechnical consultant shall be provided with two working days notice in advance of commencement of additional grading operations.

3. SITE PREPARATION

Site preparation shall be performed in accordance with the recommendations presented in the following sections.

3.1. The client, prior to any site preparation or grading, shall arrange and attend a pre-grading meeting between the grading contractor, the design engineer, the geotechnical consultant, and representatives of appropriate governing authorities, as well as any other involved parties. The parties shall be given two working days notice.

3.2. Clearing and grubbing shall consist of the substantial removal of vegetation, brush, grass, wood, stumps, trees, tree roots greater than ½-inch in diameter, and other deleterious materials from the areas to be graded. Clearing and grubbing shall extend to the outside of the proposed excavation and fill areas.

3.3. Demolition in the areas to be graded shall include removal of building structures, foundations, reservoirs, utilities (including underground pipelines, septic tanks, leach fields, seepage pits, cisterns, etc.), and other manmade surface and subsurface improvements, and the backfilling of mining shafts, tunnels and surface depressions. Demolition of utilities shall include capping or rerouting of pipelines at the project perimeter, and abandonment of wells in accordance with the requirements of the governing authorities and the recommendations of the geotechnical consultant at the time of demolition.

3.4. The debris generated during clearing, grubbing and/or demolition operations shall be removed from areas to be graded and disposed of off site at a legal dump site. Clearing, grubbing, and demolition operations shall be performed under the observation of the geotechnical consultant.

3.5. The ground surface beneath proposed fill areas shall be stripped of loose or unsuitable soil. These soils may be used as compacted fill provided they are generally free of organic or other deleterious materials and evaluated for use by the geotechnical consultant. The resulting surface shall be evaluated by the geotechnical consultant prior to proceeding. The cleared, natural ground surface shall be scarified to a depth of approximately 8 inches, moisture conditioned, and compacted in accordance with the specifications presented in Section 5 of these guidelines.

4. REMOVALS AND EXCAVATIONS

Removals and excavations shall be performed as recommended in the following sections.

4.1. Removals

4.1.1. Materials which are considered unsuitable shall be excavated under the observation of the geotechnical consultant in accordance with the recommendations contained herein. Unsuitable materials include, but may not be limited to, dry, loose, soft, wet, organic, compressible natural soils, fractured, weathered, soft bedrock, and undocumented or otherwise deleterious fill materials.

4.1.2. Materials deemed by the geotechnical consultant to be unsatisfactory due to moisture conditions shall be excavated in accordance with the recommendations of the geotechnical consultant, watered or dried as needed, and mixed to a generally uniform moisture content in accordance with the specifications presented in Section 5 of this document.

4.2. Excavations

4.2.1. Temporary excavations no deeper than 5 feet in firm fill or natural materials may be made with vertical side slopes. To satisfy California Occupational Safety and Health Administration (CAL OSHA) requirements, any excavation deeper than 5 feet shall be shored or laid back at a 1:1 inclination or flatter, depending on material type, if construction workers are to enter the excavation.

5. COMPACTED FILL

Fill shall be constructed as specified below or by other methods recommended by the geotechnical consultant. Unless otherwise specified, fill soils shall be compacted to 90 percent relative compaction, as evaluated in accordance with ASTM Test Method D 1557.

5.1. Prior to placement of compacted fill, the contractor shall request an evaluation of the exposed ground surface by the geotechnical consultant. Unless otherwise recommended, the exposed ground surface shall then be scarified to a depth of approximately 8 inches and watered or dried, as needed, to achieve a generally uniform moisture content at or near the optimum moisture content. The scarified materials shall then be compacted to 90 percent relative compaction. The evaluation of compaction by the geotechnical consultant shall not be considered to preclude any requirements for observation or approval by governing agencies. It is the contractor's responsibility to notify the geotechnical consultant and the appropriate governing agency when project areas are ready for observation, and to provide reasonable time for that review.

5.2. Excavated on-site materials which are in general compliance with the recommendations of the geotechnical consultant may be utilized as compacted fill provided they are generally free of organic or other deleterious materials and do not contain rock fragments greater than 6 inches in dimension. During grading, the contractor may encounter soil types other than those analyzed during the preliminary geotechnical study. The geotechnical consultant shall be consulted to evaluate the suitability of any such soils for use as compacted fill.

5.3. Where imported materials are to be used on site, the geotechnical consultant shall be notified three working days in advance of importation in order that it may sample and test the materials from the proposed borrow sites. No imported materials shall be delivered for use on site without prior sampling, testing, and evaluation by the geotechnical consultant.

5.4. Soils imported for on-site use shall preferably have very low to low expansion potential (based on UBC Standard 18-2 test procedures). Lots on which expansive soils may be exposed at grade shall be undercut 3 feet or more and capped with very low to low expansion potential fill. Details of the undercutting are provided in the Transition and Undercut Lot Details, Figure B of these guidelines. In the event expansive soils are present near the ground surface, special design and construction considerations shall be utilized in general accordance with the recommendations of the geotechnical consultant.

5.5. Fill materials shall be moisture conditioned to near optimum moisture content prior to placement. The optimum moisture content will vary with material type and other factors. Moisture conditioning of fill soils shall be generally uniform in the soil mass.

5.6. Prior to placement of additional compacted fill material following a delay in the grading operations, the exposed surface of previously compacted fill shall be prepared to receive fill. Preparation may include scarification, moisture conditioning, and recompaction.

5.7. Compacted fill shall be placed in horizontal lifts of approximately 8 inches in loose thickness. Prior to compaction, each lift shall be watered or dried as needed to achieve near optimum moisture condition, mixed, and then compacted by mechanical methods, using sheepsfoot rollers, multiple-wheel pneumatic-tired rollers, or other appropriate compacting rollers, to the specified relative compaction. Successive lifts shall be treated in a like manner until the desired finished grades are achieved.

5.8. Fill shall be tested in the field by the geotechnical consultant for evaluation of general compliance with the recommended relative compaction and moisture conditions. Field density testing shall conform to ASTM D 1556-00 (Sand Cone method), D 2937-00 (Drive-Cylinder method), and/or D 2922-96 and D 3017-96 (Nuclear Gauge method). Generally, one test shall be provided for approximately every 2 vertical feet of fill placed, or for approximately every 1000 cubic yards of fill placed. In

addition, on slope faces one or more tests shall be taken for approximately every 10,000 square feet of slope face and/or approximately every 10 vertical feet of slope height. Actual test intervals may vary as field conditions dictate. Fill found to be out of conformance with the grading recommendations shall be removed, moisture conditioned, and compacted or otherwise handled to accomplish general compliance with the grading recommendations.

5.9. The contractor shall assist the geotechnical consultant by excavating suitable test pits for removal evaluation and/or for testing of compacted fill.

5.10. At the request of the geotechnical consultant, the contractor shall "shut down" or restrict grading equipment from operating in the area being tested to provide adequate testing time and safety for the field technician.

5.11. The geotechnical consultant shall maintain a map with the approximate locations of field density tests. Unless the client provides for surveying of the test locations, the locations shown by the geotechnical consultant will be estimated. The geotechnical consultant shall not be held responsible for the accuracy of the horizontal or vertical locations or elevations.

5.12. Grading operations shall be performed under the observation of the geotechnical consultant. Testing and evaluation by the geotechnical consultant does not preclude the need for approval by or other requirements of the jurisdictional agencies.

5.13. Fill materials shall not be placed, spread or compacted during unfavorable weather conditions. When work is interrupted by heavy rains, the filling operation shall not be resumed until tests indicate that moisture content and density of the fill meet the project specifications. Regrading of the near-surface soil may be needed to achieve the specified moisture content and density.

5.14. Upon completion of grading and termination of observation by the geotechnical consultant, no further filling or excavating, including that planned for footings, foundations, retaining walls or other features, shall be performed without the involvement of the geotechnical consultant.

5.15. Fill placed in areas not previously viewed and evaluated by the geotechnical consultant may have to be removed and recompacted at the contractor's expense. The depth and extent of removal of the unobserved and undocumented fill will be decided based upon review of the field conditions by the geotechnical consultant.

5.16. Off-site fill shall be treated in the same manner as recommended in these specifications for on-site fills. Off-site fill subdrains temporarily terminated (up gradient) shall be surveyed for future locating and connection.

6. OVERSIZED MATERIAL

Oversized material shall be placed in accordance with the following recommendations.

6.1. During the course of grading operations, rocks or similar irreducible materials greater than 6 inches in dimension (oversized material) may be generated. These materials shall not be placed within the compacted fill unless placed in general accordance with the recommendations of the geotechnical consultant.

6.2. Where oversized rock (greater than 6 inches in dimension) or similar irreducible material is generated during grading, it is recommended, where practical, to waste such material off site, or on site in areas designated as "nonstructural rock disposal areas." Rock designated for disposal areas shall be placed with sufficient sandy soil to generally fill voids. The disposal area shall be capped with a 5-foot thickness of fill which is generally free of oversized material.

6.3. Rocks 6 inches in dimension and smaller may be utilized within the compacted fill, provided they are placed in such a manner that nesting of rock is not permitted. Fill shall be placed and compacted over and around the rock. The amount of rock greater than 3/4-inch in dimension shall generally not exceed 40 percent of the total dry weight of the fill mass, unless the fill is specially designed and constructed as a "rock fill."

6.4. Rocks or similar irreducible materials greater than 6 inches but less than 4 feet in dimension generated during grading may be placed in windrows and capped with finer materials in accordance with the recommendations of the geotechnical consultant, the approval of the governing agencies, and the Oversized Rock Placement Detail, Figure D, of these guidelines. Selected native or imported granular soil (Sand Equivalent of 30 or higher) shall be placed and flooded over and around the windrowed rock such that voids are filled. Windrows of oversized materials shall be staggered so that successive windrows of oversized materials are not in the same vertical plane. Rocks greater than 4 feet in dimension shall be broken down to 4 feet or smaller before placement, or they shall be disposed of off site.

7. SLOPES

The following sections provide recommendations for cut and fill slopes.

7.1. Cut Slopes

7.1.1. The geotechnical consultant shall observe cut slopes during excavation. The geotechnical consultant shall be notified by the contractor prior to beginning slope excavations.

7.1.2. If, during the course of grading, adverse or potentially adverse geotechnical conditions are encountered in the slope which were not anticipated in the preliminary evaluation report, the geotechnical consultant shall evaluate the conditions and provide appropriate recommendations.

7.2. Fill Slopes

7.2.1. When placing fill on slopes steeper than 5:1 (horizontal:vertical), topsoil, slope wash, colluvium, and other materials deemed unsuitable shall be removed. Near-horizontal keys and near-vertical benches shall be excavated into sound bedrock or firm fill material, in accordance with the recommendation of the geotechnical consultant. Keying and benching shall be accomplished. Compacted fill shall not be placed in an area subsequent to keying and benching until the area has been observed by the geotechnical consultant. Where the natural gradient of a slope is less than 5:1, benching is generally not recommended. However, fill shall not be placed on compressible or otherwise unsuitable materials left on the slope face.

7.2.2. Within a single fill area where grading procedures dictate two or more separate fills, temporary slopes (false slopes) may be created. When placing fill adjacent to a temporary slope, benching shall be conducted in the manner described in Section 7.2.1. A 3-foot or higher near-vertical bench shall be excavated into the documented fill prior to placement of additional fill.

7.2.3. Unless otherwise recommended by the geotechnical consultant and accepted by the Building Official, permanent fill slopes shall not be steeper than 2:1 (horizontal:vertical). The height of a fill slope shall be evaluated by the geotechnical consultant.

7.2.4. Unless specifically recommended otherwise, compacted fill slopes shall be overbuilt and cut back to grade, exposing firm compacted fill. The actual amount of overbuilding may vary as field conditions dictate. If the desired results are not achieved, the existing slopes shall be overexcavated and reconstructed in accordance with the recommendations of the geotechnical consultant. The degree of overbuilding may be increased until the desired

compacted slope face condition is achieved. Care shall be taken by the contractor to provide mechanical compaction as close to the outer edge of the overbuilt slope surface as practical.

7.2.5. If access restrictions, property line location, or other constraints limit overbuilding and cutting back of the slope face, an alternative method for compaction of the slope face may be attempted by conventional construction procedures including backrolling at intervals of 4 feet or less in vertical slope height, or as dictated by the capability of the available equipment, whichever is less. Fill slopes shall be backrolled utilizing a conventional sheeps foot-type roller. Care shall be taken to maintain the specified moisture conditions and/or reestablish the same, as needed, prior to backrolling.

7.2.6. The placement, moisture conditioning and compaction of fill slope materials shall be done in accordance with the recommendations presented in Section 5 of these guidelines.

7.2.7. The contractor shall be ultimately responsible for placing and compacting the soil out to the slope face to obtain a relative compaction of 90 percent as evaluated by ASTM D 1557 and a moisture content in accordance with Section 5. The geotechnical consultant shall perform field moisture and density tests at intervals of one test for approximately every 10,000 square feet of slope.

7.2.8. Backdrains shall be provided in fill as recommended by the geotechnical consultant.

7.3. Top-of-Slope Drainage

7.3.1. For pad areas above slopes, positive drainage shall be established away from the top of slope. This may be accomplished utilizing a berm and pad gradient of 2 percent or steeper at the top-of-slope areas. Site runoff shall not be permitted to flow over the tops of slopes.

7.3.2. Gunite-lined brow ditches shall be placed at the top of cut slopes to redirect surface runoff away from the slope face where drainage devices are not otherwise provided.

7.4. Slope Maintenance

7.4.1. In order to enhance surficial slope stability, slope planting shall be accomplished at the completion of grading. Slope plants shall consist of deep-rooting, variable root depth, drought-tolerant vegetation. Native vegetation is generally desirable. Plants native to semiarid and arid areas may also be appropriate. Large-leafed ice plant should not be used on slopes. A landscape

architect shall be consulted regarding the actual types of plants and planting configuration to be used.

7.4.2. Irrigation pipes shall be anchored to slope faces and not placed in trenches excavated into slope faces. Slope irrigation shall be maintained at a level just sufficient to support plant growth. Property owners shall be made aware that over watering of slopes is detrimental to slope stability. Slopes shall be monitored regularly and broken sprinkler heads and/or pipes shall be repaired immediately.

7.4.3. Periodic observation of landscaped slope areas shall be planned and appropriate measures taken to enhance growth of landscape plants.

7.4.4. Graded swales at the top of slopes and terrace drains shall be installed and the property owners notified that the drains shall be periodically checked so that they may be kept clear. Damage to drainage improvements shall be repaired immediately. To reduce siltation, terrace drains shall be constructed at a gradient of 3 percent or steeper, in accordance with the recommendations of the project civil engineer.

7.4.5. If slope failures occur, the geotechnical consultant shall be contacted immediately for field review of site conditions and development of recommendations for evaluation and repair.

8. TRENCH BACKFILL

The following sections provide recommendations for backfilling of trenches.

8.1. Trench backfill shall consist of granular soils (bedding) extending from the trench bottom to 1 foot or more above the pipe. On-site or imported fill which has been evaluated by the geotechnical consultant may be used above the granular backfill. The cover soils directly in contact with the pipe shall be classified as having a very low expansion potential, in accordance with UBC Standard 18-2, and shall contain no rocks or chunks of hard soil larger than 3/4-inch in diameter.

8.2. Trench backfill shall, unless otherwise recommended, be compacted by mechanical means to 90 percent relative compaction as evaluated by ASTM D 1557. Backfill soils shall be placed in loose lifts 8-inches thick or thinner, moisture conditioned, and compacted in accordance with the recommendations of Section 5. of these guidelines. The backfill shall be tested by the geotechnical consultant at vertical intervals of approximately 2 feet of backfill placed and at spacings along the trench of approximately 100 feet in the same lift.

8.3. Jetting of trench backfill materials is generally not a recommended method of densification, unless the on-site soils are sufficiently free-draining and provisions have been made for adequate dissipation of the water utilized in the jetting process.

8.4. If it is decided that jetting may be utilized, granular material with a sand equivalent greater than 30 shall be used for backfilling in the areas to be jetted. Jetting shall generally be considered for trenches 2 feet or narrower in width and 4 feet or shallower in depth. Following jetting operations, trench backfill shall be mechanically compacted to the specified compaction to finish grade.

8.5. Trench backfill which underlies the zone of influence of foundations shall be mechanically compacted to 90 percent or greater relative compaction, as evaluated by ASTM D 1557-02. The zone of influence of the foundations is generally defined as the roughly triangular area within the limits of a 1:1 (horizontal:vertical) projection from the inner and outer edges of the foundation, projected down and out from both edges.

8.6. Trench backfill within slab areas shall be compacted by mechanical means to a relative compaction of 90 percent, as evaluated by ASTM D 1557. For minor interior trenches, density testing may be omitted or spot testing may be performed, as deemed appropriate by the geotechnical consultant.

8.7. When compacting soil in close proximity to utilities, care shall be taken by the grading contractor so that mechanical methods used to compact the soils do not damage the utilities. If the utility contractors indicate that it is undesirable to use compaction equipment in close proximity to a buried conduit, then the grading contractor may elect to use light mechanical compaction equipment or, with the approval of the geotechnical consultant, cover the conduit with clean granular material. These granular materials shall be jetted in place to the top of the conduit in accordance with the recommendations of Section 8.4 prior to initiating mechanical compaction procedures. Other methods of utility trench compaction may also be appropriate, upon review by the geotechnical consultant and the utility contractor, at the time of construction.

8.8. Clean granular backfill and/or bedding materials are not recommended for use in slope areas unless provisions are made for a drainage system to mitigate the potential for buildup of seepage forces or piping of backfill materials.

8.9. The contractor shall exercise the specified safety precautions, in accordance with OSHA Trench Safety Regulations, while conducting trenching operations. Such precautions include shoring or laying back trench excavations at 1:1 or flatter, depending on material type, for trenches in excess of 5 feet in depth. The geotechnical consultant is not responsible for the safety of trench operations or stability of the trenches.

9. DRAINAGE

The following sections provide recommendations pertaining to site drainage.

9.1. Roof, pad, and slope drainage shall be such that it is away from slopes and structures to suitable discharge areas by nonerodible devices (e.g., gutters, downspouts, concrete swales, etc.).

9.2. Positive drainage adjacent to structures shall be established and maintained. Positive drainage may be accomplished by providing drainage away from the foundations of the structure at a gradient of 2 percent or steeper for a distance of 5 feet or more outside the building perimeter, further maintained by a graded swale leading to an appropriate outlet, in accordance with the recommendations of the project civil engineer and/or landscape architect.

9.3. Surface drainage on the site shall be provided so that water is not permitted to pond. A gradient of 2 percent or steeper shall be maintained over the pad area and drainage patterns shall be established to remove water from the site to an appropriate outlet.

9.4. Care shall be taken by the contractor during grading to preserve any berms, drainage terraces, interceptor swales or other drainage devices of a permanent nature on or adjacent to the property. Drainage patterns established at the time of finish grading shall be maintained for the life of the project. Property owners shall be made very clearly aware that altering drainage patterns may be detrimental to slope stability and foundation performance.

10. SITE PROTECTION

The site shall be protected as outlined in the following sections.

10.1. Protection of the site during the period of grading shall be the responsibility of the contractor unless other provisions are made in writing and agreed upon among the concerned parties. Completion of a portion of the project shall not be considered to preclude that portion or adjacent areas from the need for site protection, until such time as the project is finished as agreed upon by the geotechnical consultant, the client, and the regulatory agency.

10.2. The contractor is responsible for the stability of temporary excavations. Recommendations by the geotechnical consultant pertaining to temporary excavations are made in consideration of stability of the finished project and, therefore, shall not be considered to preclude the responsibilities of the contractor. Recommendations by the geotechnical consultant shall also not be considered to preclude more restrictive requirements by the applicable regulatory agencies.

10.3. Precautions shall be taken during the performance of site clearing, excavation, and grading to protect the site from flooding, ponding, or inundation by surface runoff. Temporary provisions shall be made during the rainy season so that surface runoff is away from and off the working site. Where low areas cannot be avoided, pumps shall be provided to remove water as needed during periods of rainfall.

10.4. During periods of rainfall, plastic sheeting shall be used as needed to reduce the potential for unprotected slopes to become saturated. Where needed, the contractor shall install check dams, desilting basins, riprap, sandbags or other appropriate devices or methods to reduce erosion and provide recommended conditions during inclement weather.

10.5. During periods of rainfall, the geotechnical consultant shall be kept informed by the contractor of the nature of remedial or precautionary work being performed on site (e.g., pumping, placement of sandbags or plastic sheeting, other labor, dozing, etc.).

10.6. Following periods of rainfall, the contractor shall contact the geotechnical consultant and arrange a walk-over of the site in order to visually assess rain-related damage. The geotechnical consultant may also recommend excavation and testing in order to aid in the evaluation. At the request of the geotechnical consultant, the contractor shall make excavations in order to aid in evaluation of the extent of rain-related damage.

10.7. Rain- or irrigation-related damage shall be considered to include, but may not be limited to, erosion, silting, saturation, swelling, structural distress, and other adverse conditions noted by the geotechnical consultant. Soil adversely affected shall be classified as "Unsuitable Material" and shall be subject to overexcavation and replacement with compacted fill or to other remedial grading as recommended by the geotechnical consultant.

10.8. Relatively level areas where saturated soils and/or erosion gullies exist to depths greater than 1 foot shall be overexcavated to competent materials as evaluated by the geotechnical consultant. Where adverse conditions extend to less than 1 foot in depth, saturated and/or eroded materials may be processed in-place. Overexcavated or in-place processed materials shall be moisture conditioned and compacted in accordance with the recommendations provided in Section 5. If the desired results are not achieved, the affected materials shall be overexcavated, moisture conditioned, and compacted until the specifications are met.

10.9. Slope areas where saturated soil and/or erosion gullies exist to depths greater than 1 foot shall be overexcavated and replaced as compacted fill in accordance with the applicable specifications. Where adversely affected materials exist to depths of 1 foot or less below proposed finished grade, remedial grading by moisture conditioning in-place and compaction in accordance with the appropriate specifications may be attempted. If the desired results are not achieved, the affected materials shall be

overexcavated, moisture conditioned, and compacted until the specifications are met. As conditions dictate, other slope repair procedures may also be recommended by the geotechnical consultant.

10.10. During construction, the contractor shall grade the site to provide positive drainage away from structures and to keep water from ponding adjacent to structures. Water shall not be allowed to damage adjacent properties. Positive drainage shall be maintained by the contractor until permanent drainage and erosion reducing devices are installed in accordance with project plans.

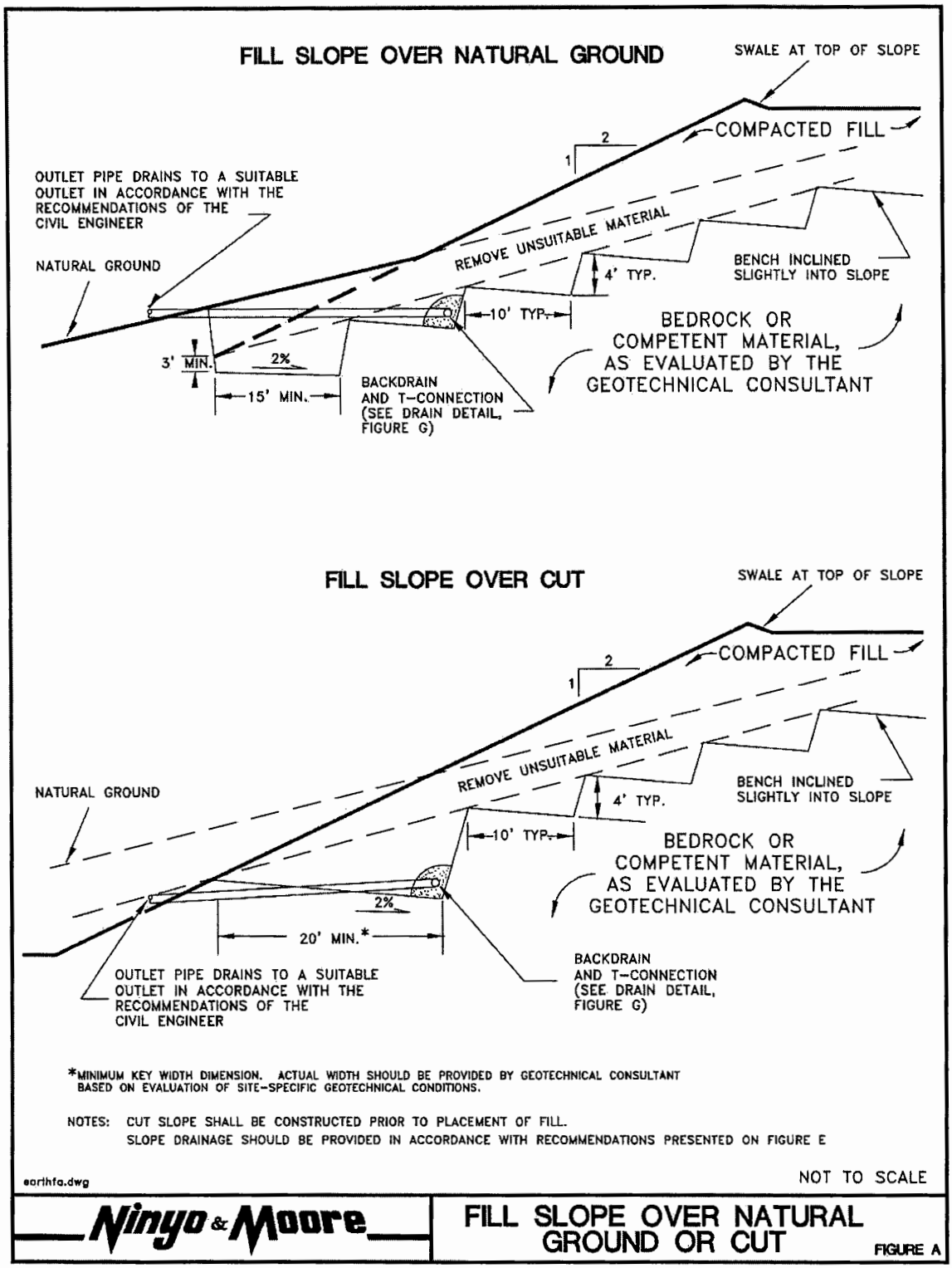
11. DEFINITIONS OF TERMS

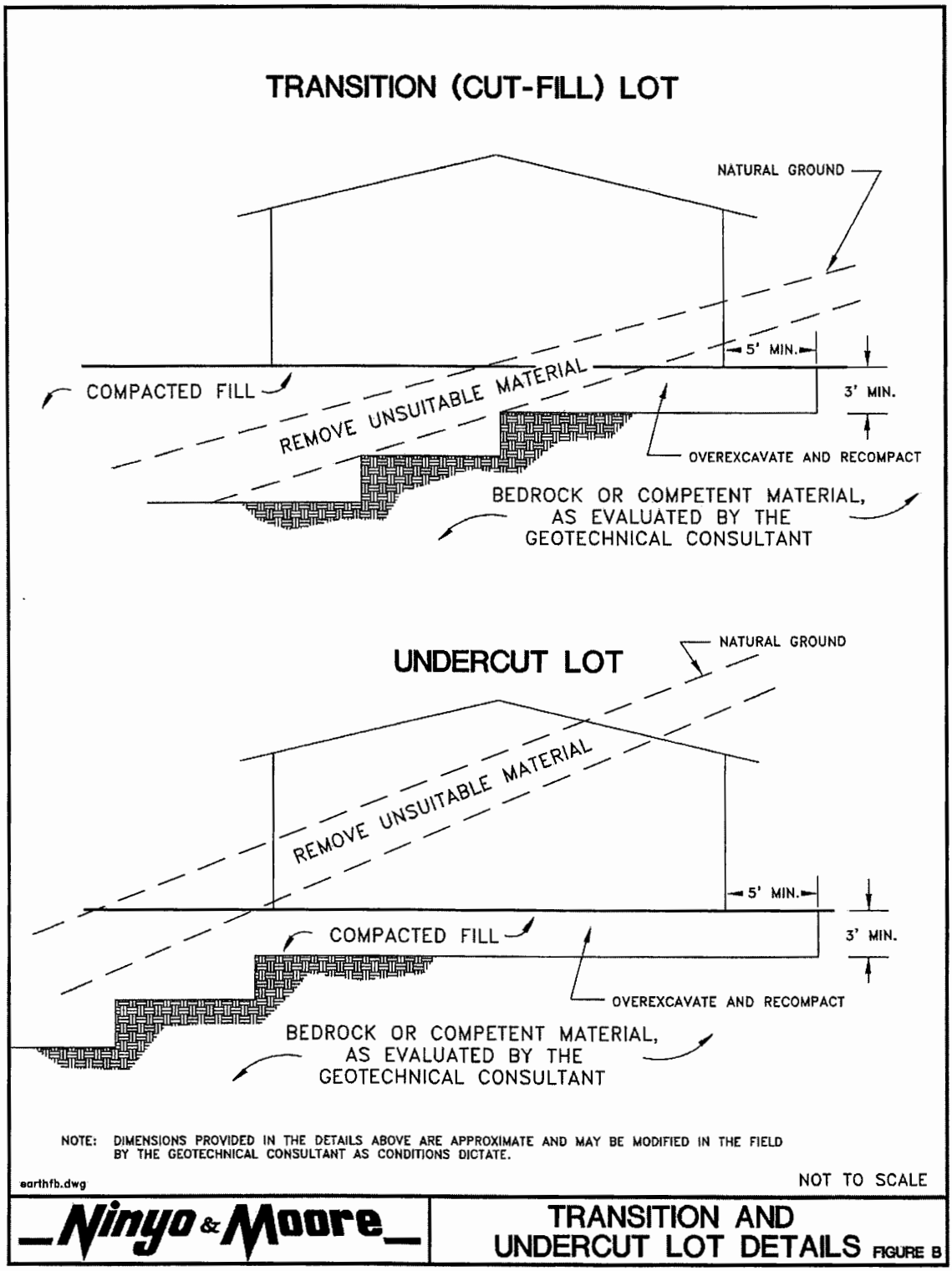
ALLUVIUM:	Unconsolidated detrital deposits deposited by flowing water; includes sediments deposited in river beds, canyons, flood plains, lakes, fans at the foot of slopes, and in estuaries.
AS-GRADED (AS-BUILT):	The site conditions upon completion of grading.
BACKCUT:	A temporary construction slope at the rear of earth-retaining structures such as buttresses, shear keys, stabilization fills, or retaining walls.
BACKDRAIN:	Generally a pipe-and-gravel or similar drainage system placed behind earth-retaining structures such as buttresses, stabilization fills, and retaining walls.
BEDROCK:	Relatively undisturbed in-place rock, either at the surface or beneath surficial deposits of soil.
BENCH:	A relatively level step and near-vertical riser excavated into sloping ground on which fill is to be placed.
BORROW (IMPORT):	Any fill material hauled to the project site from off-site areas.
BUTTRESS FILL:	A fill mass, the configuration of which is designed by engineering calculations, to retain slopes containing adverse geologic features. A buttress is generally specified by a key width and depth and by a backcut angle. A buttress normally contains a back drainage system.
CIVIL ENGINEER:	The Registered Civil Engineer or consulting firm responsible for preparation of the grading plans and surveying, and evaluating as-graded topographic conditions.
CLIENT:	The developer or a project-responsible authorized representative. The client has the responsibility of reviewing the findings and recommendations made by the geotechnical consultant and authorizing the contractor and/or other consultants to perform work and/or provide services.
COLLUVIUM:	Generally loose deposits, usually found on the face or near the base of slopes and brought there chiefly by gravity through slow continuous downhill creep (see also Slope Wash).
COMPACTION:	The densification of a fill by mechanical means.

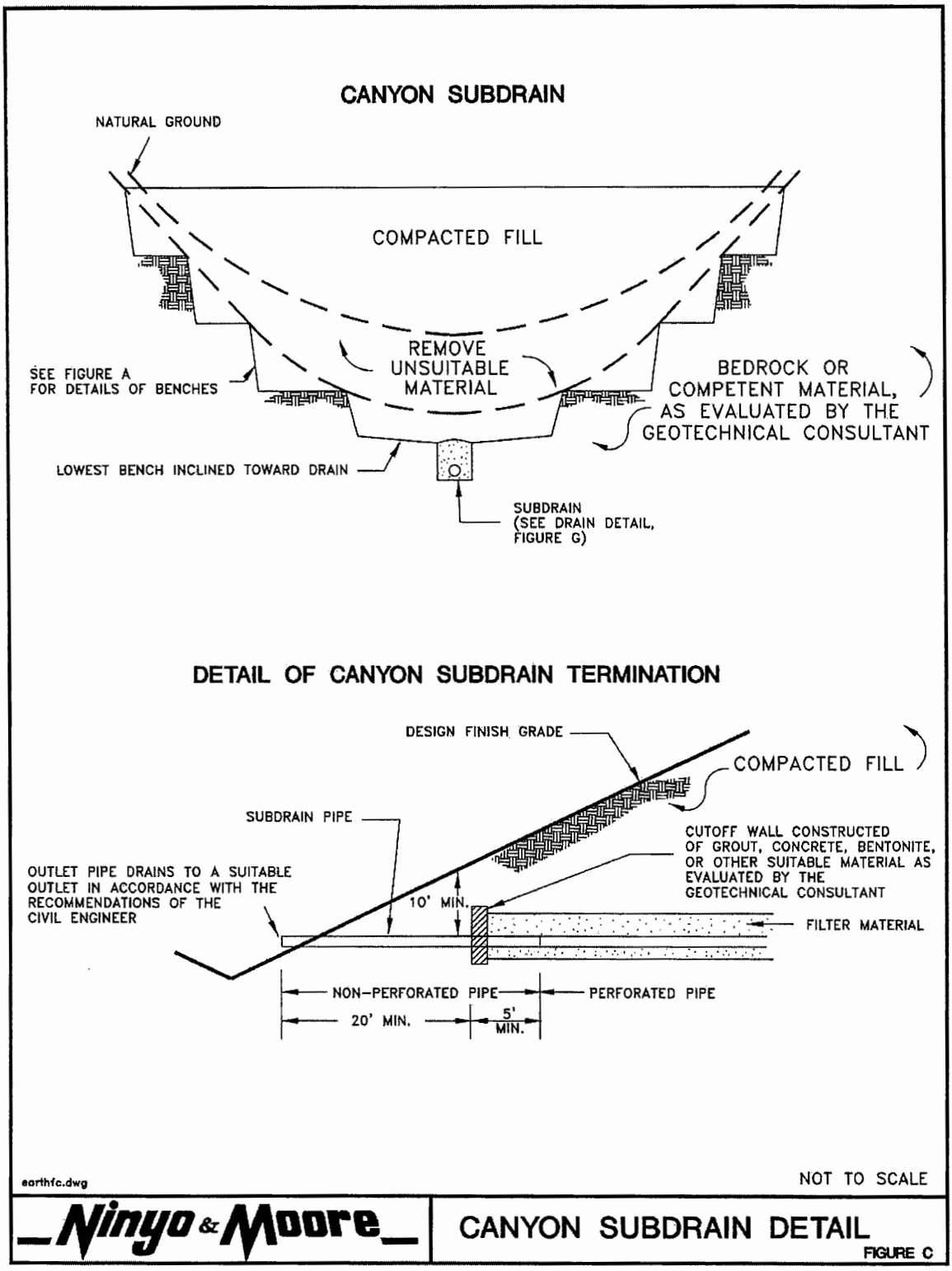
CONTRACTOR:	A person or company under contract or otherwise retained by the client to perform demolition, grading, and other site improvements.
DEBRIS:	The products of clearing, grubbing, and/or demolition, or contaminated soil material unsuitable for reuse as compacted fill, and/or any other material so designated by the geotechnical consultant.
ENGINEERED FILL:	A fill which the geotechnical consultant or the consultant's representative has observed and/or tested during placement, enabling the consultant to conclude that the fill has been placed in substantial compliance with the recommendations of the geotechnical consultant and the governing agency requirements.
ENGINEERING GEOLOGIST:	A geologist registered by the state licensing agency who applies geologic knowledge and principles to the exploration and evaluation of naturally occurring rock and soil, as related to the design of civil works.
EROSION:	The wearing away of the ground surface as a result of the movement of wind, water, and/or ice.
EXCAVATION:	The mechanical removal of earth materials.
EXISTING GRADE:	The ground surface configuration prior to grading; original grade.
FILL:	Any deposit of soil, rock, soil-rock blends, or other similar materials placed by man.
FINISH GRADE:	The as-graded ground surface elevation that conforms to the grading plan.
GEOFABRIC:	An engineering textile utilized in geotechnical applications such as subgrade stabilization and filtering.
GEOTECHNICAL CONSULTANT:	The geotechnical engineering and engineering geology consulting firm retained to provide technical services for the project. For the purpose of these specifications, observations by the geotechnical consultant include observations by the geotechnical engineer, engineering geologist and other persons employed by and responsible to the geotechnical consultant.

GEOTECHNICAL ENGINEER:	A licensed civil engineer and geotechnical engineer, registered by the state licensing agency, who applies scientific methods, engineering principles, and professional experience to the acquisition, interpretation, and use of knowledge of materials of the earth's crust to the resolution of engineering problems. Geotechnical engineering encompasses many of the engineering aspects of soil mechanics, rock mechanics, geology, geophysics, hydrology, and related sciences.
GRADING:	Any operation consisting of excavation, filling, or combinations thereof and associated operations.
LANDSLIDE DEPOSITS:	Material, often porous and of low density, produced from instability of natural or manmade slopes.
OPTIMUM MOISTURE:	The moisture content that is considered optimum relative to correction operations obtained from ASTM test method D 1557.
RELATIVE COMPACTION:	The degree of compaction (expressed as a percentage) of a material as compared to the dry density obtained from ASTM test method D 1557.
ROUGH GRADE:	The ground surface configuration at which time the surface elevations approximately conform to the project plan.
SHEAR KEY:	Similar to a subsurface buttress; however, it is generally constructed by excavating a slot within a natural slope in order to stabilize the upper portion of the slope without encroaching into the lower portion of the slope.
SITE:	The particular parcel of land where grading is being performed.
SLOPE:	An inclined ground surface, the steepness of which is generally specified as a ratio of horizontal units to vertical units.
SLOPE WASH:	Soil and/or rock material that has been transported down a slope by gravity assisted by the action of water not confined to channels (see also Colluvium).
SLOUGH:	Loose, uncompacted fill material generated during grading operations.

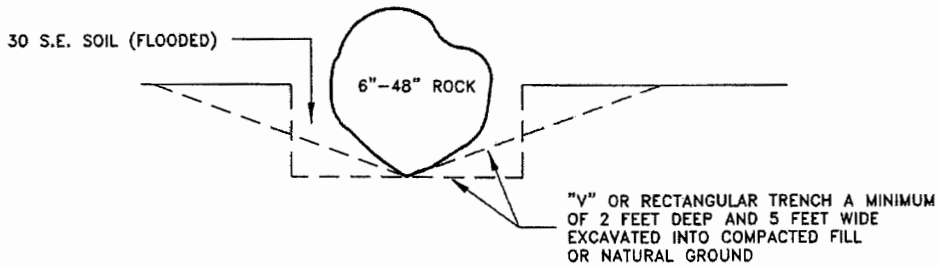
SOIL:	Naturally occurring deposits of sand, silt, clay, etc., or combinations thereof.
STABILIZATION FILL:	A fill mass, the configuration of which is typically related to slope height and is specified by the standards of practice for enhancing the stability of locally adverse conditions. A stabilization fill is normally specified by a key width and depth and by a backcut angle. A stabilization fill may or may not have a back drainage system specified.
SUBDRAIN:	Generally a pipe-and-gravel or similar drainage system placed beneath a fill along the alignment of buried canyons or former drainage channels.
TAILINGS:	Non-engineered fill which accumulates on or adjacent to equipment haul roads.
TERRACE:	A relatively level bench constructed on the face of a graded slope surface for drainage and maintenance purposes.
TOPSOIL:	The upper zone of soil or bedrock materials, which is usually dark in color, loose, and contains organic materials.
WINDROW:	A row of large rocks buried within engineered fill in accordance with guidelines set forth by the geotechnical consultant.


FILL SLOPE OVER NATURAL GROUND
SWALE AT TOP OF SLOPE
COMPACTED FILL
2
1
OUTLET PIPE DRAINS TO A SUITABLE OUTLET IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE CIVIL ENGINEER
NATURAL GROUND
REMOVE UNSUITABLE MATERIAL
4' TYP.
BENCH INCLINED SLIGHTLY INTO SLOPE
10' TYP.
BEDROCK OR COMPETENT MATERIAL, AS EVALUATED BY THE GEOTECHNICAL CONSULTANT
3' MIN.
2%
15' MIN.
BACKDRAIN AND T-CONNECTION (SEE DRAIN DETAIL, FIGURE G)
FILL SLOPE OVER CUT
SWALE AT TOP OF SLOPE
COMPACTED FILL
2
1
NATURAL GROUND
REMOVE UNSUITABLE MATERIAL
4' TYP.
BENCH INCLINED SLIGHTLY INTO SLOPE
10' TYP.
BEDROCK OR COMPETENT MATERIAL, AS EVALUATED BY THE GEOTECHNICAL CONSULTANT
2%
20' MIN.*
OUTLET PIPE DRAINS TO A SUITABLE OUTLET IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE CIVIL ENGINEER
BACKDRAIN AND T-CONNECTION (SEE DRAIN DETAIL, FIGURE G)
*MINIMUM KEY WIDTH DIMENSION. ACTUAL WIDTH SHOULD BE PROVIDED BY GEOTECHNICAL CONSULTANT BASED ON EVALUATION OF SITE-SPECIFIC GEOTECHNICAL CONDITIONS.
NOTES: CUT SLOPE SHALL BE CONSTRUCTED PRIOR TO PLACEMENT OF FILL.
SLOPE DRAINAGE SHOULD BE PROVIDED IN ACCORDANCE WITH RECOMMENDATIONS PRESENTED ON FIGURE E
earthfa.dwg
NOT TO SCALE
Ninyo & Moore
FILL SLOPE OVER NATURAL GROUND OR CUT
FIGURE A

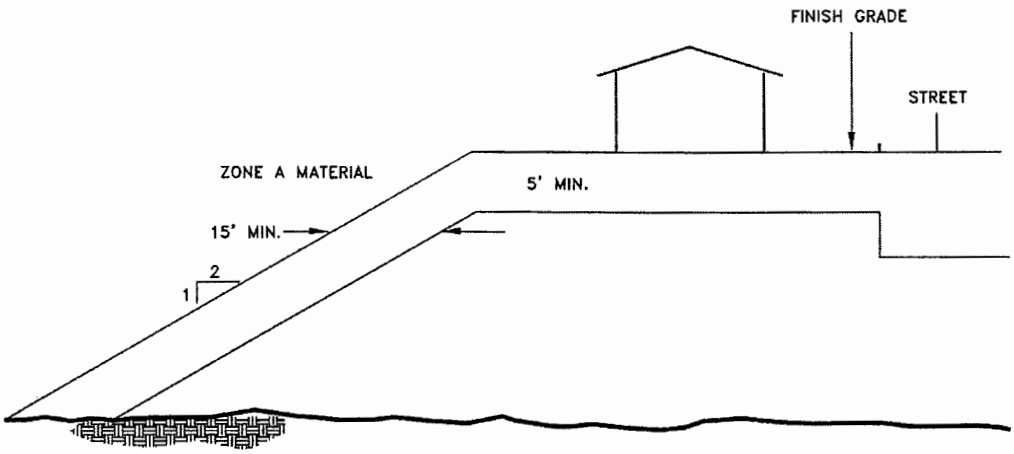

TRANSITION (CUT-FILL) LOT
NATURAL GROUND
5' MIN.
3' MIN.
COMPACTED FILL
REMOVE UNSUITABLE MATERIAL
OVEREXCAVATE AND RECOMPACT
BEDROCK OR COMPETENT MATERIAL, AS EVALUATED BY THE GEOTECHNICAL CONSULTANT
UNDERCUT LOT
NATURAL GROUND
REMOVE UNSUITABLE MATERIAL
5' MIN.
3' MIN.
COMPACTED FILL
OVEREXCAVATE AND RECOMPACT
BEDROCK OR COMPETENT MATERIAL, AS EVALUATED BY THE GEOTECHNICAL CONSULTANT
NOTE: DIMENSIONS PROVIDED IN THE DETAILS ABOVE ARE APPROXIMATE AND MAY BE MODIFIED IN THE FIELD BY THE GEOTECHNICAL CONSULTANT AS CONDITIONS DICTATE.
earthfb.dwg
NOT TO SCALE
Ninyo & Moore
TRANSITION AND UNDERCUT LOT DETAILS FIGURE B


CANYON SUBDRAIN
NATURAL GROUND
COMPACTED FILL
REMOVE UNSUITABLE MATERIAL
SEE FIGURE A FOR DETAILS OF BENCHES
BEDROCK OR COMPETENT MATERIAL, AS EVALUATED BY THE GEOTECHNICAL CONSULTANT
LOWEST BENCH INCLINED TOWARD DRAIN
SUBDRAIN (SEE DRAIN DETAIL, FIGURE G)
DETAIL OF CANYON SUBDRAIN TERMINATION
DESIGN FINISH GRADE
COMPACTED FILL
SUBDRAIN PIPE
CUTOFF WALL CONSTRUCTED OF GROUT, CONCRETE, BENTONITE, OR OTHER SUITABLE MATERIAL AS EVALUATED BY THE GEOTECHNICAL CONSULTANT
OUTLET PIPE DRAINS TO A SUITABLE OUTLET IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE CIVIL ENGINEER
10' MIN.
FILTER MATERIAL
NON-PERFORATED PIPE
PERFORATED PIPE
20' MIN.
5' MIN.
earthfc.dwg
NOT TO SCALE
Ninyo & Moore
CANYON SUBDRAIN DETAIL
FIGURE C

WINDROW SECTION



PAD SECTION



ZONE A: COMPACTED FILL WITH ROCK FRAGMENTS NO GREATER THAN 6 INCHES IN DIAMETER.

ZONE B: COMPACTED FILL WITH ROCK FRAGMENTS BETWEEN 6 AND 48 INCHES IN DIAMETER MAY BE PLACED IN STAGGERED WINDROWS UP TO 100' LONG IN THIS ZONE AND SURROUNDED BY GRANULAR SOIL (30 SAND EQUIVALENT) DENSIFIED BY FLOODING. ROCK FRAGMENTS LESS THAN 6 INCHES IN DIAMETER MAY BE PLACED IN COMPACTED FILL SOIL.

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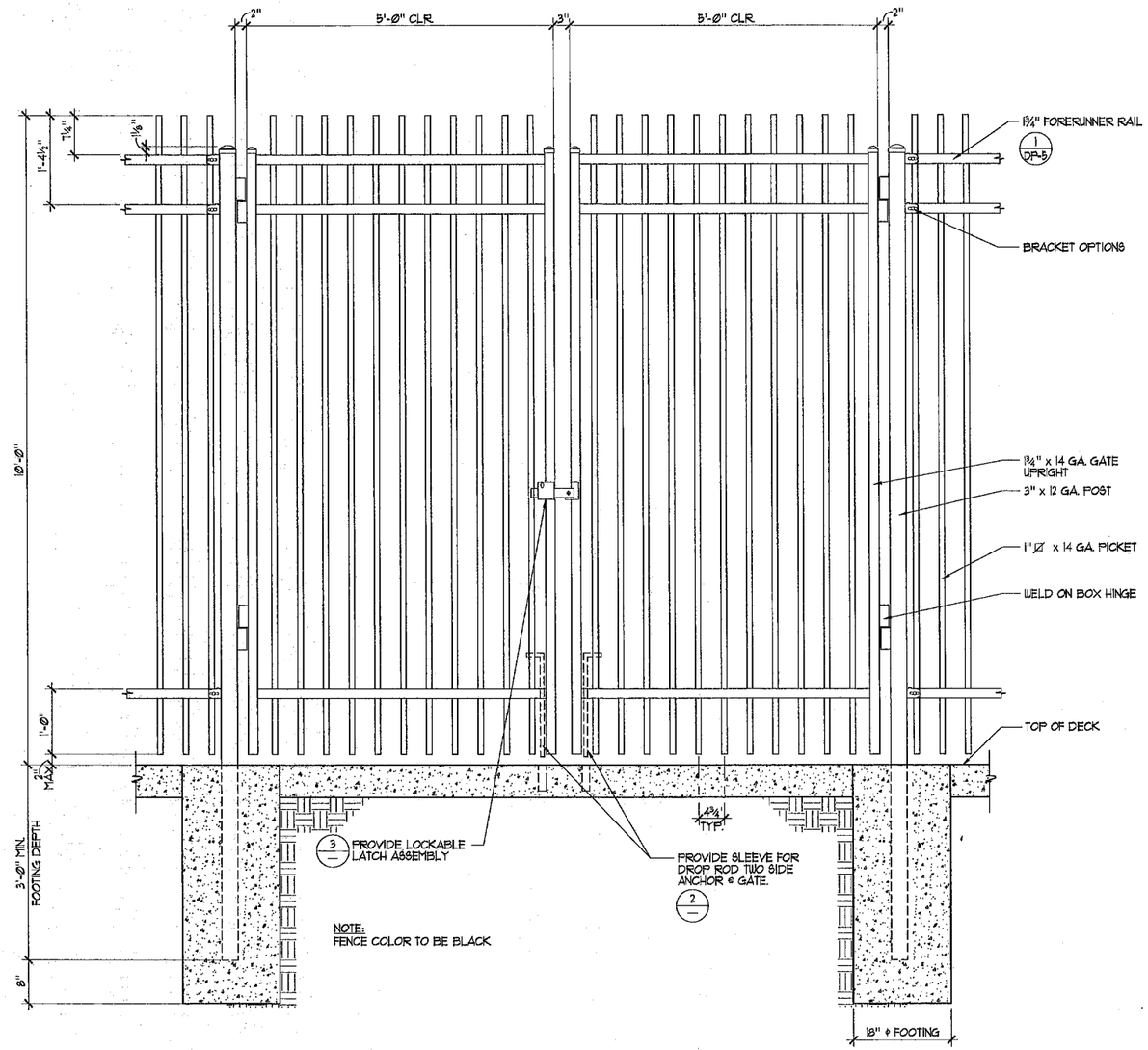
NOT TO SCALE

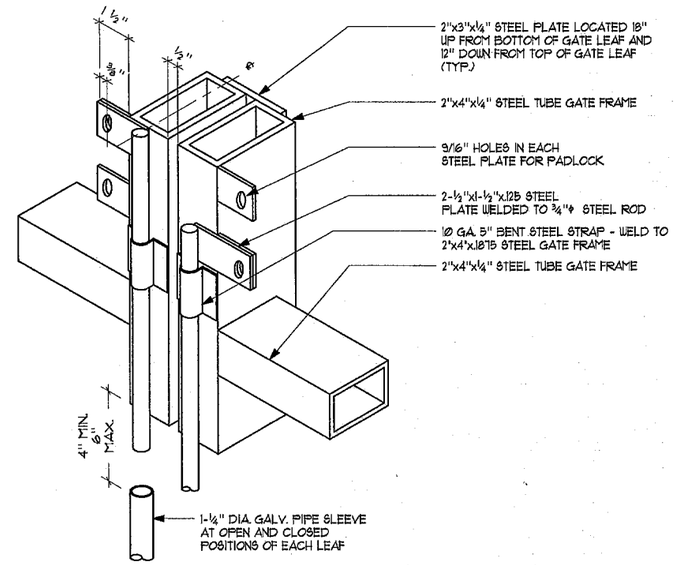
Ninyo & Moore

OVERSIZED ROCK PLACEMENT DETAIL

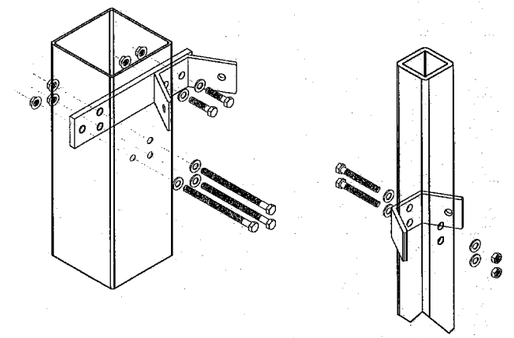
FIGURE D



1 **INTERIOR FENCE PANEL** 1" = 1'-0"



2 **CANE BOLT ASSEMBLY** NO SCALE



ISO VIEW

3 **GATE LATCH ASSEMBLY** NO SCALE

DP-8

MEMORIAL POOL

CONSTRUCTION CHANGE / ADDENDUM			
CHANGE	DATE	AFFECTED OR ADDED SHEET NUMBERS	APPROVAL NO.

WARNING
0 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE.

CITY OF SAN DIEGO
PUBLIC WORKS PROJECT

TEMPORARY BMP CONSTRUCTION SITE STORM WATER PRIORITY: HIGH ___ MEDIUM ___ LOW ___

SPEC. NO.

CONSULTANT

AQUATIC DESIGN GROUP
2226 FARADAY AVE., CARLSBAD, CA 92008
Tel 760.438.8400 Fax 760.438.5251

LICENSED ARCHITECT ROBERT J. FERRY C-26992 STATE OF CALIFORNIA

PLANS FOR THE CONSTRUCTION OF
MEMORIAL POOL
SITE DETAILS

CITY OF SAN DIEGO, CALIFORNIA
ENGINEERING AND CAPITAL PROJECTS DEPARTMENT
SHEET 59 OF 39 SHEETS

WBS S-00970

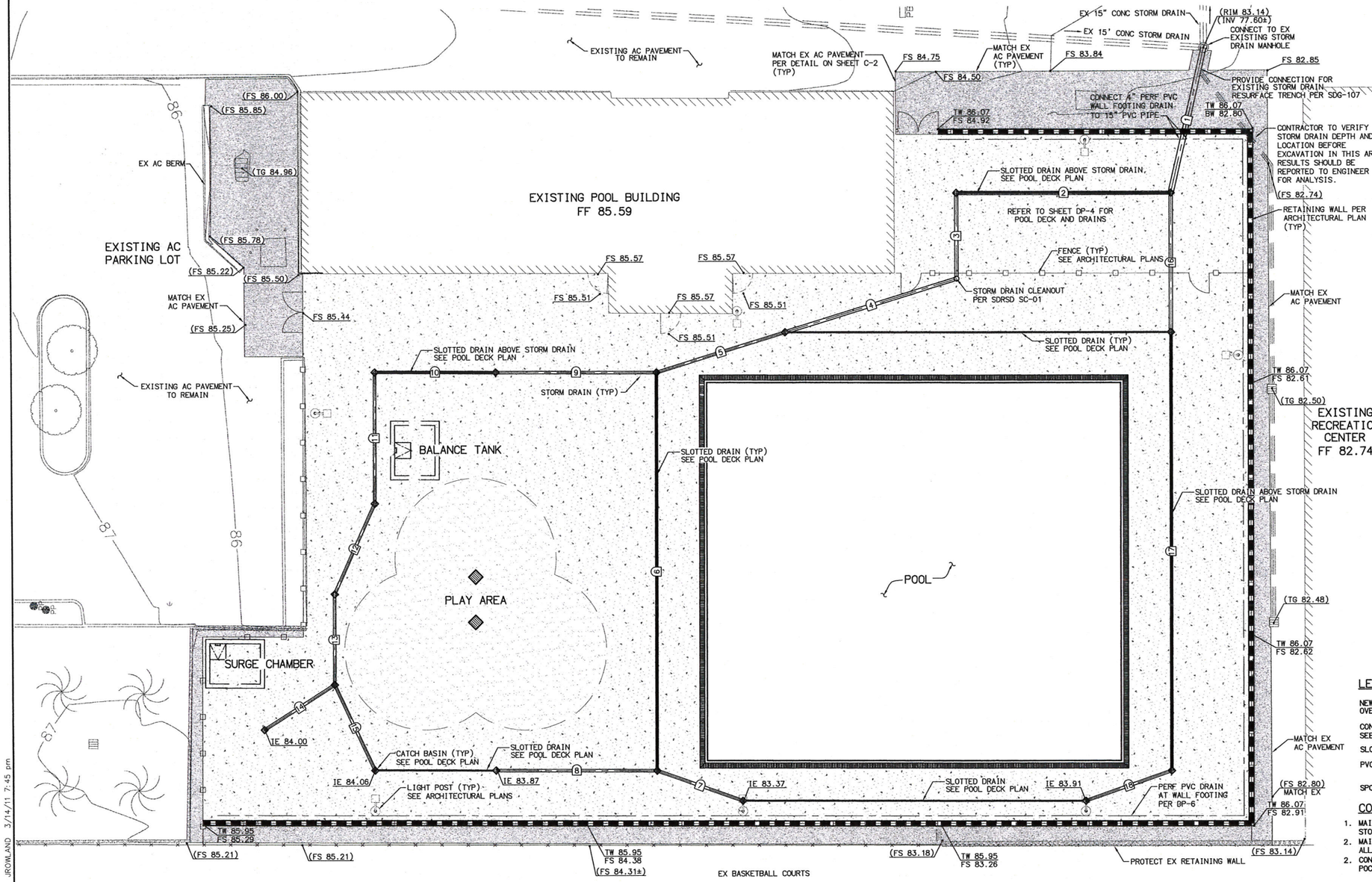
APPROVED: Samir M. FOR CITY ENGINEER DATE 7/13/12

SUBMITTED BY: SAMIR MAHMALJI PROJECT OFFICER II

DESCRIPTION	BY	APPROVED	DATE	FILMED
ORIGINAL	ADG			

CLARK RITTER PROJECT MANAGER
194-1725 CC827 COORDINATE
6286404, 1834444 CC683 COORDINATE
36152-09-D

CONTRACTOR ___ DATE STARTED ___
INSPECTOR ___ DATE COMPLETED ___



UTILITY PLAN

GENERAL NOTES

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SURVEY MONUMENTS AND/OR VERTICAL CONTROL BENCHMARKS WHICH ARE DISTURBED OR DESTROYED BY CONSTRUCTION. A LAND SURVEYOR MUST FIELD LOCATE, REFERENCE, AND/OR PRESERVE ALL HISTORICAL OR CONTROLLING MONUMENTS PRIOR TO ANY EARTHWORK. IF DESTROYED, A LAND SURVEYOR SHALL REPLACE SUCH MONUMENTS WITH APPROPRIATE MONUMENTS. A CORNER RECORD OR RECORD OF SURVEY, AS APPROPRIATE, SHALL BE FILED AS REQUIRED BY THE PROFESSIONAL LAND SURVEYORS ACT. IF ANY VERTICAL CONTROL IS TO BE DISTURBED OR DESTROYED, THE CITY OF SAN DIEGO FIELD SURVEY SECTION MUST BE NOTIFIED, IN WRITING, AT LEAST 3 DAYS PRIOR TO THE CONSTRUCTION. THE CONTRACTOR WILL BE RESPONSIBLE FOR THE COST OF REPLACING ANY VERTICAL CONTROL BENCHMARKS DESTROYED BY THE CONSTRUCTION.

2. IMPORTANT NOTICE: SECTION 4216 OF THE GOVERNMENT CODE REQUIRES A DIG ALERT IDENTIFICATION NUMBER BE ISSUED BEFORE A "PERMIT TO EXCAVATE" WILL BE VALID. FOR YOUR DIG ALERT I.D. NUMBER, CALL UNDERGROUND SERVICE ALERT, TOLL FREE 1-800-422-4133, TWO DAYS BEFORE YOU DIG.

3. CONTRACTOR SHALL IMPLEMENT AN EROSION AND SEDIMENT CONTROL PROGRAM DURING THE PROJECT GRADING AND/OR CONSTRUCTION ACTIVITIES. THE PROGRAM SHALL MEET ALL APPLICABLE REQUIREMENTS OF THE STATE WATER RESOURCE CONTROL BOARD AND THE CITY OF SAN DIEGO MUNICIPAL CODE AND STORM WATER STANDARDS MANUAL.

4. "PUBLIC IMPROVEMENT SUBJECT TO DESUETUDE OR DAMAGE." IF REPAIR OR REPLACEMENT OF SUCH PUBLIC IMPROVEMENTS IS REQUIRED, THE OWNER SHALL OBTAIN THE REQUIRED PERMITS FOR WORK IN THE PUBLIC RIGHT-OF-WAY, SATISFACTORY TO THE PERMIT- ISSUING AUTHORITY.

5. ALL EXISTING AND/OR PROPOSED PUBLIC UTILITY SYSTEM AND SERVICE FACILITIES SHALL BE INSTALLED UNDERGROUND IN ACCORDANCE WITH SECTION 144.0240 OF THE MUNICIPAL CODE.

6. DEVIATIONS FROM THESE SIGNED PLANS WILL NOT BE ALLOWED UNLESS A CONSTRUCTION CHANGE IS APPROVED BY THE ENGINEER OF WORK.

7. AS-BUILT DRAWINGS MUST BE SUBMITTED TO THE ENGINEER PRIOR TO ACCEPTANCE OF THIS PROJECT BY THE CITY OF SAN DIEGO.

8. CONTRACTOR SHALL REMOVE AND REPLACE ALL UTILITY BOXES SERVING AS HANDHOLES THAT ARE NOT IN "AS-NEW" CONDITION IN PROPOSED SIDEWALK. DAMAGED BOXES, OR THOSE THAT ARE NOT IN COMPLIANCE WITH CURRENT CODE SHALL BE REMOVED AND REPLACED WITH NEW BOXES, INCLUDING WATER, SEWER, TRAFFIC SIGNALS, STREET LIGHTS, DRY UTILITIES-SDG&E, COX, ETC. ALL NEW METAL LIDS SHALL BE SLIP RESISTANT (FRICTION FACTOR >/= 0.50) AND INSTALLED FLUSH WITH PROPOSED SIDEWALK GRADE. IF A SLIP RESISTANT METAL LID IS NOT COMMERCIALLY AVAILABLE FOR THAT USE, NEW BOXES AND LIDS SHALL BE INSTALLED.

SPECIAL NOTES

THE FOLLOWING NOTES ARE PROVIDED TO GIVE DIRECTIONS TO THE CONTRACTOR BY THE ENGINEER OF WORK.

1. THE ENGINEER OF WORK SHALL NOT BE RESPONSIBLE FOR THE CONTRACTOR'S FAILURE TO CARRY OUT CONSTRUCTION WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS, NOR SHALL THE ENGINEER BE REQUIRED TO SUPERVISE CONDUCT OF THE WORK OF THE CONSTRUCTION PROCEDURES AND SAFETY PROCEDURES FOLLOWED BY THE CONTRACTOR OR SUBCONTRACTORS OR THEIR RESPECTIVE EMPLOYEES OR BY ANOTHER PERSON AT THE JOB SITE OTHER THAN THAT OF THE ENGINEER'S EMPLOYEES.

2. THE LOCATIONS OF ANY UNDERGROUND STRUCTURES AS SHOWN ON THESE PLANS HAVE BEEN OBTAINED FROM AVAILABLE RECORDS AND ARE SHOWN FOR THE BENEFIT OF THE CONTRACTOR. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONARY MEASURES TO PROTECT UNDERGROUND OR OVERHEAD STRUCTURES WHETHER SHOWN OR NOT ON THESE DRAWINGS.

LEGEND

NEW 3" AC / 6" BASE PAVEMENT SECTION OVER 12" SUBGRADE COMPACTED TO 95%

CONCRETE POOL DECK SEE ARCHITECTURAL PLAN DP-4

SLOTTED DRAIN PER POOL DECK PLAN DP-4

PVC STORM DRAIN. SIZE PER PLAN

SPOT ELEVATION..... FS 81.10

CONSTRUCTION NOTES

1. MAINTAIN MINIMUM 2% SLOPE ON ALL STORM DRAIN PIPES
2. MAINTAIN MINIMUM 12" COVER ON ALL STORM DRAIN PIPES
2. CONTRACTOR TO VERIFY STORM DRAIN POC INVERT BEFORE CONSTRUCTION

SCALE: 1"=10'

10 5 0 10 20 30

SCALE: 1"=10'

C-1

STORM DRAIN DATA TABLE				
NO	BEARING/DELTA	RADIUS	LENGTH	NOTE
1	N 76°59'21" W	---	29.59'	10" SDR 35 PVC
2	N 00°15'41" E	---	42.50'	8" SDR 35 PVC
3	N 89°52'56" W	---	17.00'	8" SDR 35 PVC
4	N 17°08'36" W	---	35.68'	8" SDR 35 PVC
5	N 17°08'36" W	---	26.75'	8" SDR 35 PVC
6	N 89°44'19" W	---	79.08'	6" SDR 35 PVC
7	N 19°40'46" E	---	18.05'	6" SDR 35 PVC
8	N 00°15'41" E	---	32.00'	6" SDR 35 PVC
9	N 00°15'41" E	---	32.00'	6" SDR 35 PVC

STORM DRAIN DATA TABLE				
NO	BEARING/DELTA	RADIUS	LENGTH	NOTE
10	N 00°15'41" E	---	24.00'	6" SDR 35 PVC
11	N 89°44'19" W	---	26.08'	6" SDR 35 PVC
12	N 65°46'34" W	---	19.70'	6" SDR 35 PVC
13	N 89°44'19" W	---	18.00'	6" SDR 35 PVC
14	N 32°28'26" W	---	16.64'	6" SDR 35 PVC
15	N 65°03'37" E	---	18.79'	6" SDR 35 PVC
16	N 89°44'19" W	---	27.67'	8" SDR 35 PVC
17	N 89°44'19" W	---	87.08'	6" SDR 35 PVC
18	N 19°10'43" W	---	18.03'	6" SDR 35 PVC

CONSTRUCTION CHANGE / ADDENDUM			
CHANGE	DATE	AFFECTED OR ADDED SHEET NUMBERS	APPROVAL NO.

WARNING

0 1

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE.

CITY OF SAN DIEGO
PUBLIC WORKS PROJECT

TEMPORARY BMP CONSTRUCTION SITE STORM WATER PRIORITY: HIGH ____ MEDIUM ____ LOW____

CONSULTANT

AQUATIC DESIGN GROUP
2226 FARADAY AVE., CARLSBAD, CA 92008
Tel 760.438.8400 Fax 760.438.5251

SPEC. NO.

PLANS FOR THE CONSTRUCTION OF
MEMORIAL POOL

CITY OF SAN DIEGO, CALIFORNIA
ENGINEERING AND CAPITAL PROJECTS DEPARTMENT
SHEET 9 OF 39 SHEETS

WBS S-00970

APPROVED Samir M. FOR CITY ENGINEER 7/13/12 DATE

SUBMITTED BY SAMIR MAHMALJI PROJECT OFFICER III

DESCRIPTION	BY	APPROVED	DATE	FILMED
ORIGINAL	ADG			

CLARK RITTER PROJECT MANAGER
194-1725 CCS27 COORDINATE
6286404.1834444 CCS83 COORDINATE
36152-9A-D

CONTRACTOR ____ DATE STARTED ____
INSPECTOR ____ DATE COMPLETED ____

H:\PDATA\25103682\CADD\LAND\DLV\3682-GR-01.DWG JROWLAND 3/14/11 7:45 pm

MEMORIAL POOL

City of San Diego

CITY CONTACT: Damian Singleton, **Contract Specialist, Email:** dsingleton@sandiego.gov
Phone No. (619) 533-3482, **Fax No.** (619) 533-3633

ADDENDUM "B"

FOR

MEMORIAL POOL IMPROVEMENTS

BID NO.:	**K-13-5286-DBB-3-A**
SAP NO. (WBS/IO/CC):	**S-00970**
CLIENT DEPARTMENT:	**1714**
COUNCIL DISTRICT:	**8**
PROJECT TYPE:	**BE**
CDBG #:	**B-12-MC-06-0542**

BID DUE DATE:

2:00 PM
JANUARY 24, 2013
CITY OF SAN DIEGO
PUBLIC WORKS DEPARTMENT
1010 SECOND AVENUE, SUITE 1400, MS 614C
SAN DIEGO, CA 92101

A. CHANGES TO CONTRACT DOCUMENTS

The following changes to the Contract Documents are hereby made effective as though originally issued with the bid package. Bidders are reminded that all previous requirements to this solicitation remain in full force and effect.

B. BIDDER's QUESTIONS

Q1. On drawing sheet 05 (DP-4) concrete color shown in the CONCRETE COLOR SCHEDULE for Light Blue at the Wet Play area is not available. What color should be used?

A1. Color shall be Scofield #HSR-1382, "Canopus," SRI Values = 82.

C. ADDENDUM "A"

1. To ITEM C, VOLUME 1, Sub-item 4, FUNDING AGENCY PROVISIONS, page 5 of 78, **DELETE** in its entirety and **SUBSTITUTE** with the following:

   10. WAGE RATES. This contract shall be subject to the following Davis-Bacon Wage Decisions:

   - Wage Determination Number: **CA130001 CA1**
   - Modification Number: **0**
   - Publication Date: **01/04/2013**

   The required wage information may be accessed and downloaded from: http://www.wdol.gov/

D. VOLUME 1

1. To the SUPPLEMENTARY SPECIAL PROVISIONS (SSP), SECTION 2 - Scope and Control of Work, Sub-section 2-17 CONTRACTORS REGISTRATION, page 53, **DELETE** in its entirety and **SUBSTITUTE** with the following:

   ADD: 2-17 CONTRACTOR REGISTRATION AND ELECTRONIC REPORTING SYSTEM:

   Prior to the Award of the Contract or each Task Order, you and your Subcontractors and Suppliers **must** register with Prism®, the City's web-based contract compliance portal at: https://pro.prismcompliance.com/default.aspx.

   The City may not award the contract until registration of all subcontractors and suppliers is complete. In the event this requirement is not met within the time frame specified in the Notice of Intent to Award letter, the City reserves the right to rescind the Notice of Award / Intent to Award and to make the award to the next responsive and responsible bidder / proposer.

Tony Heinrichs, Director
Public Works Department

Dated: *January 10, 2013*
San Diego, California

TH/nb/ds/ls

City of San Diego

CONTRACTOR'S NAME: California Commercial Pools Inc.
ADDRESS: 2255 E. Auto Centre Drive
TELEPHONE NO.: 909-394-1280 **FAX NO.:** 909-394-4579
CITY CONTACT: DAMIAN SINGLETON, CONTRACT SPECIALIST, dsingleton@sandiego.gov
PHONE NO. 619-235-5272, FAX NO. 619-236-5904
C RITTER / NB / LS

CONTRACT DOCUMENTS

FOR

MEMORIAL POOL IMPROVEMENTS

VOLUME 2 OF 2

BID NO.:	**K-13-5286-DBB-3-A**
SAP NO. (WBS/IO/CC):	**S-00970**
CLIENT DEPARTMENT:	**1714**
COUNCIL DISTRICT:	**8**
PROJECT TYPE:	**BE**
CDBG #:	**B-12-MC-06-0542**

THIS CONTRACT IS SUBJECT TO THE FOLLOWING:

- FEDERAL EQUAL OPPORTUNITY CONTRACTING REQUIREMENTS.
- PREVAILING WAGE RATES: STATE ☒, FEDERAL ☒
- APPRENTICE REQUIREMENTS.
- THIS IS A COMMUNITY DEVELOPMENT BLOCK GRANT CONTRACT FUNDED THROUGH THE DEPARTMENT OF HOUSING URBAN DEVELOPMENT

THIS BIDDING DOCUMENT TO BE SUBMITTED IN ITS ENTIRETY
REFER TO VOLUME 1 COVER PAGE FOR TIME, DATE, AND LOCATION

TABLE OF CONTENTS

Volume 2 - Bidding Documents

The following forms must be completed in their entirety and submitted with the Bid. Include the form(s) even if the information does not apply. Where the information does not apply write in N/A. Failure to include any of the forms may cause the Bid to be deemed **non-responsive.** If you are uncertain or have any questions about any required information, contact the City no later than 14 days prior to Bid due date.

DESCRIPTION **PAGE NUMBER**

PROPOSAL

Bidder's General Information

To the City of San Diego:

Pursuant to "Invitation to Bids", specifications, and requirements on file with the City Clerk, and subject to all provisions of the Charter and Ordinances of the City of San Diego and applicable laws and regulations of the United States and the State of California, the undersigned hereby proposes to furnish to the City of San Diego, complete at the prices stated herein, the items or services hereinafter mentioned. The undersigned further warrants that this bid is not made in the interest of, or on behalf of, any undisclosed person, partnership, company, association, organization, or corporation; that the bid is genuine and not collusive or sham; that the bidder has not directly or indirectly induced or solicited any other bidder to put in a false or sham bid, and has not directly or indirectly colluded, conspired, connived, or agreed with any bidder or anyone else to put in a sham bid, or that anyone shall refrain from bidding; that the bidder has not in any manner, directly or indirectly, sought by agreement, communication, or conference with anyone to fix the bid price of the bidder or any other bidder, or to fix any overhead, profit, or cost element of the bid price, or of that of any other bidder, or to secure any advantage against the public body awarding the contract of anyone interested in the proposed contract; that all statements contained in the bid are true; and, further, that the bidder has not, directly or indirectly, submitted his or her bid price or any breakdown thereof, or the contents thereof, or divulged information or data relative thereto, or paid, and will not pay, any fee to any corporation, partnership, company, association, organization, bid depository, or to any member or agent thereof to effectuate a collusive or sham bid.

The undersigned bidder(s) further warrants that bidder(s) has thoroughly examined and understands the entire Contract Documents (plans and specifications) and the Bidding Documents therefore, and that by submitting said Bidding Documents as its bid proposal, bidder(s) acknowledges and is bound by the entire Contract Documents, including any addenda issued thereto, as such Contract Documents incorporated by reference in the Bidding Documents.

IF A SOLE OWNER OR SOLE CONTRACTOR SIGN HERE:

(1) Name under which business is conducted N/A _____

(2) Signature (Given and surname) of proprietor _____

(3) Place of Business (Street & Number) _____

(4) City and State _____ Zip Code _____

(5) Telephone No. _____ Facsimile No. _____

IF A PARTNERSHIP, SIGN HERE:

(1) Name under which business is conducted N/A _____

(2) Name of each member of partnership [indicate character of each partner, general or special (limited):

_____

_____

(3) Signature (Note: Signature must be made by a general partner)

_____

Full Name and Character of partner

_____

_____

(4) Place of Business (Street & Number) _____
(5) City and State _____ Zip Code _____
(6) Telephone No. _____ Facsimile No. _____

IF A CORPORATION, SIGN HERE:

(1) Name under which business is conducted California Commercial Pools Inc.

(2) Signature, with official title of officer authorized to sign for the corporation:

_____
(Signature)

Brett W. Smith
(Printed Name)

Vice President
(Title of Officer)

(Impress Corporate Seal Here)

(3) Incorporated under the laws of the State of California
(4) Place of Business (Street & Number) 2255 E. Auto Centre Drive
(5) City and State Glendora, CA Zip Code 91740
(6) Telephone No. 909-394-1280 Facsimile No. 909-394-4579

THE FOLLOWING SECTIONS MUST BE FILLED IN BY ALL PROPOSERS:

In accordance with the "**INVITATION TO BIDS**", the bidder holds a California State Contractor's license for the following classification(s) to perform the work described in these specifications:

LICENSE CLASSIFICATION B & C53

LICENSE NO. 415172 EXPIRES November 30, 2013

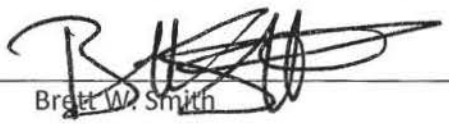
This license classification must also be shown on the front of the bid envelope. Failure to show license classification on the bid envelope may cause return of the bid unopened.

TAX IDENTIFICATION NUMBER (TIN): 95-3452683

E-Mail Address: bsmith@calcommpools.com

THIS PROPOSAL MUST BE NOTARIZED BELOW:

I certify, under penalty of perjury, that the representations made herein regarding my State Contractor's license number, classification and expiration date are true and correct.

Signature  Title Vice President

Brett W. Smith

SUBSCRIBED AND SWORN TO BEFORE ME, THIS ____ DAY OF ____,2____.

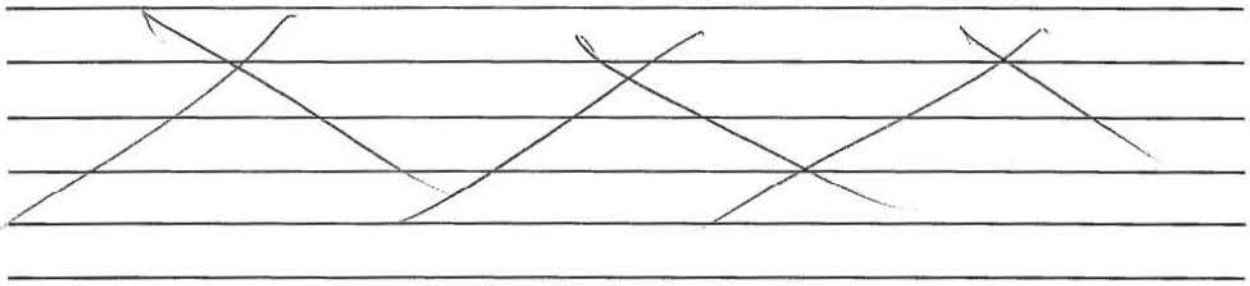
Notary Public in and for the County of ____, State of ____

See attached Calif. Jurat

(NOTARIAL SEAL)

CALIFORNIA JURAT WITH AFFIANT STATEMENT

☒ See Attached Document (Notary to cross out lines 1-6 below)
☐ See Statement Below (Lines 1-5 to be completed only by document signer[s], not Notary)



n/a
Signature of Document Signer No. 1

n/a
Signature of Document Signer No. 2 (if any)

State of California

County of Los Angeles

Subscribed and sworn to (or affirmed) before me on this

23 (Date) day of January (Month) 2013 (Year), by

(1) ----------Brett W. Smith----------,
Name of Signer

proved to me on the basis of satisfactory evidence to be the person who appeared before me (.) (,)

(and

(2) N/A,
Name of Signer

proved to me on the basis of satisfactory evidence to be the person who appeared before me.)

Signature
Signature of Notary Public

KARLA R. STONE
Commission # 1845547
Notary Public - California
Los Angeles County
My Comm. Expires Apr 20, 2013

Place Notary Seal Above

OPTIONAL

Though the information below is not required by law, it may prove valuable to persons relying on the document and could prevent fraudulent removal and reattachment of this form to another document.

Further Description of Any Attached Document

Title or Type of Document: Bid Proposal

Project: Memorial Park Improvements

Document Date: No Document Date Number of Pages: 3

Signer(s) Other Than Named Above: None

RIGHT THUMBPRINT OF SIGNER #1	RIGHT THUMBPRINT OF SIGNER #2
Top of thumb here	Top of thumb here

BID BOND

KNOW ALL MEN BY THESE PRESENTS,

That California Commercial Pools, Inc. as Principal, and The Hanover Insurance Company as Surety, are held and firmly bound unto The City of San Diego hereinafter called "OWNER," in the sum of **10% OF THE TOTAL BID AMOUNT** for the payment of which sum, well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

WHEREAS, said Principal has submitted a Bid to said OWNER to perform the WORK required under the bidding schedule(s) of the OWNER's Contract Documents entitled

Memorial Pool Improvements

NOW THEREFORE, if said Principal is awarded a contract by said OWNER and, within the time and in the manner required in the "Invitation to Bids" enters into a written Agreement on the form of agreement bound with said Contract Documents, furnishes the required certificates of insurance, and furnishes the required Performance Bond and Payment Bond, then this obligation shall be null and void, otherwise it shall remain in full force and effect. In the event suit is brought upon this bond by said OWNER and OWNER prevails, said Surety shall pay all costs incurred by said OWNER in such suit, including a reasonable attorney's fee to be fixed by the court.

SIGNED AND SEALED, this 10th day of December, 2012

California Commercial Pools, Inc. (SEAL)	The Hanover Insurance Company (SEAL)
(Principal)	(Surety)
By: _____	By: _____
(Signature)	(Signature)
David B. Jackson, Vice-Pres	Julia B. Gladding, Attorney-In-Fact

(SEAL AND NOTARIAL ACKNOWLEDGEMENT OF SURETY)

THE HANOVER INSURANCE COMPANY
MASSACHUSETTS BAY INSURANCE COMPANY
CITIZENS INSURANCE COMPANY OF AMERICA

POWERS OF ATTORNEY
CERTIFIED COPY

KNOW ALL MEN BY THESE PRESENTS: That THE HANOVER INSURANCE COMPANY and MASSACHUSETTS BAY INSURANCE COMPANY, both being corporations organized and existing under the laws of the State of New Hampshire, and CITIZENS INSURANCE COMPANY OF AMERICA, a corporation organized and existing under the laws of the State of Michigan, do hereby constitute and appoint

KENNETH A. COATE, JULIA B. GLADDING

Of Riverside, CA and each is a true and lawful Attorney(s)-in-fact to sign, execute, seal, acknowledge and deliver for, and on its behalf, and as its act and deed any place within the United States, or, if the following line be filled in, only within the area therein designated

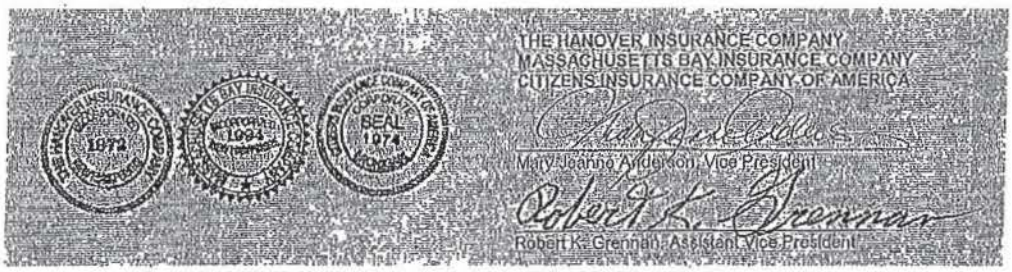
any and all bonds, recognizances, undertakings, contracts of indemnity or other writings obligatory in the nature thereof, as follows:

Any such obligations in the United States, not to exceed Ten Million and No/100 ($10,000,000) in any single instance

and said companies hereby ratify and confirm all and whatsoever said Attorney(s)-in-fact may lawfully do in the premises by virtue of these presents. These appointments are made under and by authority of the following Resolution passed by the Board of Directors of said Companies which resolutions are still in effect:

"RESOLVED, That the President or any Vice President, in conjunction with any Assistant Vice President, be and they are hereby authorized and empowered to appoint Attorneys-in-fact of the Company, in its name and as its acts, to execute and acknowledge for and on its behalf as Surety any and all bonds, recognizances, contracts of indemnity, waivers of citation and all other writings obligatory in the nature thereof, with power to attach thereto the seal of the Company. Any such writings so executed by such Attorneys-in-fact shall be as binding upon the Company as if they had been duly executed and acknowledged by the regularly elected officers of the Company in their own proper persons." (Adopted October 7, 1981 - The Hanover Insurance Company; Adopted April 14, 1982 – Massachusetts Bay Insurance Company; Adopted September 7, 2001 - Citizens Insurance Company of America)

IN WITNESS WHEREOF, THE HANOVER INSURANCE COMPANY, MASSACHUSETTS BAY INSURANCE COMPANY and CITIZENS INSURANCE COMPANY OF AMERICA have caused these presents to be sealed with their respective corporate seals, duly attested by a Vice President and an Assistant Vice President, this 12th day of July , 2010.



THE COMMONWEALTH OF MASSACHUSETTS)
COUNTY OF WORCESTER) ss.

On this 12th day of July , 2010 before me came the above named Vice President and Assistant Vice President of The Hanover Insurance Company, Massachusetts Bay Insurance Company and Citizens Insurance Company of America, to me personally known to be the individuals and officers described herein, and acknowledged that the seals affixed to the preceding instrument are the corporate seals of The Hanover Insurance Company Massachusetts Bay Insurance Company and Citizens Insurance Company of America, respectively, and that the said corporate seals and their signatures as officers were duly affixed and subscribed to said instrument by the authority and direction of said Corporations.

Barbara A. Garlick
Notary Public

My commission expires on November 3, 2011

I, the undersigned Assistant Vice President of The Hanover Insurance Company, Massachusetts Bay Insurance Company and Citizens Insurance Company of America, hereby certify that the above and foregoing is a full, true and correct copy of the Original Power of Attorney issued by said Companies, and do hereby further certify that the said Powers of Attorney are still in force and effect.

This Certificate may be signed by facsimile under and by authority of the following resolution of the Board of Directors of The Hanover Insurance Company, Massachusetts Bay Insurance Company and Citizens Insurance Company of America.

"RESOLVED, That any and all Powers of Attorney and Certified Copies of such Powers of Attorney and certification in respect thereto, granted and executed by the President or any Vice President in conjunction with any Assistant Vice President of the Company, shall be binding on the Company to the same extent as if all signatures therein were manually affixed, even though one or more of any such signatures thereon may be facsimile." (Adopted October 7, 1981 - The Hanover Insurance Company; Adopted April 14, 1982 Massachusetts Bay Insurance Company; Adopted September 7, 2001 - Citizens Insurance Company of America)

GIVEN under my hand and the seals of said Companies, at Worcester, Massachusetts, this 10th day of December , 2012.

THE HANOVER INSURANCE COMPANY
MASSACHUSETTS BAY INSURANCE COMPANY
CITIZENS INSURANCE COMPANY OF AMERICA

Stephen L. Braun, Assistant Vice President

CALIFORNIA ALL-PURPOSE ACKNOWLEDGMENT

State of California

County of Los Angeles

On December 19, 2012 (Date) before me, ----------Karla R. Stone, Notary Public---------- (Here Insert Name and Title of the Officer)

personally appeared ----------David E. Jackson---------- (Name(s) of Signer(s))

---

who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature _____ (Signature of Notary Public)

KARLA R. STONE
Commission # 1845547
Notary Public - California
Los Angeles County
My Comm. Expires Apr 20, 2013

Place Notary Seal Above

OPTIONAL

Though the information below is not required by law, it may prove valuable to persons relying on the document and could prevent fraudulent removal and reattachment of this form to another document.

Description of Attached Document

Title or Type of Document: Bid Bond: City of San Diego, Memorial Pool Improvements

Document Date: December 10, 2012 Number of Pages: One

Signer(s) Other Than Named Above: None

Capacity(lies) Claimed by Signer(s)

Signer's Name: David E. Jackson
- ☐ Individual
- ☒ Corporate Officer — Title(s): Vice-President
- ☐ Partner - ☐ Limited ☐ General
- ☐ Attorney in Fact
- ☐ Trustee
- ☐ Guardian or Conservator
- ☐ Other: _____

Signer Is Representing: California Commercial Pools Inc.

RIGHT THUMBPRINT OF SIGNER
Top of thumb here

Signer's Name: N/A
- ☐ Individual
- ☐ Corporate Officer — Title(s): _____
- ☐ Partner - ☐ Limited ☐ General
- ☐ Attorney in Fact
- ☐ Trustee
- ☐ Guardian or Conservator
- ☐ Other: _____

Signer Is Representing: N/A

RIGHT THUMBPRINT OF SIGNER
Top of thumb here

CALIFORNIA ALL-PURPOSE ACKNOWLEDGMENT

State of California

County of Riverside

On DEC 10 2012 (Date) before me, Stephanie D. Montague, Notary Public (Here Insert Name and Title of the Officer),

personally appeared Julia B. Gladding (Name(s) of Signer(s)),

STEPHANIE D. MONTAGUE
COMM. #1854652
NOTARY PUBLIC - CALIFORNIA
RIVERSIDE COUNTY
My Comm. Expires June 18, 2013

who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/~~are~~ subscribed to the within instrument and acknowledged to me that ~~he/she/they~~ executed the same in ~~his/her/their~~ authorized capacity(~~ies~~), and that by ~~his/her/their~~ signature(~~s~~) on the instrument the person(~~s~~), or the entity upon behalf of which the person(~~s~~) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature _____ (Signature of Notary Public)

Place Notary Seal Above

OPTIONAL

Though the information below is not required by law, it may prove valuable to persons relying on the document and could prevent fraudulent removal and reattachment of this form to another document.

Description of Attached Document

Title or Type of Document: _____

Document Date: _____ Number of Pages: _____

Signer(s) Other Than Named Above: _____

Capacity(ies) Claimed by Signer(s)

Signer's Name: Julia B. Gladding

- ☐ Individual
- ☐ Corporate Officer — Title(s): _____
- ☐ Partner — ☐ Limited ☐ General
- ☒ Attorney in Fact
- ☐ Trustee
- ☐ Guardian or Conservator
- ☐ Other: _____

Signer Is Representing: _____

RIGHT THUMBPRINT OF SIGNER
Top of thumb here

Signer's Name: _____

- ☐ Individual
- ☐ Corporate Officer — Title(s): _____
- ☐ Partner — ☐ Limited ☐ General
- ☐ Attorney in Fact
- ☐ Trustee
- ☐ Guardian or Conservator
- ☐ Other: _____

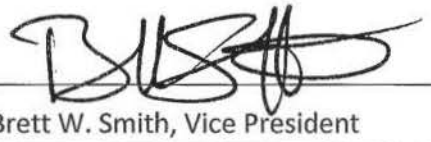
Signer Is Representing: _____

RIGHT THUMBPRINT OF SIGNER
Top of thumb here

NON-COLLUSION AFFIDAVIT TO BE EXECUTED BY BIDDER AND SUBMITTED WITH BID UNDER 23 USC 112 AND PCC 7106

State of California)
) ss.
County of Los Angeles)

Brett W. Smith, being first duly sworn, deposes and says that he or she is Vice President of the party making the foregoing bid that the bid is not made in the interest of, or on behalf of, any undisclosed person, partnership, company, association, organization, or corporation; that the bid is genuine and not collusive or sham; that the bidder has not directly or indirectly induced or solicited any other bidder to put in a false or sham bid, and has not directly or indirectly colluded, conspired, connived, or agreed with any bidder or anyone else to put in a sham bid, or that anyone shall refrain from bidding; that the bidder has not in any manner, directly or indirectly, sought by agreement, communication, or conference with anyone to fix the bid price of the bidder or any other bidder, or to fix any overhead, profit, or cost element of the bid price, or of that of any other bidder, or to secure any advantage against the public body awarding the contract of anyone interested in the proposed contract; that all statements contained in the bid are true; and further, that the bidder has not, directly or indirectly, submitted his or her bid price or any breakdown thereof, or the contents thereof, or divulged information or data relative thereto, or paid, and will not pay, any fee to any corporation, partnership, company association, organization, bid depository, or to any member or agent thereof to effectuate a collusive or sham bid.

Signed: 

Title: Brett W. Smith, Vice President

Subscribed and sworn to before me this — day of — ,20—

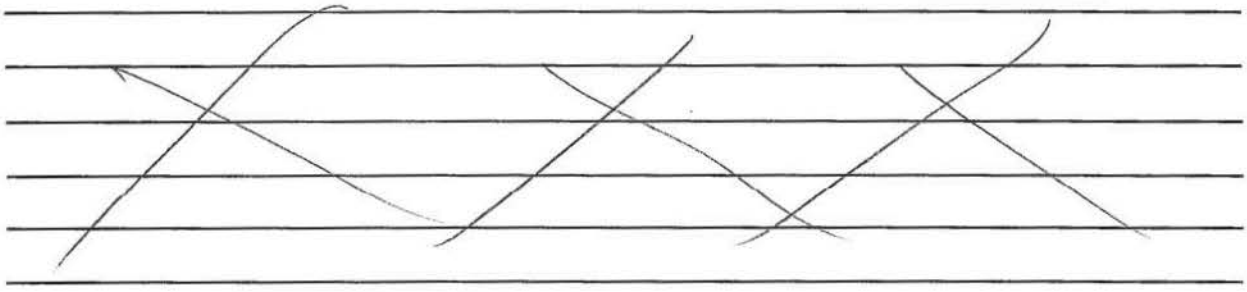
See Attached Calif. Jurat

Notary Public

(SEAL)

CALIFORNIA JURAT WITH AFFIANT STATEMENT

☒ See Attached Document (Notary to cross out lines 1-6 below)
☐ See Statement Below (Lines 1-5 to be completed only by document signer[s], not Notary)



n/a
Signature of Document Signer No. 1

n/a
Signature of Document Signer No. 2 (if any)

State of California

County of Los Angeles

Subscribed and sworn to (or affirmed) before me on this

23 (Date) day of January (Month) 2013 (Year), by

(1) ----------Brett W. Smith----------,
Name of Signer

proved to me on the basis of satisfactory evidence to be the person who appeared before me (.) (,)

(and

(2) N/A,
Name of Signer

proved to me on the basis of satisfactory evidence to be the person who appeared before me.)

Signature
Signature of Notary Public

KARLA R. STONE
Commission # 1845547
Notary Public - California
Los Angeles County
My Comm. Expires Apr 20, 2013

Place Notary Seal Above

OPTIONAL

Though the information below is not required by law, it may prove valuable to persons relying on the document and could prevent fraudulent removal and reattachment of this form to another document.

Further Description of Any Attached Document

Title or Type of Document: Non-Collusion Affidavit

Project: Memorial Park Improvements

Document Date: No Document Date Number of Pages: One

Signer(s) Other Than Named Above: None

RIGHT THUMBPRINT OF SIGNER #1	RIGHT THUMBPRINT OF SIGNER #2
Top of thumb here	Top of thumb here

CONTRACTORS CERTIFICATION OF PENDING ACTIONS

As part of its bid or proposal, Bidder shall provide to the City a list of all instances within the past ten years where a complaint was filed or pending against the Bidder in a legal or administrative proceeding alleging that Bidder discriminated against its employees, subcontractors, vendors or suppliers, and a description of the status or resolution of that complaint, including any remedial action taken.

CHECK ONE BOX ONLY.

☒ The undersigned certifies that within the past 10 years the Bidder has NOT been the subject of a complaint or pending action in a legal administrative proceeding alleging that Bidder discriminated against its employees, subcontractors, vendors or suppliers.

☐ The undersigned certifies that within the past ten years the Bidder has been the subject of a complaint or pending action in a legal administrative proceeding alleging that Bidder discriminated against its employees, subcontractors, vendors or suppliers. A description of the status or resolution of that complaint, including any remedial action taken and the applicable dates is as follows:

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

Contractor Name California Commercial Pools Inc.

Certified By Brett W. Smith (Name) Title Vice President

(Signature) Date January 23, 2013

USE ADDITIONAL FORMS AS NECESSARY

EQUAL BENEFITS ORDINANCE CERTIFICATION OF COMPLIANCE

For additional information, contact:
CITY OF SAN DIEGO
EQUAL BENEFITS PROGRAM
202 C Street, MS 9A, San Diego, CA 92101
Phone (619) 533-3948 Fax (619) 533-3220

COMPANY INFORMATION

Company Name:	California Commercial Pools Inc.	Contact Name:	Brett W. Smith
Company Address:	2255 E. Auto Centre Dr., Glendora, CA 91740	Contact Phone:	909-394-1280
		Contact Email:	bsmith@calcommpools.com

CONTRACT INFORMATION

Contract Title:	Memorial Pool Improvements	Start Date:	N/A
Contract Number (if no number, state location):	N/A	End Date:	N/A

SUMMARY OF EQUAL BENEFITS ORDINANCE REQUIREMENTS

The Equal Benefits Ordinance [EBO] requires the City to enter into contracts only with contractors who certify they will provide and maintain equal benefits as defined in SDMC §22.4302 for the duration of the contract. To comply:

- Contractor shall offer equal benefits to employees with spouses and employees with domestic partners.
  - Benefits include health, dental, vision insurance; pension/401(k) plans; bereavement, family, parental leave; discounts, child care; travel/relocation expenses; employee assistance programs; credit union membership; or any other benefit.
  - Any benefit not offer an employee with a spouse, is not required to be offered to an employee with a domestic partner.
- Contractor shall post notice of firm's equal benefits policy in the workplace and notify employees at time of hire and during open enrollment periods.
- Contractor shall allow City access to records, when requested, to confirm compliance with EBO requirements.
- Contractor shall submit *EBO Certification of Compliance*, signed under penalty of perjury, prior to award of contract.

NOTE: This summary is provided for convenience. Full text of the EBO and Rules Implementing the EBO are available at *www.sandiego.gov/administration.*

CONTRACTOR EQUAL BENEFITS ORDINANCE CERTIFICATION

Please indicate your firm's compliance status with the EBO. The City may request supporting documentation.

☒ I affirm **compliance** with the EBO because my firm *(contractor must select one reason):*

- ☒ Provides equal benefits to spouses and domestic partners.
- ☐ Provides no benefits to spouses or domestic partners.
- ☐ Has no employees.
- ☐ Has collective bargaining agreement(s) in place prior to January 1, 2011, that has not been renewed or expired.

☐ I request the City's approval to pay affected employees a cash equivalent in lieu of equal benefits and verify my firm made a reasonable effort but is not able to provide equal benefits upon contract award. I agree to notify employees of the availability of a cash equivalent for benefits available to spouses but not domestic partners and to continue to make every reasonable effort to extend all available benefits to domestic partners.

It is unlawful for any contractor to knowingly submit any false information to the City regarding equal benefits or cash equivalent associated with the execution, award, amendment, or administration of any contract. [San Diego Municipal Code §22.4307(a)]

Under penalty of perjury under laws of the State of California, I certify the above information is true and correct. I further certify that my firm understands the requirements of the Equal Benefits Ordinance and will provide and maintain equal benefits for the duration of the contract or pay a cash equivalent if authorized by the City.

Brett W. Smith, Vice President		1/23/2013
Name/Title of Signatory	Signature	Date

FOR OFFICIAL CITY USE ONLY

Receipt Date: EBO Analyst: ☐ Approved ☐ Not Approved – Reason:

(Rev 02/15/2011)

LOBBY PROHIBITION, CERTIFICATION AND DISCLOSURE

In acknowledgment that funds received under this agreement have been provided pursuant to a Federal grant, recipient hereby recognizes the prohibitions against lobbying the Federal government with any of these funds. Recipient agrees that it shall comply with the laws set forth at 31 U.S.C. § 1352 (1989) and 24 C.F.R. part 87, to wit:

A. Conditions on use of funds

Recipient shall not expend any funds received pursuant to this agreement to pay any person to influence an officer or employee of Federal agency, a member of Congress, an officer or employee of Congress, or an employee of a member of Congress in connection with any of the following Covered Federal actions:

(1) The awarding of any federal contract
(2) The making of any Federal grant
(3) The making of any Federal Loan
(4) The entering into of any cooperative agreement
(5) The extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

For purposes of defining the terms of this part of the agreement, the definitions set forth in 24 C.F.R. § 87.105 are hereby adopted and incorporated herein by reference.

B. Certification and Disclosure

Each recipient at every tier under this agreement shall file a certification regarding lobbying, and a Disclosure Form-LLL, where required by 24 C.F.R. § 87.110. The certification form and Disclosure Form-LLL are attached to this agreement.

C. Certifications must be filed:

(1) By any person upon each submission that initiates agency consideration for an award of a Federal contract, grant, or cooperative agreement exceeding $100,000, or a Federal loan or loan guarantee exceeding $150,000.
(2) Upon receipt by any person of a Federal contract, grant, or cooperative agreement exceeding $100,000, or upon receipt of a Federal loan or loan guarantee exceeding $150,000.
(3) By any person who requests or receives from a person referred to in subsections 1 and 2 of this paragraph:
   a. A subcontract exceeding $100,000 at any tier under a Federal contract;
   b. A subgrant, contract or subcontract exceeding $100,000 at any tier under a Federal grant;
   c. A contract or subcontract exceeding $100,000 at any tier under a Federal loan exceeding $150,000;
   d. A contract or subcontract exceeding $100,000 at any tier under a Federal cooperative agreement.

D. Disclosure Forms-LLL must be filed in every instance when a person applies for, requests, or receives Federal appropriations exceeding $100,000 pursuant to a contract, subcontract, grant, subgrant, loan, or cooperative agreement when such person has paid or expects to pay any sum, in cash or in kind, to influence or attempt to influence any officer or employee of an agency, a member of Congress, an officer or employee of Congress, or an employee of a member of Congress. Further, Disclosure Form-LLL must be filed by recipients at any tier at the end of each calendar quarter in which there occurs any event that requires disclosure or materially affects information submitted in prior disclosures. Such events include:

(1) 1. An increase of $25,000 in the amount paid or expected to be paid for influencing or attempting to influence a covered Federal action;
(2) 2. A change in the person(s) influencing or attempting to influence a covered action;
(3) 3. A change in the officer(s), employee(s), or member(s) contacted to influence a covered action.

All disclosure Forms-LLL, but not certifications, shall be forwarded from tier to tier until received by the principal recipient, which in turn will file them with the appropriate Federal agency.

INSTRUCTIONS FOR COMPLETION OF SF-LLL, DISCLOSURE OF LOBBYING ACTIVITIES

This disclosure form shall be completed by the reporting entity, whether subawardee or prime Federal recipient, at the initiation or receipt of a covered Federal action, or a material change to a previous filing, pursuant to title 31 U.S.C. section 1352. The filing of a form is required for each payment or agreement to make payment to any lobbying entity for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with a covered Federal action. Use the SF-LLLA Continuation Sheet for additional information if the space on the form is inadequate. Complete all items that apply for both the initial filing and material change report. Refer to the implementing guidance published by the Office of Management and Budget for additional information.

1. Identify the type of covered Federal action for which lobbying activity is and/or has been secured to influence the outcome of a covered Federal action.
2. Identify the status of the covered Federal action.
3. Identify the appropriate classification of this report. If this is a follow up report caused by a material change to the information previously reported, enter the year and quarter in which the change occurred. Enter the date of the last previously submitted report by this reporting entity for this covered Federal action.
4. Enter the full name, address, city, State and zip code of the reporting entity. Include Congressional District, if known. Check the appropriate classification of the reporting entity that designates if it is, or expects to be, a prime or subaward recipient. Identify the tier of the subawardee, e.g., the first subawardee of the prime is the 1st tier. Subawards include but are not limited to subcontracts, subgrants and contract awards under grants.
5. If the organization filing there port in item 4 checks "Subawardee," then enter the full name, address, city, State and zip code of the prime Federal recipient. Include Congressional District, if known.
6. Enter the name of the Federal agency making the award or loan commitment. Include at least one organizational level below agency name, if known. For example, Department of Transportation, United States Coast Guard.
7. Enter the Federal program name or description for the covered Federal action (item1). If known, enter the full Catalog of Federal Domestic Assistance (CFDA) number for grants, cooperative agreements, loans, and loan commitments.
8. Enter the most appropriate Federal identifying number available for the Federal action identified in item 1 (e.g., Request for Proposal (RFP) number; Invitation for Bid (IFB) number; grant announcement number; the contract, grant, or loan award number; the application/proposal control number assigned by the Federal agency). Include prefixes, e.g., "RFP-DE-90-001."
9. For a covered Federal action where there has been an award or loan commitment by the Federal agency, enter the Federal amount of the award/loan commitment for the prime entity identified in item 4 or 5.
10. (a) Enter the full name, address, city, State and zip code of the lobbying entity engaged by the reporting entity identified in item 4 to influence the covered Federal action.

    (b) Enter the full names of the individual(s) performing services, and include full address if different from 10 (a). Enter Last Name, First Name, and Middle Initial (MI).
11. Enter the amount of compensation paid or reasonably expected to be paid by the reporting entity (item4) to the lobbying entity (item10). Indicate whether the payment has been made (actual) or will be made (planned). Check all boxes that apply. If this is a material change report, enter the cumulative amount of payment made or planned to be made.
12. Check the appropriate box(es). Check all boxes that apply. If payment is made through an in-kind contribution, specify the nature and value of the in-kind payment.
13. Check the appropriate box(es). Check all boxes that apply. If other, specify nature.
14. Provide a specific and detailed description of the services that the lobbyist has performed, or will be expected to perform, and the date(s) of any services rendered. Include all preparatory and related activity, not just time spent in actual contact with Federal officials. Identify the Federal official(s) or employee(s) contacted or the officer(s), employee(s), or Member(s) of Congress that were contacted.
15. Check whether or not a SF-LLLA Continuation Sheet(s) is attached.
16. The certifying official shall sign and date the form, print his/her name, title, and telephone number.

According to the Paperwork Reduction Act, as amended, no persons are required to respond to a collection of information unless it displays a valid OMB Control Number. The valid OMB control number for this information collection is OMB No. 0348-0046. Public reporting burden for this collection of information is estimated to average 30 minutes per response, including time for reviewing instructions, searching existing datasources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the Office of Management and Budget, Paperwork Reduction Project (0348-0046), Washington, DC 20503.

DISCLOSURE OF LOBBYING ACTIVITIES Approved by OMB
Complete this form to disclose lobbying activities pursuant to 31 U.S.C. 1352 0348-0046

(See reverse for public burden disclosure)

1. Type of Federal Action:	2. Status of Federal Action:	3. Report Type:
☐ a. Contract a. Grant b. Cooperative agreement c. Loan d. Loan guarantee e. Loan insurance	☒ a. bid/offer/application b. initial award c. post-award	☐ a. initial finding b. material change **For Material Change Only** year_____ quarter_____ date of last report_____

4. Name and Address of Reporting Entity:	5. If Reporting Entity in No. 4 is a Subawardee, Enter Name and Address of Prime:
☒ Prime ☐ Subawardee Tier _____, *if known:* California Commercial Pools Inc., 2255 E. Auto Centre Dr.Glendora, CA, 91740 Congressional District, *if known:* Unknown	N/A Congressional District, *if known:*
6. Federal Department/Agency: Unknown	**7. Federal Program Name/Description:** Unknown CFDA Number, *if applicable:* N/A
8. Federal Action Number, if known: Uknown	**9. Award Amount,** if known: $ N/A
10. a. Name and Address of Lobbying Entity (if individual, last name, first name, M) N/A	**b. Individuals Performing Services** (including address if different from No. 10a) (last name, first name, MI): N/A

(attach Continuation Sheet(s) SF-LLLA, *if necessary*)

11. Amount of Payment (check all that apply)	13. Type of Payment (check all that apply)
$ N/A ☐ actual ☐ planned	☐ a. retainer ☐ b. one-time lee N/A ☐ c. commission ☐ d. contingent fee ☐ e. deferral ☐ f. other: specify:_____
12. Form of Payment (check all that apply) N/A ☐ a, cash ☐ b. in-kind: specify: nature _____ Value_____	

14. Brief Description of Services Performed or to be Performed and Date(s) of Service, Including officer(s), employee(s), or Member(s), contacted, for Payment indicated in item 11:
N/A

(attach Continuation Sheet(s) SF-LLLA, *if necessary*)

15. Continuation Sheet(s) SF-LLLA attached: ☒ Yes ☐ No

16.	Information requested through this for misauthorized by title 31 U.S.C. section 1352. This disclosure of lobbying activities is a material representation of fact upon which reliance was placed by the tier above when this transaction was made or entered into. This disclosure is required pursuant to 31 U.S.C. 1352. This information will be reported to the Congress semi-annually and will be available for public inspection. Any person who fails to file the required disclosure shall be subject to a civil penalty of not less that $10,000 and not more than $100,000 for each such failure.	Signature: _____ Print Name: Brett W. Smith Title: Vice President Telephone No.: 909-394-1280 Date: 1/23/13

Federal Use Only: Authorized for Local Reproduction Standard Form LLL (Rev. 7-07)

DISCLOSURE OF LOBBYING ACTIVITIES
CONTINUATION SHEET

Approved by
OMB0348-0046

Reporting Entity: California Commercial Pools Inc. Page 2 of 2

n/a

Authorized for Local Reproduction
Standard Form - LLL-A

PROPOSAL (BID)

The Bidder agrees to the construction of **MEMORIAL POOL IMPROVEMENTS,** for the city of San Diego, in accordance with these contract documents for the prices listed below. The Bidder guarantees the Contract Price for a period of 120 days (90 days for federally funded contracts and contracts valued at $500,000 or less) from the date of Bid opening to Award of the Contract. The duration of the Contract Price guarantee shall be extended by the number of days required for the City to obtain all items necessary to fulfill all conditions precedent e.g., bond and insurance.

Item	Quantity	Unit	Payment Reference	NAICS	Description	Unit Price	Extension
BASE BID							
1	1	LS	2-4.1	238990	Bonds (Payment and Performance)		$25,000.00
2	1	LS	9-3.4.1	238990	Mobilization, Demolition, and Disposal		$86,000.00
3	1	LS	9-3.1	238990	Grading including Import		$61,000.00
4	1	LS	9-3.1	238990	Perimeter Retaining Wall (Max 3 Ft. Height) & Foundation Drainage		$45,000.00
5	1	LS	9-3.1	238990	25 Yard by 25 Meter Swimming Pool		$1,023,000.00
6	1	LS	9-3.1	238990	Decking and Drainage		$305,000.00
7	1	LS	9-3.1	237310	AC Paving		$18,000.00
8	1	LS	9-3.1	238210	Security Lighting		$72,000.00
9	1	LS	9-3.1	237310	Perimeter Fencing w/Windscreen		$149,000.00
10	1	LS	9-3.1	237310	Accessibility Improvements		$12,000.00
11	1	LS	9-3.1	237990	Construction BMP's		$ 8,000.00
12	1	AL	7-5	238990	Permits (Type II Allowance)		$40,000.00
13	1	AL	9-3.5	238990	Field Orders (Type II Allowance)		$100,000.00
					ESTIMATED TOTAL BASE BID		$ 1,944,000.00

Item	Quantity	Unit	Payment Reference	NAICS	Description	Unit Price	Extension
ADDITIVE ALTERNATE "A"							
1	1	LS	9-3.1	238990	Wet Play Area		$318,000.00
					ESTIMATED TOTAL FOR ADDITIVE ALTERNATE "A"	$ ~~318,000~~ BS ~~$2,262,000.00~~	$318,000.00
ADDITIVE ALTERNATE "B"							
1	1	LS	9-3.1	237990	Shade Structures		$ 182,000.00
					ESTIMATED TOTAL FOR ADDITIVE ALTERNATE "B"	$ ~~182,000.00~~ BS ~~$2,126,000.00~~ ~~$2,444,000.00~~ BS	$182,000.00
ADDITIVE ALTERNATE "C"							
1	1	LS	9-3.1	237990	Benches and Picnic Tables		$ 33,000.00
					ESTIMATED TOTAL FOR ADDITIVE ALTERNATE "C"	$ ~~BS 33,000.00~~	$33,000.00
					ESTIMATED TOTAL FOR BASE BID PLUS ADDITIVE ALTERNATES "A", "B" and "C"	$ 2,477,000.00 BS ~~$1,977,000.00~~	

TOTAL BID PRICE FOR BID (Items 1 through 13 inclusive PLUS Additive Alternates A, B and C) amount written in words:

two million four hundred seventy seven thousand dollars

The Bid shall contain an acknowledgment of receipt of all addenda, the numbers of which shall be filled in on this Bid form.

List the Addenda received and being acknowledged: Add A & Add B

If an addendum or addenda has been issued by the City and not noted as being received by the Bidder, the Bid shall be rejected as being **non-responsive.**

The names of all persons interested in the foregoing proposal as principals are as follows:

California Commercial Pools Inc., A California Corporation; E. Lee Jackson, President & Treasurer; David E. Jackson, Vice President & Secretary
Jason B. Jackson, Vice President; Brett W. Smith, Vice President

IMPORTANT NOTICE: If Bidder or other interested person is a corporation, state secretary, treasurer, and manager thereof; if a co-partnership, state true name of firm, also names of all individual co-partners composing firm; if Bidder or other interested person is an individual, state first and last names in full.

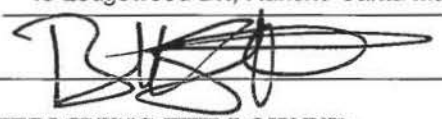
Bidder: California Commercial Pools Inc.

Title: Brett W Smith, Vice President

Business Address: 2255 E. Auto Centre Drive, Glendora, CA 91740

Place of Business: 2255 E. Auto Centre Drive, Glendora, CA 91740

Place of Residence: 49 Ledgewood Dr., Rancho Santa Margarita, CA 92688

Signature: 

NOTES: **DETERMINING THE LOW BID:**

A. The City shall determine the low Bid based on the Base Bid plus the following Additive Alternates: A, B, and C.

B. After the low Bid has been determined, the City may award the Contract for the Base Bid alone or if applicable, for the Base Bid plus any combination of alternates selected in the City's sole discretion.

C. Prices and notations shall be in ink or typewritten. All corrections (which have been initiated by the Bidder using erasures, strike out, line out, or "white-out") shall be typed or written in with ink adjacent thereto, and shall be initialed in ink by the person signing the bid proposal.

D. Failure to initial all corrections made in the bidding documents shall cause the Bid to be rejected as **non-responsive** and ineligible for further consideration.

E. Blank spaces must be filled in, using figures. Bidder's failure to submit a price for any Bid item that requires the Bidder to submit a price shall render the Bid **non-responsive** and shall be cause for its rejection.

F. Unit prices shall be entered for all unit price items. Unit prices shall not exceed two (2) decimal places. If the Unit prices entered exceed two (2) decimal places, the City will only use the first two digits after the decimal points without rounding up or down.

G. All extensions of the unit prices bid will be subject to verification by the City. In the case of inconsistency or conflict between the product of the Quantity x Unit Price and the Extension, the product shall govern.

H. In the case of inconsistency or conflict, between the sums of the Extensions with the estimated total Bid, the sum of the Extensions shall govern.

I. Bids shall not contain any recapitulation of the Work. Conditional Bids will be rejected as being **non-responsive**. Alternative proposals will not be considered unless called for.

LIST OF SUBCONTRACTORS

In accordance with the requirements provided in the "Subletting and Subcontracting Fair Practices Act", Division 2, Part 1, Chapter 4 of the Public Contract Code, the Bidder shall list below the name and address of each Subcontractor who will perform work, labor, render services or specially fabricates and installs a portion [type] of the work or improvement, in an amount in excess of 0.5% of the Contractor's total Bid. The Bidder shall also list below the portion of the work which will be done by each subcontractor under this Contract. The Contractor shall list only one Subcontractor for each portion of the Work. The **DOLLAR VALUE** of the total Bid to be performed shall be stated for all subcontractors listed. Failure to comply with this requirement shall result in the Bid being rejected as **non-responsive** and ineligible for award. The Bidder's attention is directed to the Special Provisions - General; Paragraph 2-3 Subcontracts, which stipulates the percent of the Work to be performed with the Bidders' own forces. The Bidder shall list all SLBE, ELBE, DBE, DVBE, MBE, WBE, OBE, SDB, WoSB, HUBZone, and SDVOSB Subcontractors that Bidders are seeking recognition towards achieving any mandatory, voluntary, or both subcontracting participation percentages.

NAME, ADDRESS AND TELEPHONE NUMBER OF SUBCONTRACTOR	CONSTRUCTOR OR DESIGNER	TYPE OF WORK	DOLLAR VALUE OF SUBCONTRACT	MBE, WBE, DBE, DVBE, OBE, ELBE, SLBE, SDB, WoSB, HUBZone, OR SDVOSB①	WHERE CERTIFIED②	CHECK IF JOINT VENTURE PARTNERSHIP
Name: Trilek Electric Inc. Address: 3275 Richview Drive City: Hacienda Heights State: CA Zip: 91745 Phone: 562-644-2966		POOL Electrical	$30,000.00	N/A	N/A	
Name: Cruz Pool Plastering Address: PO Box 7571 City: Norco State: CA Zip: 92860 Phone: 951-538-6247		Pool Plaster	$36,000 —	N/A	N/A	
Name: JR Rebar Address: PO Box 6547 City: Big Bear Lake State: CA Zip: 92315 Phone: 760-219-9680		Steel Reinforcing		N/A	N/A	

① As appropriate, Bidder shall identify Subcontractor as one of the following and shall include a valid proof of certification (except for OBE, SLBE and ELBE):

Certified Minority Business Enterprise	MBE	Certified Woman Business Enterprise	WBE
Certified Disadvantaged Business Enterprise	DBE	Certified Disabled Veteran Business Enterprise	DVBE
Other Business Enterprise	OBE	Certified Emerging Local Business Enterprise	ELBE
Certified Small Local Business Enterprise	SLBE	Small Disadvantaged Business	SDB
Woman-Owned Small Business	WoSB	HUBZone Business	HUBZone
Service-Disabled Veteran Owned Small Business	SDVOSB		

② As appropriate, Bidder shall indicate if Subcontractor is certified by:

City of San Diego	CITY	State of California Department of Transportation	CALTRANS
California Public Utilities Commission	CPUC	San Diego Regional Minority Supplier Diversity Council	SRMSDC
State of California's Department of General Services	CADoGS	City of Los Angeles	LA
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NAME, ADDRESS AND TELEPHONE NUMBER OF SUBCONTRACTOR	CONSTRUCTOR OR DESIGNER	TYPE OF WORK	DOLLAR VALUE OF SUBCONTRACT	MBE, WBE, DBE, DVBE, OBE, ELBE, SLBE, SDB, WoSB, HUBZone, OR SDVOSB①	WHERE CERTIFIED②	CHECK IF JOINT VENTURE PARTNERSHIP
Name: Rebel Industries Inc. Address: 17053 Campo Drive City: Parker State: CA Zip: 80134 Phone: 303-805-9720		Tile	$53,000-	N/A	N/A	
Name: Pacific Star Shotcrete Address: 10681 Frances Ave. City: Garden Grove State: CA Zip: 92843 Phone: 714-713-6093		Shotcrete	$58,000-	N/A	N/A	
Name: Seal Right Paving Address: PO Box 2753 City: Spring Valley State: CA Zip: 91979 Phone: 619-465-7411		Asphalt Paving	$18,000-	SLBE	City of San Diego	

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Certified Minority Business Enterprise	MBE	Certified Woman Business Enterprise	WBE
Certified Disadvantaged Business Enterprise	DBE	Certified Disabled Veteran Business Enterprise	DVBE
Other Business Enterprise	OBE	Certified Emerging Local Business Enterprise	ELBE
Certified Small Local Business Enterprise	SLBE	Small Disadvantaged Business	SDB
Woman-Owned Small Business	WoSB	HUBZone Business	HUBZone
Service-Disabled Veteran Owned Small Business	SDVOSB		

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City of San Diego	CITY	State of California Department of Transportation	CALTRANS
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X Name: Amber Steel Address: 312 S. Willow Ave. City: Rialto State: CA Zip: 92377 Phone: 909-874-2213		Steel Reinforcing	$30,000-	N/A	N/A	
X Name: Inline Fence Address: PO Box 2637 City: Ramona State: CA Zip: 92065 Phone: 760-789-0282		Fence	$125,000-	DBE SLBE, ELBE	CALTRANS CITY SANDIEGO	
X Name: Concrete Bldg Systems Address: PO Box 758 City: Bonsall State: CA Zip: 92003 Phone: 760-731-3224		POOL DECKS	$144,000	WBE SLBE SBE	CPUC CITY SAN DIEGO CA	

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Name: Environmental Solutions Address: 420 W. Lambert Rd. Ste F. City: Brea State: CA Zip: 92821 Phone: 714-671-1988		Demolition Grading	$60,000-	N/A	N/A	
Name: William A. Steen Associates Address: 8580 La Mesa Blvd. #102 City: La Mesa State: CA Zip: 91942 Phone: 619-460-9000		Survey	$9,000-	SBE SLBE	CADOGS CITY SANDIEGO	
Name: Green Gardening Today Address: 3636 Front St. U City: San Diego State: CA Zip: 92103 Phone: 619-892-7999		Artificial Turf	$14,300-	N/A	N/A	

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Name: ~~AXL Electric~~ Address: ~~768 N. Twin Oaks Valley~~ City: ~~San Marcos~~ State: ~~CA~~ Zip: ~~92069~~ Phone: ~~888-821-6506~~		Electrical	$137,000	DVBE	CADOGS	
Name: Prater Electric Address: 1874 Presioca St. City: Spring Valley State: CA Zip: 91977 Phone: 619-270-2282		SITE Electrical	$50,000-	DVBE MBE	CPUC CA	
Name: Address: City: State: Zip: Phone:						

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NAMED EQUIPMENT/MATERIAL SUPPLIER LIST

The Bidder seeking the recognition of equipment, materials, or supplies obtained from Suppliers towards achieving any mandatory, voluntary, or both subcontracting participation percentages shall list the Supplier(s) on the Named Equipment/Material Supplier List. The Named Equipment/Material Supplier List, at a minimum, shall have the name, locations (City) and the **DOLLAR VALUE** of the Suppliers. The Bidder will be credited up to 60% of the amount to be paid to the Suppliers for such materials and supplies unless vendor manufactures or substantially alters materials and supplies in which case 100% will be credited. The Bidder is to indicate (Yes/No) whether listed firm is a supplier or manufacturer. In calculating the subcontractor participation percentages, vendors/suppliers will receive 60% credit of the listed **DOLLAR VALUE**, whereas manufacturers will receive 100% credit. If no indication provided, listed firm will be credited at 60% of the listed dollar value for purposes of calculating the Subcontractor Participation Percentage, Suppliers will receive 60% credit of the listed **DOLLAR VALUE**, whereas manufacturers will receive 100% credit. If no indication provided, listed firm will be credited at 60% of the listed **DOLLAR VALUE** for purposes of calculating the subcontractor participation percentages.

NAME, ADDRESS AND TELEPHONE NUMBER OF VENDOR/SUPPLIER	MATERIALS OR SUPPLIES	DOLLAR VALUE OF MATERIAL OR SUPPLIES	SUPPLIER (Yes/No)	MANUFACTURER (Yes/No)	MBE, WBE, DBE, DVBE, OBE, ELBE, SLBE, SDB, WoSB, HUBZone, OR SDVOSB①	WHERE CERTIFIED②
Name: Huntington Plastics Address: City: Chino State: CA Zip: Phone:		$70,000.00	yes	no	N/A	N/A
Name: Knorr Systems Address: City: Santa Ana State: CA Zip: Phone:		$90,000.00	yes	no	N/A	N/A.
Name: Address: City: State: Zip: Phone:						

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SUBCONTRACTORS ADDITIVE/DEDUCTIVE ALTERNATE
(USE ONLY WHEN ADDITIVE ALTERNATES ARE REQUIRED)

Bidder shall list all Subcontractors described in the Bidder's *Base Bid* whose percentage of work will increase or decrease if alternates are selected for award. Bidder shall also list additional Subcontractors not described in the Bidder's *Base Bid* who, as a result of the alternates, will perform work or labor, or render services, or specially fabricate and install a portion [type] of work or improvements in an amount in excess of 0.5%.. The Bidder shall list all SLBE, ELBE, DBE, DVBE, MBE, WBE, OBE, SDB, WoSB, HUBZone, and SDVOSB Subcontractors that Bidders are seeking recognition towards achieving any mandatory, voluntary, or both subcontracting participation percentages.

ADDITIVE/ DEDUCTIVE ALTERNATE	NAME, ADDRESS AND TELEPHONE NUMBER OF SUBCONTRACTOR	CONSTRUCTOR OR DESIGNER	TYPE OF WORK	DOLLAR VALUE OF SUBCONTRACT	MBE, WBE, DBE, DVBE, OBE, ELBE, SLBE, SDB, WoSB, HUBZone, OR SDVOSB①	WHERE CERTIFIED②	CHECK IF JOINT VENTURE PARTNERSHIP
Add Alt A	Name: Trilek Electric Address: 3275 Richview Drive City: Hacienda Heights State: CA Zip: 91745 Phone: 562-644-2966		Electrical	$20,000-	N/A	N/A	
Add Alt B	Name: U S A Shade & Fabric Structure Address: 8505 Chancellor Row City: Dallas State: CA Zip: 75247 Phone: 214-260-4539		Shade Structure	$150,000.00	N/A	N/A	
Alt C	Name: Simmons & Wood. Address: 8737 Winter Gardens Blvd. City: Lakeside State: CA Zip: 92040 Phone: 619-561-1318		Anti Graffiti coating.	$8,000.00	SBE WBE	CADOGS	
	Name: Address: City: State: Zip: Phone:						

① As appropriate, Bidder shall identify Subcontractor as one of the following and shall include a valid proof of certification (except for OBE, SLBE and ELBE):

Certified Minority Business Enterprise	MBE	Certified Woman Business Enterprise	WBE
Certified Disadvantaged Business Enterprise	DBE	Certified Disabled Veteran Business Enterprise	DVBE
Other Business Enterprise	OBE	Certified Emerging Local Business Enterprise	ELBE
Certified Small Local Business Enterprise	SLBE	Small Disadvantaged Business	SDB
Woman-Owned Small Business	WoSB	HUBZone Business	HUBZone
Service-Disabled Veteran Owned Small Business	SDVOSB		

② As appropriate, Bidder shall indicate if Subcontractor is certified by:

City of San Diego	CITY	State of California Department of Transportation	CALTRANS
California Public Utilities Commission	CPUC	San Diego Regional Minority Supplier Diversity Council	SRMSDC
State of California's Department of General Services	CADoGS	City of Los Angeles	LA
State of California	CA	U.S. Small Business Administration	SBA

The Bidder will not receive any subcontracting participations percentages if the Bidder fails to submit the required proof of certification (except for OBE, SLBE and ELBE).

SUBCONTRACTORS ADDITIVE/DEDUCTIVE ALTERNATE

(USE ONLY WHEN ADDITIVE ALTERNATES ARE REQUIRED)

Bidder shall list all Subcontractors described in the Bidder's *Base Bid* whose percentage of work will increase or decrease if alternates are selected for award. Bidder shall also list additional Subcontractors not described in the Bidder's *Base Bid* who, as a result of the alternates, will perform work or labor, or render services, or specially fabricate and install a portion [type] of work or improvements in an amount in excess of 0.5%.. The Bidder shall list all SLBE, ELBE, DBE, DVBE, MBE, WBE, OBE, SDB, WoSB, HUBZone, and SDVOSB Subcontractors that Bidders are seeking recognition towards achieving any mandatory, voluntary, or both subcontracting participation percentages.

ADDITIVE/ DEDUCTIVE ALTERNATE	NAME, ADDRESS AND TELEPHONE NUMBER OF SUBCONTRACTOR	CONSTRUCTOR OR DESIGNER	TYPE OF WORK	DOLLAR VALUE OF SUBCONTRACT	MBE, WBE, DBE, DVBE, OBE, ELBE, SLBE, SDB, WoSB, HUBZone, OR SDVOSB①	WHERE CERTIFIED②	CHECK IF JOINT VENTURE PARTNERSHIP
Add Alt A	Name: Trilek Electric Address: 3275 Richview Drive City: Hacienda Heights State: CA Zip: 91745 Phone: 562-644-2966		Electrical		N/A	N/A	
Add Alt B	Name: U S A Shade & Fabric Structure Address: 8505 Chancellor Row City: Dallas State: CA Zip: 75247 Phone: 214-260-4539		Shade Structure		N/A	N/A	
	Name: Address: City: State: Zip: Phone:						
	Name: Address: City: State: Zip: Phone:						

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State of California	CA	U.S. Small Business Administration	SBA

The Bidder will not receive any subcontracting participations percentages if the Bidder fails to submit the required proof of certification (except for OBE, SLBE and ELBE).

MEMORIAL POOL RENOVATION
2902 MARCY RD.
SAN DIEGO, CA 92113

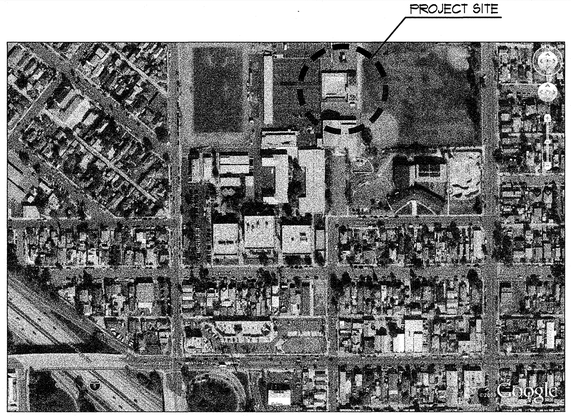
PROJECT DESCRIPTION/DATA

THIS PROJECT CONSISTS OF THE REMOVAL OF EXISTING SWIMMING POOL, BASKETBALL COURTS, EXISTING ASSOCIATED MECHANICAL ROOM EQUIPMENT, AND UTILITIES AS REQUIRED; THE DEMOLITION OF THE EXISTING SWIMMING POOL DECK TO LIMITS SHOWN ON PLANS; POOL EQUIPMENT AND ELECTRICAL AND ALL OTHER MISCELLANEOUS ITEMS SHOWN ON PLANS. THE CONTRACTOR SHALL UTILIZE PLANS AND SPECIFICATIONS FOR THE CONSTRUCTION OF NEW SWIMMING POOL, DECK, AND WALLS, NEW WET PLAY, REFURNISH POOL MECHANICAL ROOM, UTILITIES, EQUIPMENT AND FINISHES AS SHOWN ON PLANS. ALL OTHER ITEMS AS REQUIRED TO PROVIDE A COMPLETELY OPERATIONAL AQUATIC FACILITY.

ABBREVIATIONS:

ABC	AGG. BASE COURSE
ABV	ABOVE
ACC	ACOUSTICAL
AP	ACCESS PANEL
ACP	ASPH CONC PAVING
ADH	ADHESIVE
ADJ	ADJACENT
AGG	AGGREGATE
A/C	AIR CONDITIONING
ALT	ALTERNATE
AL	ALUMINUM
AB	ANCHOR BOLT
ANOD	ANODIZED
ASPH	ASPHALT
AUTO	AUTOMATIC
BSMT	BASEMENT
BM	BENCH MARK
BEL	BELOW
BET	BETWEEN
BLKG	BLOCKING
BD	BOARD
BOT	BOTTOM
BRZ	BRONZE
BLDG	BUILDING
CAB	CABINET
CPT	CARPET
	CAST IRON
CIP	CAST-IN-PLACE
CB	CATCH BASIN
	CENTER LINE
CLG	CEILING
CEM	CEMENT
CER	CERAMIC
CT	CERAMIC TILE
CLR	CLEAR (ANCE)
COL	COLUMN
COMB	COMBINATION
CONC	CONCRETE
CMP	CORR METAL PIPE
CONST	CONSTRUCTION
CONT	CONTINUOUS
CORR	CORRUGATED
DP	DAMPPROOFING
DEM	DEMOLISH
DEP	DEPRESSED
	DIAMETER
DIM	DIMENSION
DWG	DRAWING
DF	DRINKING FOUNTAIN
EF	EACH FACE
ELEC	ELECTRIC (AL)
ELEV	ELEVATION
ENC	ENCLOSE (URE)
EQ	EQUAL
EQPT	EQUIPMENT
EST	ESTIMATE
EXH	EXHAUST
EXG	EXISTING
EJ	EXPANSION JOINT
EXP	EXPOSED
EXT	EXTERIOR
FOC	FACE OF CONCRETE
FOM	FACE OF MASONRY
FOS	FACE OF STUDS
FIN	FINISH (ED)
FFE	FIN FLOOR EL
FFL	FINISHED FLOOR LINE
FA	FIRE ALARM
FE	FIRE EXTINGUISHER
FHC	FIRE HOSE CABINET
FP	FIREPROOF
FL	FLOW LINE
FLR	FLOOR (ING)
FD	FLOOR DRAIN
FTG	FOOTING
FDN	FOUNDATION
FUR	FURRED (ING)
FUT	FUTURE
GA	GAUGE
GV	GALVANIZED
GI	GV IRON
GL	GLASS, GLAZING
GB	GRAB BAR
GD	GRADE, GRADING
GYP	GYPSUM
HBD	HARDBOARD
HDW	HARDWARE
HWD	HARDWOOD
HDR	HEADER
HVAC	HEATING, VENTILATION & AIR CONDITIONING
HD	HEAVY DUTY
HT	HEIGHT
HEX	HEXAGONAL
HC	HOLLOW CORE
HM	HOLLOW METAL
HOR	HORIZONTAL
HB	HOSE BIBB
HWH	HOT WATER HEATER
INCL	INCLUDE (D)
ID	INSIDE DIAMETER
INSUL	INSULATE (D) (ION)
INT	INTERIOR
JT	JOINT
KIT	KITCHEN
KO	KNOCKOUT
LAB	LABORATORY
LAD	LADDER
LB	LAG BOLT
LAM	LAMINATE (D)
LAV	LAVATORY
LH	LEFT HAND
L	LENGTH
LGT	LIGHT
LWC	LGT WEIGHT CONC
LL	LIVE LOAD
LVR	LOUVER
MH	MANHOLE
MFGR	MANUFACTURE (R)
MAS	MASONRY
MO	MASONRY OPENING
MAX	MAXIMUM
MECH	MECHANIC (AL)
MED	MEDIUM
MET	METAL
MIN	MINIMUM
MISC	MISCELLANEOUS
MTD	MOUNT (ED), (ING)
MOV	MOVABLE
NOM	NOMINAL
N	NORTH
NIC	NOT IN CONTRACT
NTS	NOT TO SCALE
O/	OVER
OC	ON CENTER (S)
OPG	OPENING
OPH	OPPOSITE HAND
OD	OUTSIDE DIAMETER
OH	OVERHEAD
PNL	PANEL
PB	PANIC BAR
PAR	PARALLEL
PERF	PERFORATE (D)
PLAM	PLACTIC LAMINATE
PLY	PLYWOOD
PVC	POLYVINYL CHLORIDE
PSF	POUNDS PER SQFT.
PSI	POUNDS PER SQ. INCH
PCC	PRECAST CONCRETE
PL	PROPERTY LINE/PLATE
RAD	RADIUS
REF	REFERENCE
RFL	REFLECT (ED) (IVE)
RCP	REINF. CONC PIPE
REV	REVISION (S) REVISED
RH	RIGHT HAND
R	RISER
RD	ROOF DRAIN
RM	ROOM
RO	ROUGH OPENING
SCH	SCHEDULE
SS	STAINLESS STEEL
SHT	SHEET
SIM	SIMILAR
SC	SOLID CORE
S	SOUTH
SQ	SQUARE
STD	STANDARD
ST	STEEL
SD	STORM DRAIN
STR	STRUCTURAL
SUS	SUSPENDED
SYM	SYMMETRY (ICAL)
TEL	TELEPHONE
TV	TELEVISION
TOC	TOP OF CURB
THK	THICK (NESS)
THR	THRESHOLD
TPH	TOILET PAPER HOLDER
TTD	TOILET TISSUE DISP.
T&G	TONGUE & GROOVE
TB	TOWEL BAR
T	TREAD
TYP	TYPICAL
UC	UNDERCUT
UON	UNLESS NOTED OTHERWISE
UR	URINAL
VB	VAPOR BARRIER
VERT	VERTICAL
VT	VINYL TILE
VB	VINYL BASE
WH	WALL HUNG
WC	WATER CLOSET
WP	WATER PROOFING
WWF	WELDED WIRE FABRIC
W	WEST
WD	WIDTH, WIDE
W/O	WITHOUT
WD	WOOD
WPT	WORKING POINT
W/	WITH

VICINITY MAP



SHEET INDEX:

COMPLY WITH

NEW CONSTRUCTION SHALL COMPLY WITH:

- THE 2010 EDITION OF THE CALIFORNIA BUILDING CODE(CBC) ADOPTS THE 2009 INTERNATIONAL BUILDING CODE (IBC) AND 2010 CALIFORNIA AMENDMENTS.
- THE 2010 EDITION OF THE CALIFORNIA ELECTRICAL CODE (CEC) ADOPTS THE 2007 NATIONAL ELECTRICAL CODE (NEC) AND THE 2010 CALIFORNIA AMENDMENTS.
- THE 2010 EDITION OF THE CALIFORNIA MECHANICAL CODE (CMC) ADOPTS THE 2008 UNIFORM MECHANICAL CODE (UMC) AND THE 2010 CALIFORNIA AMENDMENTS.
- THE 2010 EDITION OF THE CALIFORNIA PLUMBING CODE (CPC) ADOPTS THE 2008 UNIFORM PLUMBING CODE (UPC) AND THE 2010 CALIFORNIA AMENDMENTS.
- THE 2010 EDITION OF THE CALIFORNIA FIRE CODE (CFC) ADOPTS THE 2008 INTERNATIONAL FIRE CODE (IFC) AND THE 2010 CALIFORNIA AMENDMENTS.
- THE 2010 EDITION OF THE CALIFORNIA ENERGY STANDARDS.
- THE SAN DIEGO MUNICIPAL CODE
- THE AMERICANS WITH DISABILITIES ACT

SPECIAL INSPECTIONS:

SPECIAL INSPECTIONS IN ACCORDANCE WITH THE REQUIREMENTS OF CBC SECTION 1704 SHALL BE PROVIDED FOR THE FOLLOWING:

1. CONCRETE & REINFORCING PLACEMENT FOR: SURGE CHAMBER/ BALANCE TANK WALLS, ROOF & FLOOR SLAB, POOL DECKS, ETC.
2. SHOT-CRETE WORK: FOR SURGE CHAMBER/BALANCE TANK OPTION/SWIMMING POOL.
3. DURING THE INSTALLATION OF ALL EPOXY & EXPANSION ANCHORS.
4. DURING THE PLACEMENT OF ALL REINFORCING STEEL WHICH IS INCASED IN CONCRETE WITH A STRENGTH OF (f'c) IN EXCESS OF 2,500 PSI WHERE SPECIAL INSPECTION IS REQUIRED.

PROJECT TEAM:

ARCHITECT/AQUATICS:
AQUATIC DESIGN GROUP
SCOTT FERRELL
2226 FARADAY AVE.
CARLSBAD, CA 92008
TEL. (760) 438-8400

CIVIL:
RBF CONSULTING
ROB GEHRKE
9755 CLAIRMONT MESA BLVD.
SUITE 100
SAN DIEGO, CA 92124
TEL. (858) 614-5000

ELECTRICAL:
KANRAD ENGINEERING
TONY KAN
9466 BLACK MOUNTAIN RD.
SUITE 250
SAN DIEGO, CA 92126
TEL. (858) 547-1100

UNDER SEPARATE PERMIT:

THE CONTRACTOR IS RESPONSIBLE FOR SUBMITTING PLANS TO THE CITY BUILDING DEPARTMENT FOR A SEPARATE PERMIT FOR THE FOLLOWING ITEMS:

1. BLEACHERS
2. SHADE STRUCTURES
3. BENCHES

NOTES:

1. CONTRACTOR IS RESPONSIBLE TO PAY FOR ALL SPECIAL INSPECTIONS WITH INSPECTOR APPROVED BY CITY.
2. THE ATTACHMENTS OF NON-STRUCTURAL COMPONENTS HAVE BEEN DESIGNED IN COMPLIANCE WITH THE REQUIREMENTS OF ASCE 7 SECTION 13.4
3. THE BUILDING PERMIT CANNOT BE ISSUED UNTIL A PERMIT HAS BEEN OBTAINED FROM THE "STATE DIVISION OF INDUSTRIAL SAFETY" FOR TRENCHES OR EXCAVATIONS 5 FEET OR DEEPER.

OWNER REPRESENTATIVE:

CITY OF SAN DIEGO
L. CLARK RITTER, PARK DESIGNER
600 B. STREET, SUITE 800, MS 908A
SAN DIEGO, CA 92101
TEL. (619) 553-4601

CS-1

LOADING CRITERIA

PER CBC 2010

EARTHQUAKE DESIGN DATA

1. I = 1.0
2. OCCUPANCY CATEGORY II
3. S_S = 1.487g
   S_1 = 0.581g
4. SITE CLASS = D
5. S_{DS} = 0.991g
   S_{D1} = 0.581g
6. SEISMIC DESIGN CATEGORY D
7. R_P = 2.5 a_P = 2.5 I_P = 1.25 (EQUIPMENT ANCHORAGE)

SOIL DESIGN DATA

1. P_a = 40 pcf
   P_o = 60 pcf
2. γ = 125 pcf
3. P_p = 350 pcf
   P_s = 3000 pcf
4. μ = 0.35

FAULT ZONE: ROSE CANYON
(2 MILES WEST FROM SITE)

TEMPORARY BMP CONSTRUCTION SITE STORM WATER PRIORITY: HIGH ___ MEDIUM ___ LOW___

SPEC. NO.

CONSULTANT

AQUATIC DESIGN GROUP
2226 FARADAY AVE., CARLSBAD, CA 92008
Tel 760.438.8400 Fax 760.438.5251

CONSTRUCTION CHANGE / ADDENDUM

CHANGE	DATE	AFFECTED OR ADDED SHEET NUMBERS	APPROVAL NO.

WARNING
0 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE.

CITY OF SAN DIEGO
PUBLIC WORKS PROJECT

PLANS FOR THE CONSTRUCTION OF
MEMORIAL POOL
COVER SHEET

CITY OF SAN DIEGO, CALIFORNIA
ENGINEERING AND CAPITAL PROJECTS DEPARTMENT
SHEET 01 OF 39 SHEETS

WBS S-00970

APPROVED Samir M. 7/13/12
FOR CITY ENGINEER DATE

SUBMITTED BY
SAMIR MAHMALJI
PROJECT OFFICER II

DESCRIPTION	BY	APPROVED	DATE	FILMED
ORIGINAL	ADG			

CLARK RITTER
PROJECT MANAGER

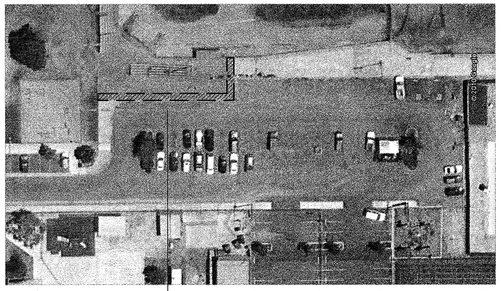
194-1725
CCS27 COORDINATE

6286404, 1834444
CCS83 COORDINATE

CONTRACTOR _____ DATE STARTED _____
INSPECTOR _____ DATE COMPLETED _____

36152-01-D

MEMORIAL POOL



PROXIMITY MAP
NO SCALE

LEGEND

(E)	=	EXISTING
AD	=	AREA DRAIN
HR	=	HANDRAIL
GR	=	GRABRAIL
PA	=	PLANTER AREA
POC	=	POINT OF CONNECTION
	=	LIMITS OF DEMOLITION AS NOTED ON PLANS

EXISTING SWIMMING POOL DATA

SURFACE AREA	=	4039 SQ. FT.
PERIMETER	=	300 FT.
DEPTH	=	2'-6" TO 9'-0"
VOLUME	=	144,600 GAL.
6 HR TURNOVER	=	402 GPM

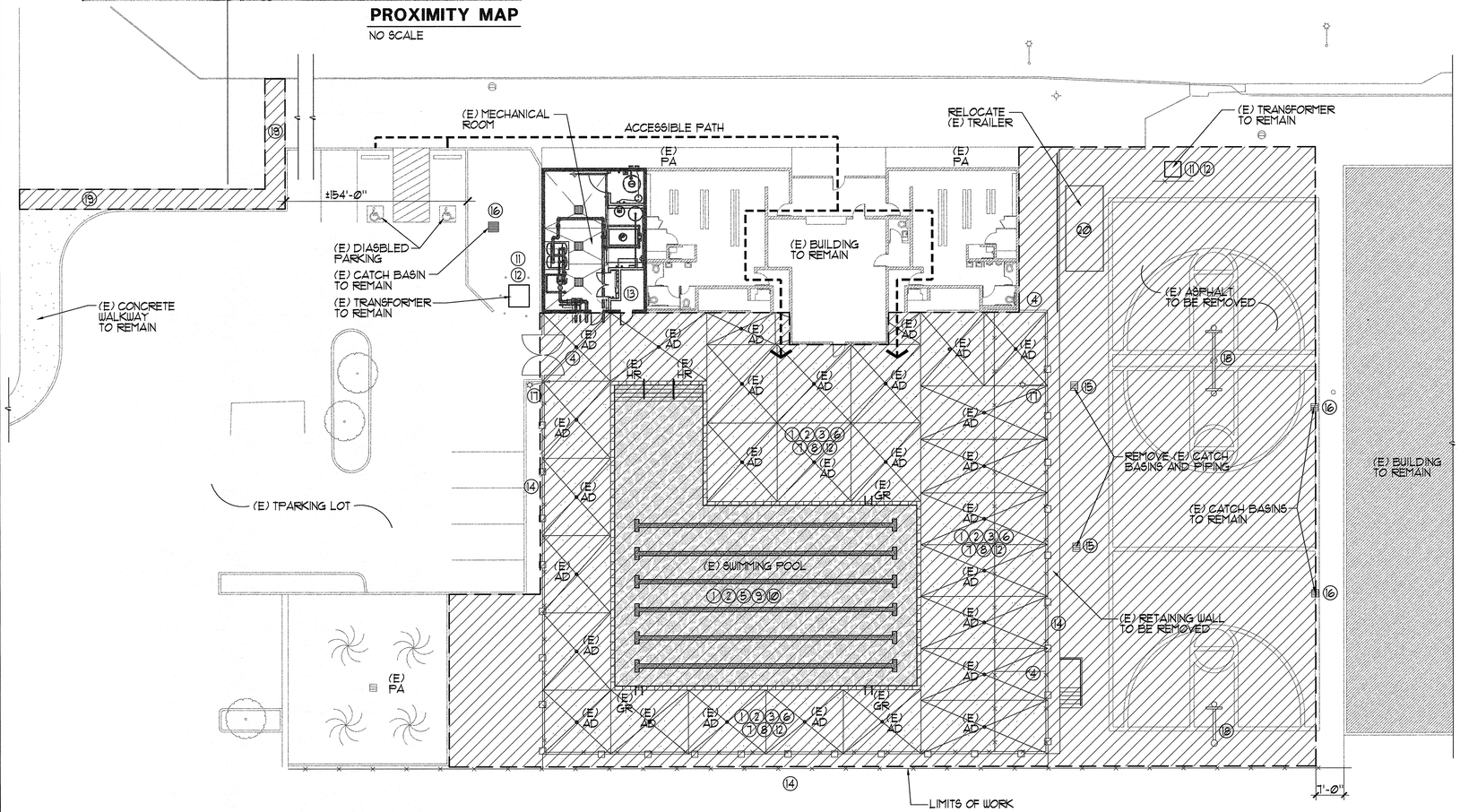
DEMOLITION/CONSTRUCTION NOTES (REFER TO PLANS FOR ADDITIONAL NOTES)

1. REMOVE EXISTING SWIMMING POOL, SWIMMING POOL DECKING, ANCHORS, DECK DRAINAGE SYSTEM(S), RAILING, AND FENCING TO LIMITS AS SHOWN HATCHED ON PLANS. FIELD VERIFY ALL CONDITIONS.
2. THE CONTRACTOR SHALL COORDINATE DEMOLITION WITH OTHER TRADES, AND SHALL PROTECT ALL EXISTING WORK, BUILDINGS, UTILITIES, ETC. TO REMAIN. IDENTIFY AND LOCATE ALL EXISTING UNDERGROUND UTILITIES PRIOR TO CONSTRUCTION AND PROVIDE CAPPING, RELOCATION, PROTECTION OR REMOVAL AS REQUIRED FOR CONSTRUCTION OF NEW SWIMMING POOL AND DECKING.
3. THE CONTRACTOR SHALL REPAIR OR REPLACE ANY DAMAGED ITEMS DUE TO DEMOLITION AND/OR CONSTRUCTION, AT NO COST TO THE OWNER INCLUDING BUT NOT LIMITED TO UTILITIES, FITTINGS, EQUIPMENT, ANCHORS, ETC.
4. COORDINATE INGRESS/EGRESS AND HAUL ROUTES WITH OWNER PRIOR TO START OF WORK.
5. SWIMMING POOL SITE PLAN VIEWS AND SECTIONS ARE SHOWN FOR CONTRACTOR INFORMATION AND ASSISTANCE. THE CONTRACTOR IS RESPONSIBLE FOR INDIVIDUAL SQUARE FOOTAGE TAKE-OFFS AND ESTIMATIONS WITH REGARD TO DEMOLITION, PREPARATION AS WELL AS MEANS AND METHODS OF CONSTRUCTION. CONTRACTOR SHALL VISIT THE SITE AS REQUIRED TO ACCOMPLISH THE WORK, AND TO BECOME FAMILIAR WITH SCOPE AND SERVICES OF WORK REQUIRED.
6. COORDINATE PROPOSED CONTRACTOR STAGING AREA WITH THE OWNER PRIOR TO CONSTRUCTION. PROVIDE TEMPORARY PHONE, TOILET(S), FENCING, GATES, ETC. AS REQUIRED.
7. REFER TO SHEET DP-4 FOR NEW DECK LAYOUT PLAN IN COORDINATION WITH CONTRACTOR FIELD LAYOUT AND EXISTING INFORMATIONAL PLANS. ALL NEW CONCRETE SHALL BE 3,000 PSI MINIMUM AT 28 DAYS.
8. VIELD VERIFY ALL P.O.C.'S TO EXISTING DRAIN LINES FOR NEW DECK DRAINAGE SYSTEM(S).
9. REFER TO SHEET SP-1 FOR NEW POOL LAYOUT PLAN IN COORDINATION WITH CONTRACTOR FIELD LAYOUT AND EXISTING INFORMATIONAL PLANS.
10. CARE IS TO BE TAKEN DURING POOL DRAIN DOWN, TO RELIEVE ANY HYDROSTATIC PRESSURE THROUGH EXISTING HYDROSTATIC RELIEF VALVES AND DRAINING THE POOL SLOWLY.
11. CONTRACTOR SHALL PROTECT EXISTING ELECTRICAL TRANSFORMERS. CONTRACTOR SHALL USE EXTREME CAUTION DURING THE DEMOLITION OF SURROUNDING AREAS AND HAND EXCAVATE TO AVOID ELECTRICAL LINES/PIPING.
12. ELECTRICAL CONDUIT AND OTHER PIPING MAY BE CAST INTO THE EXISTING DECK TO BE REMOVED. THE CONTRACTOR IS TO BE RESPONSIBLE FOR THE REPLACEMENT OF ALL DAMAGED CONDUIT OR PIPING.
13. PROVIDE SELECTED DEMOLITION OF EXISTING MECHANICAL ROOM, INCLUDING MECHANICAL ROOM FLOOR, PIPING, VALVING, EQUIPMENT, UTILITIES, ETC. AS REQUIRED. PROVIDE NEW MECHANICAL SYSTEMS PER PLAN FOR NEW SWIMMING POOL. SEE SHEET MR-1 FOR DEMOLITION PLAN AND MR-2 FOR NEW EQUIPMENT LAYOUT.
14. (1-2 / DP-5) (1 / DP-6) REMOVE EXISTING PERIMETER CHAINLINK AND GALVANIZED STEEL FENCING AND FENCE CURB PER PLANS. PROVIDE NEW GALVANIZED STEEL FENCING AND CURB PER PLANS ON SHEETS DP-5 AND DP-6.
15. CONTRACTOR SHALL REMOVE EXISTING STORM DRAIN CATCH BASINS LOCATED ADJACENT TO EXISTING RETAINING WALL. CONTRACTOR SHALL ALSO REMOVE STORM DRAIN PIPING FROM CATCH BASINS TO EXISTING MAIN LINE AND CAP.
16. CONTRACTOR SHALL PROTECT EXISTING STORM DRAIN CATCH BASINS AND PIPING LOCATED ADJACENT TO EXISTING BUILDINGS.
17. CONTRACTOR SHALL REMOVE EXISTING OVERHEAD LIGHTING UNITS AND FOOTING PRIOR TO INSTALLATION OF NEW OVERHEAD LIGHTING UNITS. SEE SHEET DP-4 FOR NEW OVERHEAD LIGHT LOCATIONS.
18. CONTRACTOR SHALL SALVAGE EXISTING BASKETBALL POLES, BACKBOARDS, BASKETS, ETC. AND RETURN TO OWNER. CARE IS TO BE TAKEN IN THE REMOVAL OF SUCH ITEMS.
19. CONTRACTOR SHALL REMOVE EXISTING ASPHALT AND INSTALL 5'-0" MIN. WIDE CONCRETE WALKWAY TO CONNECT TO EXISTING CONCRETE WALKWAY. CONTRACTOR SHALL INSTALL AT 1.5% SLOPE IN ALL DIRECTIONS.
20. CONTRACTOR SHALL RELOCATE EXISTING TRAILER. COORDINATE WITH OWNER FOR AREA OF RELOCATION.

BUILDING DEPARTMENT PROVISIONS:

IF THE BUILDING INSPECTOR DETERMINES NONCOMPLIANCE WITH ANY ACCESSIBILITY PROVISIONS, HE/SHE SHALL REQUIRE COMPLETE, DETAILED PLANS CLEARLY SHOWING ALL EXISTING NON COMPLYING CONDITIONS AND THE PROPOSED MODIFICATIONS TO MEET CURRENT ACCESSIBILITY PROVISIONS AFFECTED BY THE REMODEL (INCLUDING SITE PLAN, FLOOR PLANS, DETAILS, ETC.). THE PLANS MUST BE STAMPED BY THE FIELD INSPECTOR AND RESUBMITTED TO THE BUILDING DEVELOPMENT REVIEW DIVISION.

I AM THE OWNER IN RESPONSIBLE CHARGE OF THIS TENANT IMPROVEMENT PROJECT; I HAVE INSPECTED THE SITE/PREMISES AND DETERMINED THAT EXISTING CONDITIONS ARE IN FULL COMPLIANCE WITH CURRENT SITE ACCESSIBILITY REQUIREMENTS TO THE EXTENT REQUIRED BY LAW.
SIGNATURE: _____
PRINT NAME: _____
DATE: _____



1 **SITE DEMOLITION PLAN** 1/16" = 1'-0"

DP-1

MEMORIAL POOL

PLANS FOR THE CONSTRUCTION OF
MEMORIAL POOL
SITE DEMOLITION PLAN

CITY OF SAN DIEGO, CALIFORNIA
ENGINEERING AND CAPITAL PROJECTS DEPARTMENT
SHEET 02 OF 39 SHEETS

WBS S-00970

APPROVED: _____ FOR CITY ENGINEER — DATE 2/13/12
SUBMITTED BY: SAMIR MAHMALJI, PROJECT OFFICER II

DESCRIPTION	BY	APPROVED	DATE	FILMED
ORIGINAL	ADG			

CLARK RITTER, PROJECT MANAGER
194-1725, CCS27 COORDINATE
6286404, 1834444, CCS83 COORDINATE
CONTRACTOR _____ DATE STARTED _____
INSPECTOR _____ DATE COMPLETED _____
36152-02-D

TEMPORARY BMP CONSTRUCTION SITE STORM WATER PRIORITY: HIGH ___ MEDIUM ___ LOW___

SPEC. NO.

CONSULTANT
AQUATIC DESIGN GROUP
2226 FARADAY AVE., CARLSBAD, CA 92008
Tel 760.438.8400 Fax 760.438.5251

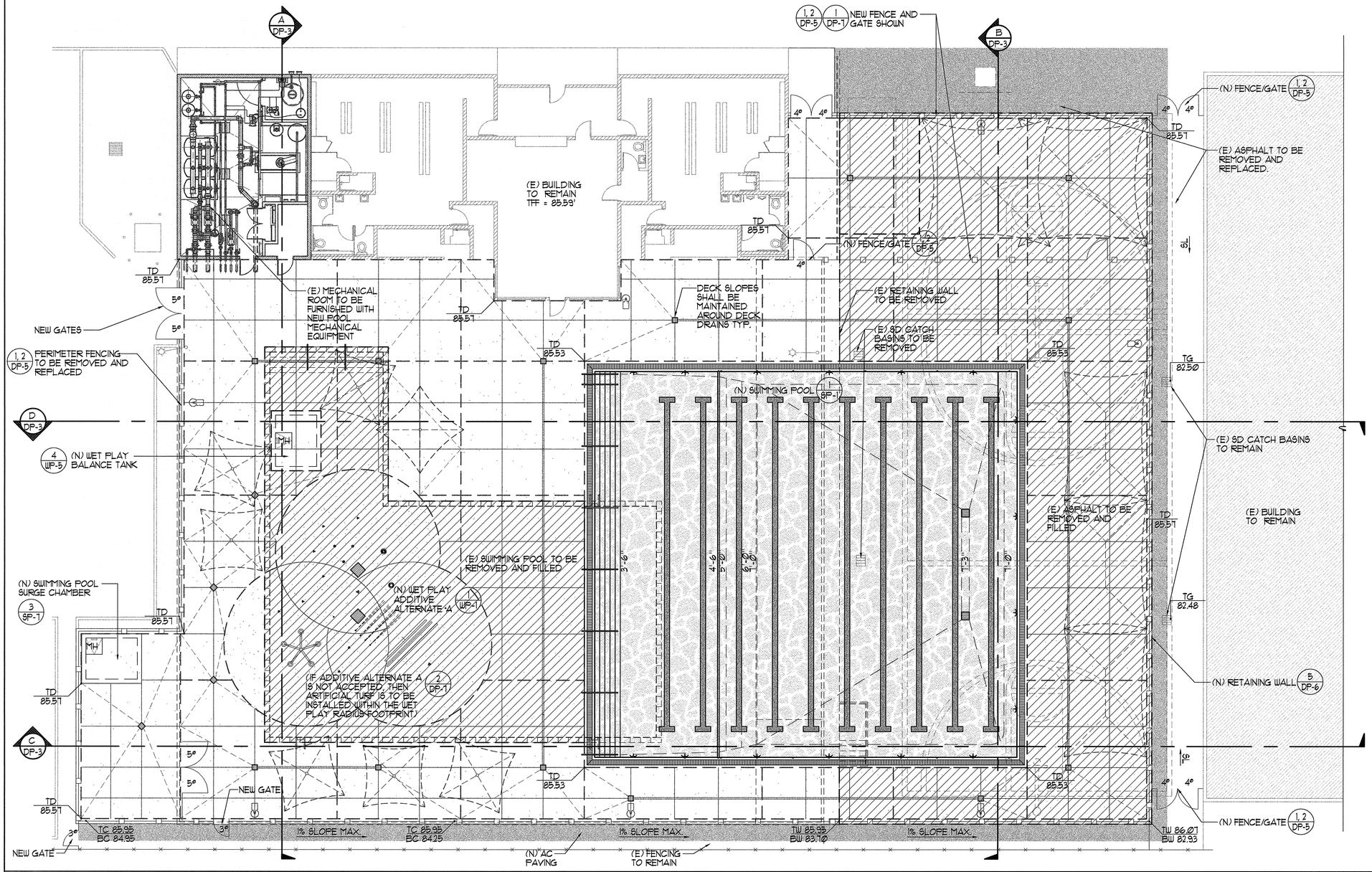
LICENSED ARCHITECT — MATT J. FERRY — C-35022 — STATE OF CALIFORNIA

CONSTRUCTION CHANGE / ADDENDUM

CHANGE	DATE	AFFECTED OR ADDED SHEET NUMBERS	APPROVAL NO.

WARNING
0 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE.

CITY OF SAN DIEGO
PUBLIC WORKS PROJECT



LEGEND

(E)	=	EXISTING	TW	=	TOP OF WALL
(N)	=	NEW	BW	=	BACK OF WALL
TD	=	TOP OF DECK	TC	=	TOP OF CURB
TG	=	TOP OF GRATE	BC	=	BACK OF CURB
TFF	=	TOP OF FINISH FLOOR			
MH	=	MANHOLE			
SD	=	STORM DRAIN			
	=	LIMITS OF FILL AS NOTED ON PLANS			

NEW SWIMMING POOL DATA

SURFACE AREA	=	6,158 SQ. FT.
PERIMETER	=	314 FT.
DEPTH	=	3'-6" TO 7'-3"
VOLUME	=	270,411 GAL.
6 HR TURNOVER	=	752 GPM

NEW WET PLAY DATA

SURFACE AREA	=	1,859 SQ. FT.
VOLUME	=	4,000 FT.
30 MIN. TURNOVER	=	133 GPM

RESTROOM CALCULATIONS (HEATH DEPT.)

(N) SWIMMING POOL = 6,158 SQ. FT. + WET PLAY 1,859 SQ. FT. = 8,053 SQ. FT. ÷ 15 = 536 OCCUPANTS ÷ 2 = 268 MEN & 268 WOMEN.
FIXTURE REQUIREMENTS: PER 2001 CBC 3115B

MEN - 268		WOMEN - 268
WATER CLOSETS	1:75 = 4 (4)	1:60 = 5 (7)
URINALS	1:75 = 4 (5)	-
LAVATORIES	1:80 = 4 (5)	1:80 = 4 (5)
SHOWERS	1:50 = 5 (5)	1:50 = 5 (5)

( ) = EXISTING FIXTURES PROVIDED IN EXISTING POOL BUILDING AND ADJACENT COMMUNITY CENTER (< 300' TRAVEL)

EXITING CALCULATIONS

POOL DECKS	=	12,145 SQ. FT. ÷ 15 = 809
SWIMMING POOL	=	6,158 SQ. FT. ÷ 50 = 123
WET PLAY	=	1,859 SQ. FT. ÷ 50 = 38

PER CBC 2010 TABLE 1004.1.1 TOTAL OCCUPANCY = 970
EXIT INCHES = 970 x 0.2 = 194 INCHES
3 EXITS PROVIDED: 2-48" GATES, 2-60" GATES, 1-36" GATE
TOTAL GATES LINEAR INCHES = 252

∴ 252" > 194" OK

NORTH

1 **SITE GRADING PLAN** 1" = 10'-0"

DP-2

MEMORIAL POOL

PLANS FOR THE CONSTRUCTION OF
MEMORIAL POOL
SITE GRADING PLAN

CITY OF SAN DIEGO, CALIFORNIA
ENGINEERING AND CAPITAL PROJECTS DEPARTMENT
SHEET 03 OF 40 SHEETS

WBS S-00970

APPROVED: _____ FOR CITY ENGINEER — DATE 7/13/12

SUBMITTED BY: SAMIR MAHMALJI, PROJECT OFFICER II

DESCRIPTION	BY	APPROVED	DATE	FILMED
ORIGINAL	ADG			

CLARK RITTER, PROJECT MANAGER
194-1725, CCS27 COORDINATE
6286404. 1834444, CCS83 COORDINATE
36152-03-D

CONTRACTOR _____ DATE STARTED _____
INSPECTOR _____ DATE COMPLETED _____

TEMPORARY BMP CONSTRUCTION SITE STORM WATER PRIORITY: HIGH ____ MEDIUM ____ LOW____

SPEC. NO.

CONSULTANT

AQUATIC DESIGN GROUP
2226 FARADAY AVE., CARLSBAD, CA 92008
Tel 760.438.8400 Fax 760.438.5251

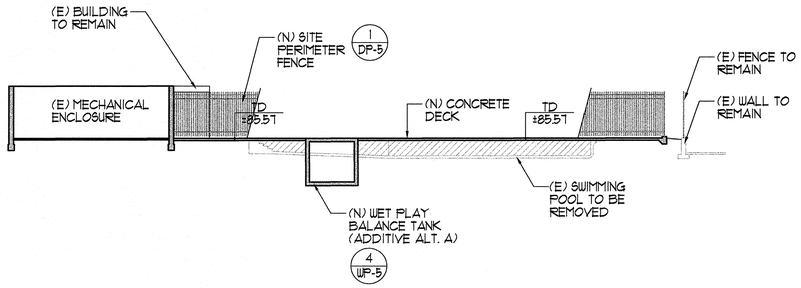
LICENSED ARCHITECT — T.J. KERR — C-26023 — STATE OF CALIFORNIA

CONSTRUCTION CHANGE / ADDENDUM

CHANGE	DATE	AFFECTED OR ADDED SHEET NUMBERS	APPROVAL NO.

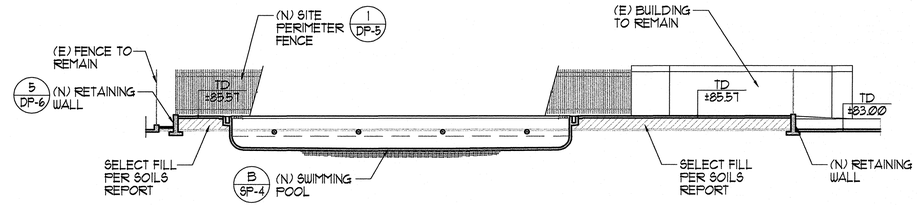
WARNING
0 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE.

CITY OF SAN DIEGO
PUBLIC WORKS PROJECT



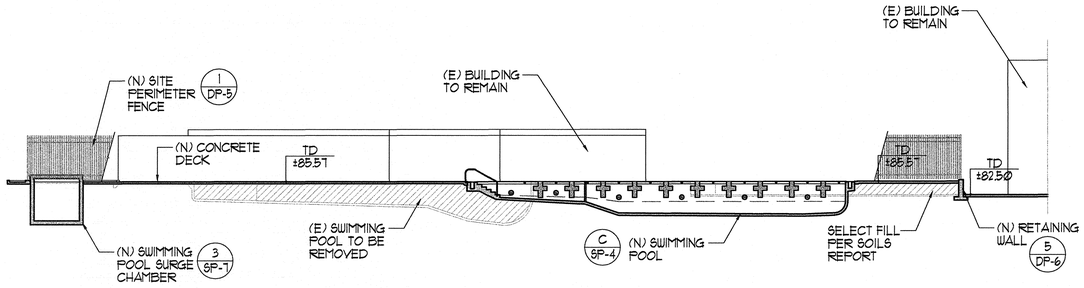
(A) SITE GRADING SECTION

1/16" = 1'-0"



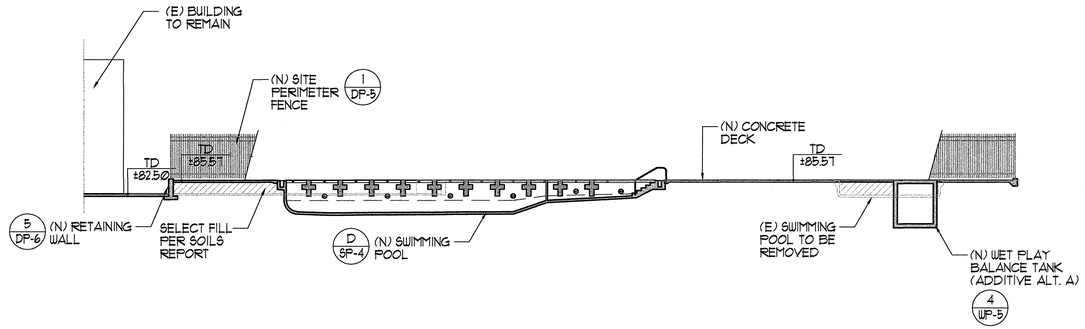
(B) SITE GRADING SECTION

1/16" = 1'-0"



(C) SITE GRADING SECTION

1/16" = 1'-0"



(D) SITE GRADING SECTION

1/16" = 1'-0"

DP-3

MEMORIAL POOL

PLANS FOR THE CONSTRUCTION OF
MEMORIAL POOL
SITE GRADING SECTIONS

CONSTRUCTION CHANGE / ADDENDUM			
CHANGE	DATE	AFFECTED OR ADDED SHEET NUMBERS	APPROVAL NO.

WARNING
0 1
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CITY OF SAN DIEGO
PUBLIC WORKS PROJECT

TEMPORARY BMP CONSTRUCTION SITE STORM WATER PRIORITY: HIGH ___ MEDIUM ___ LOW___

CONSULTANT

AQUATIC DESIGN GROUP
2226 FARADAY AVE., CARLSBAD, CA 92008
Tel 760.438.8400 Fax 760.438.5251

SPEC. NO.

LICENSED ARCHITECT SCOTT J. FERRY C-35222 STATE OF CALIFORNIA

CITY OF SAN DIEGO, CALIFORNIA
ENGINEERING AND CAPITAL PROJECTS DEPARTMENT
SHEET 04 OF 39 SHEETS

WBS S-00970

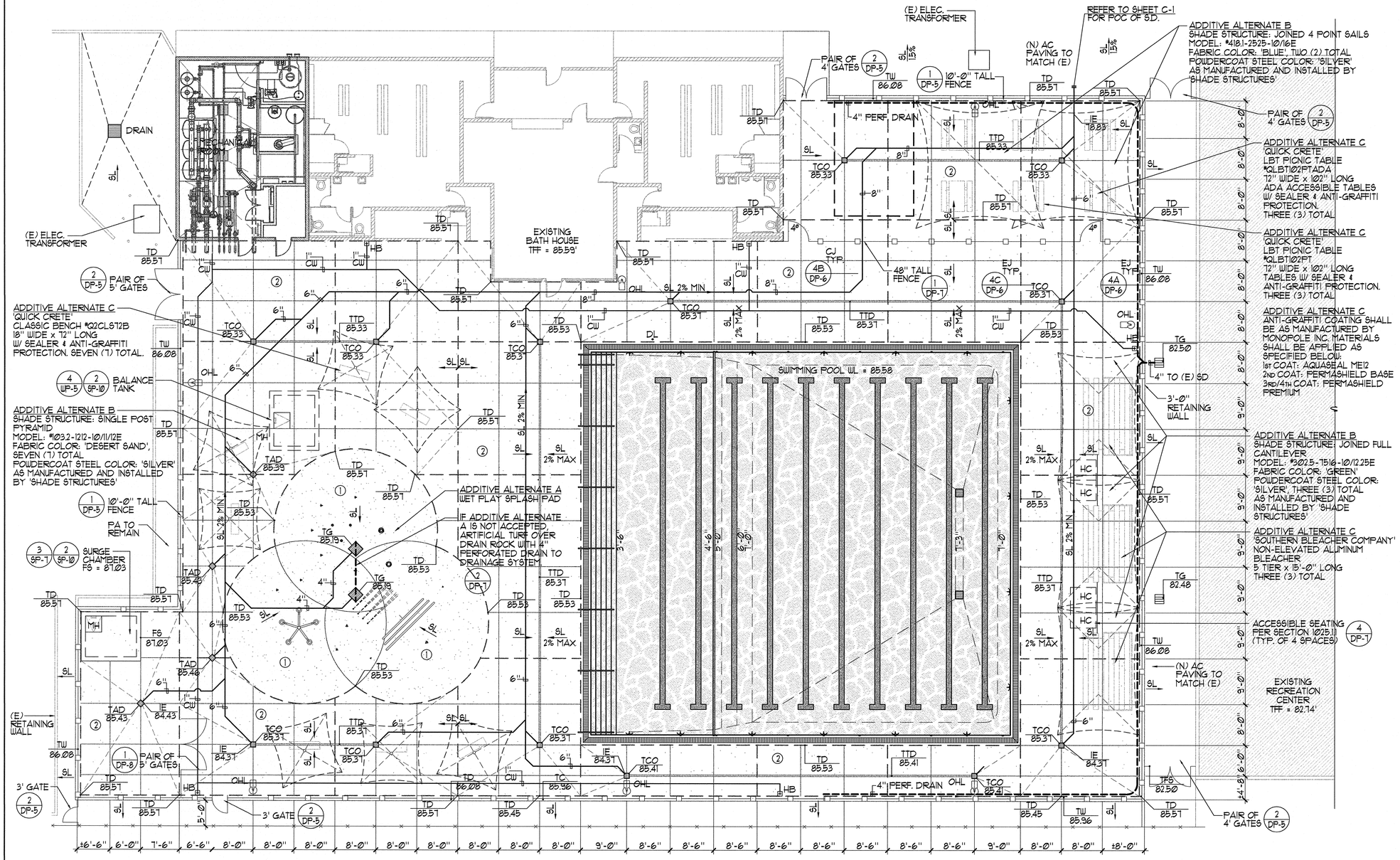
APPROVED: Samir Mahmalji FOR CITY ENGINEER — DATE 7/13/12

SUBMITTED BY: SAMIR MAHMALJI, PROJECT OFFICER II

DESCRIPTION	BY	APPROVED	DATE	FILMED
ORIGINAL	ADG			

CONTRACTOR _____ DATE STARTED _____
INSPECTOR _____ DATE COMPLETED _____

CLARK RITTER, PROJECT MANAGER
194-1725, CCS27 COORDINATE
6286404, 1834444, CCS83 COORDINATE
36152-04-D



SWIMMING POOL DATA

SURFACE AREA	=	6,158 SQ. FT.
PERIMETER	=	314 FT.
DEPTH	=	3'-6" TO 7'-3"
VOLUME	=	210,411 GAL.
6 HR TURNOVER	=	752 GPM

WET PLAY DATA

SURFACE AREA	=	1,895 SQ. FT.
VOLUME	=	4,000 GAL.
30 MIN. TURNOVER	=	133 GPM

LEGEND

EJ	=	EXPANSION JOINT (4A DP-6) (4C DP-6)
CJ	=	CONTROL JOINT (4B DP-6)
TTD	=	TOP OF TRENCH DRAIN (6 DP-6)
TCO	=	TOP OF CLEAN-OUT (2 DP-6)
TAD	=	TOP OF AREA DRAIN (3 DP-6)
TG	=	TOP OF GRATE (3 WP-5)
MH	=	MANHOLE (4 SP-7)
DL	=	DISABLED LIFT (1 SP-7)
HB	=	HOSE BIBB (2 SP-7)
CW	=	COLD WATER
SL →	=	SLOPE DIRECTION
TW	=	TOP OF WALL
WL	=	WATERLEVEL
TD	=	TOP OF DECK
TFF	=	TOP OF FINISHED FLOOR
IE	=	INVERT ELEVATION
P.O.C.	=	POINT OF CONNECTION
SD	=	STORM DRAIN
OHL	=	OVERHEAD LIGHT

CONCRETE COLOR SCHEDULE

① LIGHT BLUE @ WET PLAY - CEMEX MIX #5938411 POOL ACCENT COLOR
WHITE CEMENT WITH 11lb. DAVIS #418 COLOR
INTEGRAL CONCRETE COLORS BY 'DAVIS COLORS'
SCOFIELD OR EQUAL. SUBMITTAL REQUIRED.

② POOL DECKS SHALL BE SLIGHTLY DARKER THAN NATURAL CONCRETE COLOR TO NEGATE GLARE.

NOTES:
DECKS SHALL SLOPE 2% MAXIMUM AND SHALL HAVE MEDIUM BROOM NON-SLIP FINISH.

NORTH

1 SWIMMING POOL DECK PLAN

1" = 1Ø'-Ø"

DP-4

MEMORIAL POOL

PLANS FOR THE CONSTRUCTION OF
MEMORIAL POOL
SWIMMING POOL DECK PLAN

CONSTRUCTION CHANGE / ADDENDUM

CHANGE	DATE	AFFECTED OR ADDED SHEET NUMBERS	APPROVAL NO.

WARNING
0 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE.

CITY OF SAN DIEGO
PUBLIC WORKS PROJECT

TEMPORARY BMP CONSTRUCTION SITE STORM WATER PRIORITY: HIGH ___ MEDIUM ___ LOW ___

CONSULTANT
AQUATIC DESIGN GROUP
2226 FARADAY AVE., CARLSBAD, CA 92008
Tel 760.438.8400 Fax 760.438.5251

SPEC. NO.

LICENSED ARCHITECT MATT J. FERRARI C-29022 STATE OF CALIFORNIA

CITY OF SAN DIEGO, CALIFORNIA
ENGINEERING AND CAPITAL PROJECTS DEPARTMENT
SHEET 05 OF 39 SHEETS

WBS S-00970

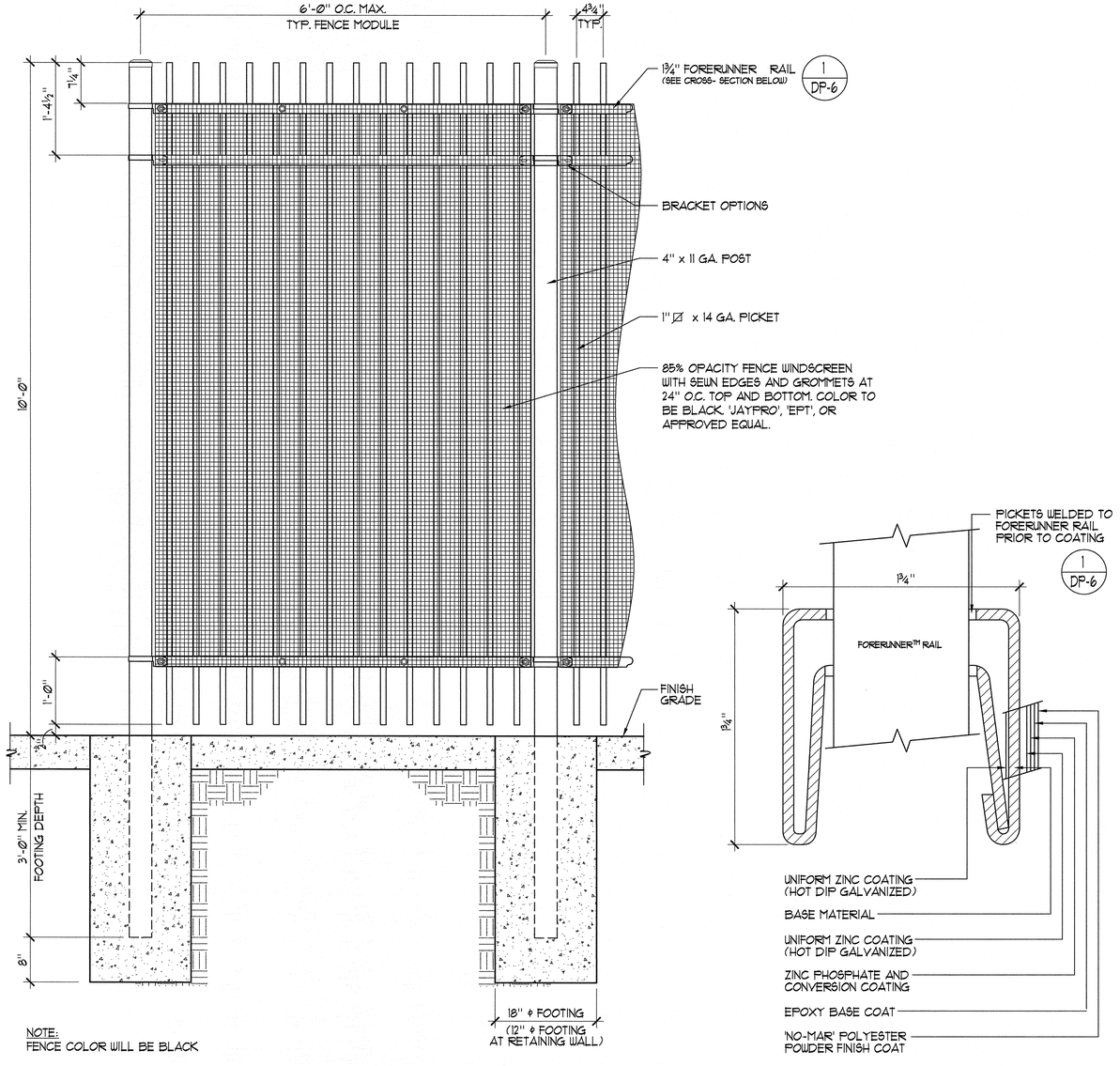
APPROVED Samir M. FOR CITY ENGINEER 7/13/12 DATE

SUBMITTED BY
SAMIR MAHMALJI
PROJECT OFFICER II
CLARK RITTER
PROJECT MANAGER

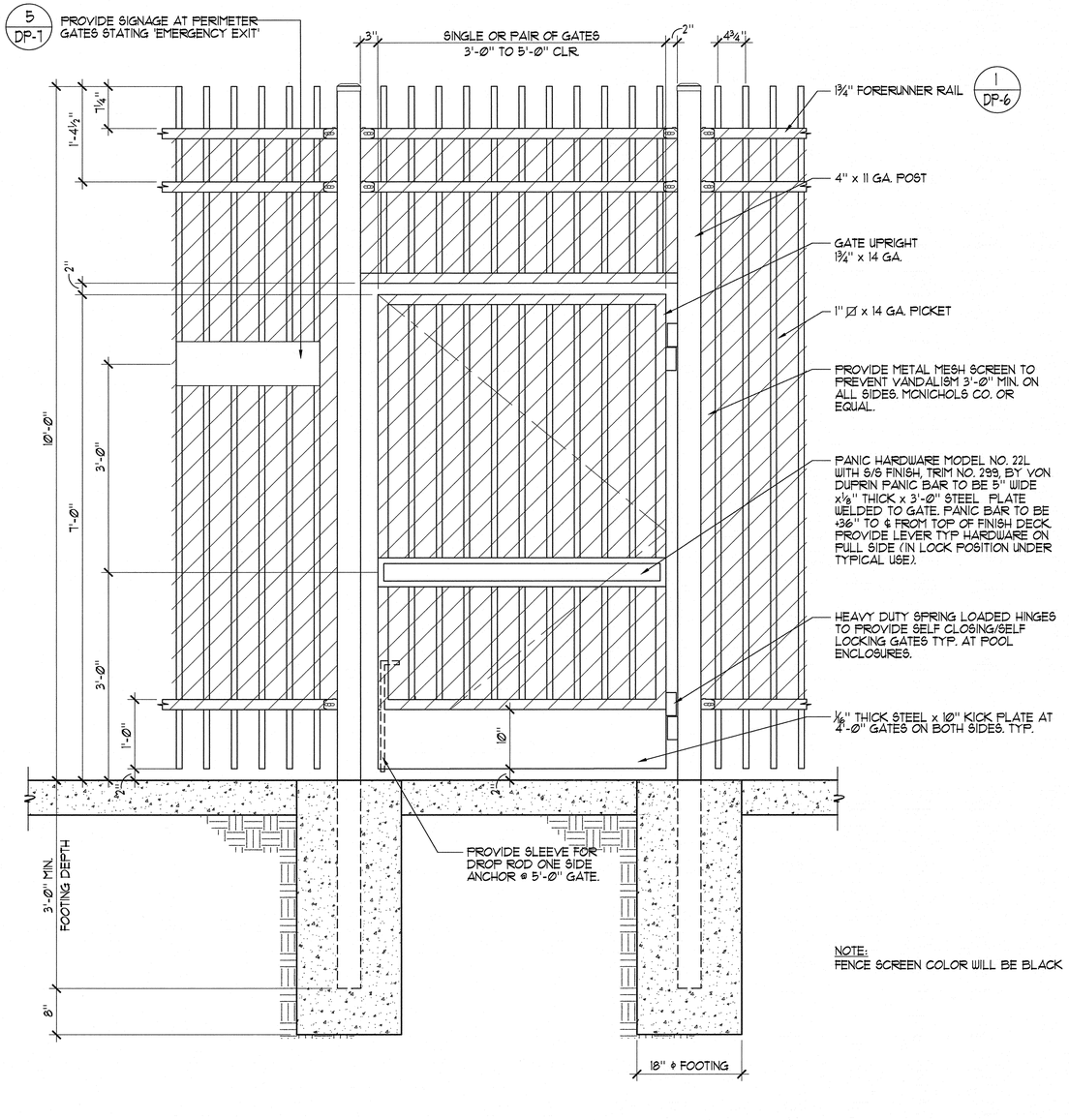
DESCRIPTION	BY	APPROVED	DATE	FILMED
ORIGINAL	ADG			

194-1725
CCS27 COORDINATE
6286404, 1834444
CCS83 COORDINATE
36152-05-D

CONTRACTOR ___ DATE STARTED ___
INSPECTOR ___ DATE COMPLETED ___



1 **GALVANIZED STEEL FENCING ELEVATION** 1"=1'-Ø"



2 **ELEVATION AT GATE** 1"=1'-Ø"

DP-5

MEMORIAL POOL

CONSTRUCTION CHANGE / ADDENDUM			
CHANGE	DATE	AFFECTED OR ADDED SHEET NUMBERS	APPROVAL NO.

WARNING
0 1
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CITY OF SAN DIEGO
PUBLIC WORKS PROJECT

TEMPORARY BMP CONSTRUCTION SITE STORM WATER PRIORITY: HIGH ___ MEDIUM ___ LOW___

SPEC. NO.

CONSULTANT

AQUATIC DESIGN GROUP
2226 FARADAY AVE., CARLSBAD, CA 92008
Tel 760.438.8400 Fax 760.438.5251

LICENSED ARCHITECT SCOTT J. FERGUSON C-26222 STATE OF CALIFORNIA

PLANS FOR THE CONSTRUCTION OF
MEMORIAL POOL
SITE DETAILS

CITY OF SAN DIEGO, CALIFORNIA
ENGINEERING AND CAPITAL PROJECTS DEPARTMENT

WBS S-00970

SHEET 06 OF 39 SHEETS

APPROVED: Samir M FOR CITY ENGINEER DATE 7/13/12

SUBMITTED BY: SAMIR MAHMALJI PROJECT OFFICER II

CLARK RITTER PROJECT MANAGER

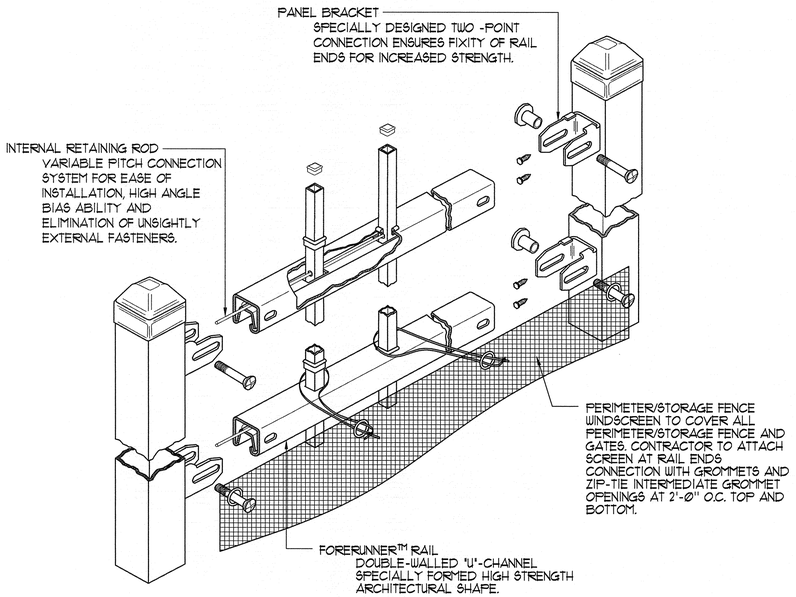
194-1725 CCS27 COORDINATE

6286404. 1834444 CCS83 COORDINATE

36152-06-D

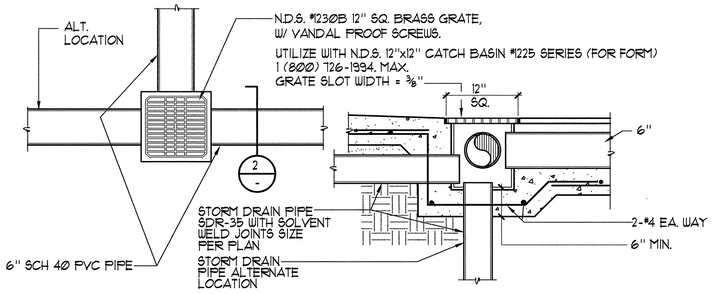
DESCRIPTION	BY	APPROVED	DATE	FILMED
ORIGINAL	ADG			

CONTRACTOR _____ DATE STARTED _____
INSPECTOR _____ DATE COMPLETED _____



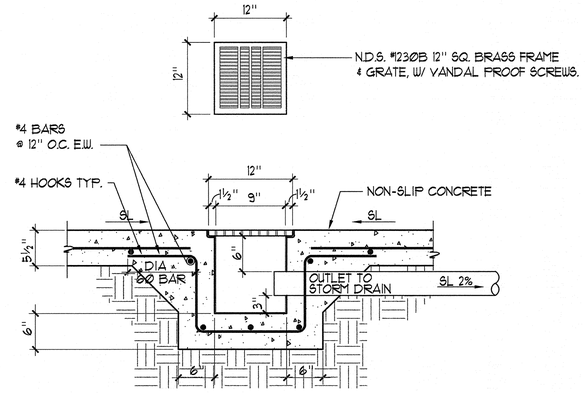
1 FENCE PANEL BRACKET DETAIL

NO SCALE



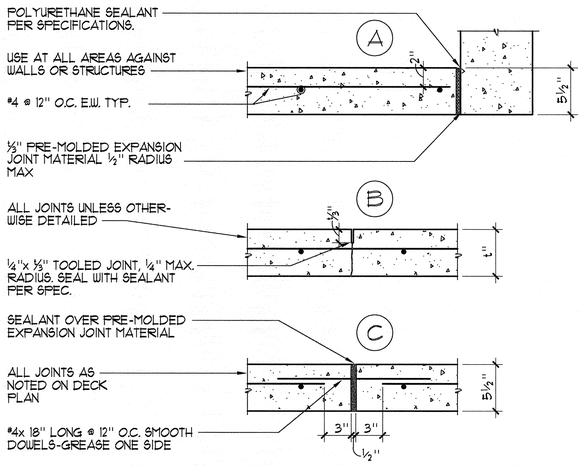
2 TRENCH DRAIN CLEAN OUT

1" = 1'-Ø"



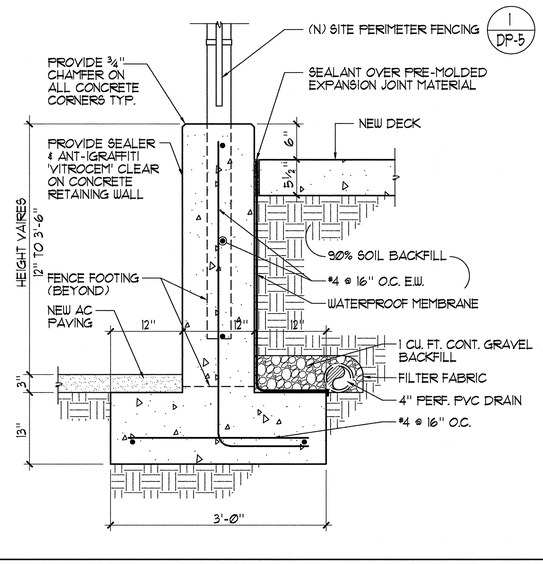
3 AREA DRAIN DETAIL

1"=1'-Ø"



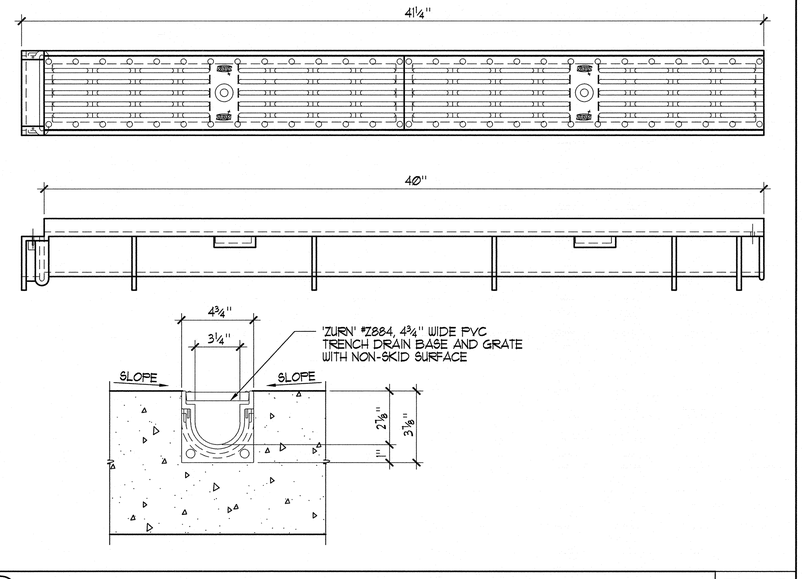
4 DECK DETAILS

1½"=1'-Ø"



5 PERIMETER SITE RETAINING WALL

1"=1'-Ø"



6 TRENCH DRAIN DETAIL

FULL SCALE

DP-6

MEMORIAL POOL

PLANS FOR THE CONSTRUCTION OF
MEMORIAL POOL
SITE DETAILS

CONSTRUCTION CHANGE / ADDENDUM

CHANGE	DATE	AFFECTED OR ADDED SHEET NUMBERS	APPROVAL NO.

WARNING

0 1

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CITY OF SAN DIEGO
PUBLIC WORKS PROJECT

TEMPORARY BMP CONSTRUCTION SITE STORM WATER PRIORITY: HIGH ___ MEDIUM ___ LOW___

SPEC. NO.

CONSULTANT

AQUATIC DESIGN GROUP
2226 FARADAY AVE., CARLSBAD, CA 92008
Tel 760.438.8400 Fax 760.438.5251

LICENSED ARCHITECT ROBERT J. FERGUSON C-28022 STATE OF CALIFORNIA

CITY OF SAN DIEGO, CALIFORNIA
ENGINEERING AND CAPITAL PROJECTS DEPARTMENT
SHEET 07 OF 39 SHEETS

WBS S-00970

APPROVED: Samir M FOR CITY ENGINEER DATE 7/13/12

SUBMITTED BY: SAMIR MAHMALJI, PROJECT OFFICER II

DESCRIPTION	BY	APPROVED	DATE	FILMED
ORIGINAL	ADG			

CLARK RITTER, PROJECT MANAGER

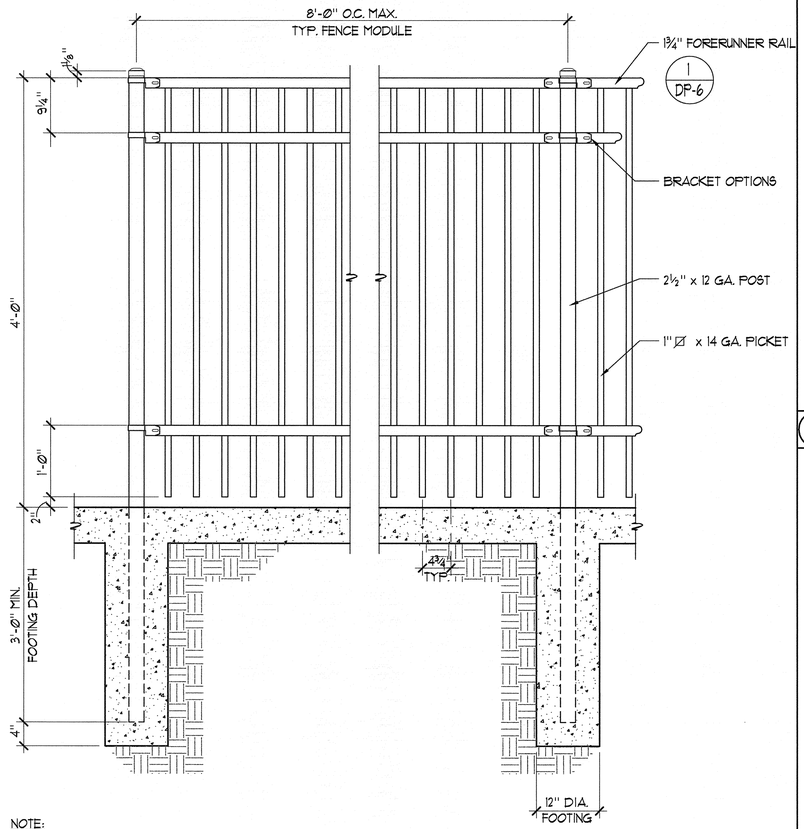
194-1725 CCS27 COORDINATE

6286404, 1834444 CCS83 COORDINATE

CONTRACTOR _____ DATE STARTED _____

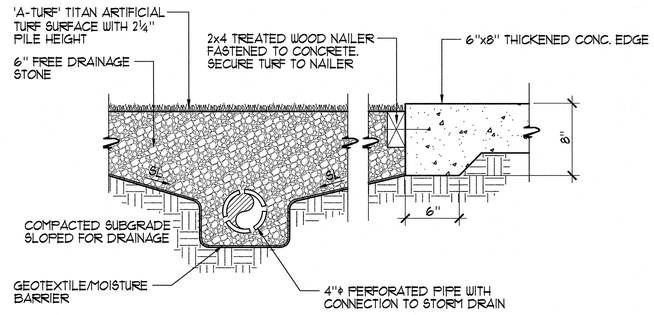
INSPECTOR _____ DATE COMPLETED _____

36152-07-D



NOTE:
FENCE COLOR TO BE BLACK

1 INTERIOR FENCE PANEL 1" = 1'-Ø"



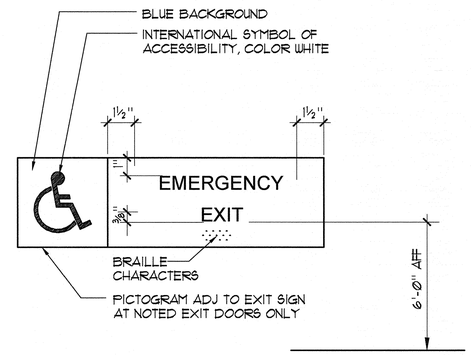
ARTIFICIAL TURF TO BE 'EASY TURF,' GRASS TURF, 'PRO PLAY' OR APPROVED EQUAL.

2 ARTIFICIAL TURF EDGE DETAIL 1½"=1'-Ø"

DETAIL OMITTED

3 BLEACHERS SECTION ½"=1'-Ø"

4 BLEACHER - ACCESSIBLE ½" = 1'-Ø"



5 INFORMATIONAL SIGN 3" = 1'-Ø"

DP-7

MEMORIAL POOL

PLANS FOR THE CONSTRUCTION OF
MEMORIAL POOL
SITE DETAILS

CONSTRUCTION CHANGE / ADDENDUM

CHANGE	DATE	AFFECTED OR ADDED SHEET NUMBERS	APPROVAL NO.

WARNING
0 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE.

CITY OF SAN DIEGO
PUBLIC WORKS PROJECT

TEMPORARY BMP CONSTRUCTION SITE STORM WATER PRIORITY: HIGH ___ MEDIUM ___ LOW___

SPEC. NO.

CONSULTANT

AQUATIC DESIGN GROUP
2226 FARADAY AVE., CARLSBAD, CA 92008
Tel 760.438.8400 Fax 760.438.5251

LICENSED ARCHITECT JEFFREY J. FERRIS C-25222 STATE OF CALIFORNIA

CITY OF SAN DIEGO, CALIFORNIA
ENGINEERING AND CAPITAL PROJECTS DEPARTMENT
SHEET 08 OF 39 SHEETS

WBS S-00970

APPROVED: Samir M 7/12/12
FOR CITY ENGINEER DATE

SUBMITTED BY
SAMIR MAHMALJI
PROJECT OFFICER II

CLARK RITTER
PROJECT MANAGER

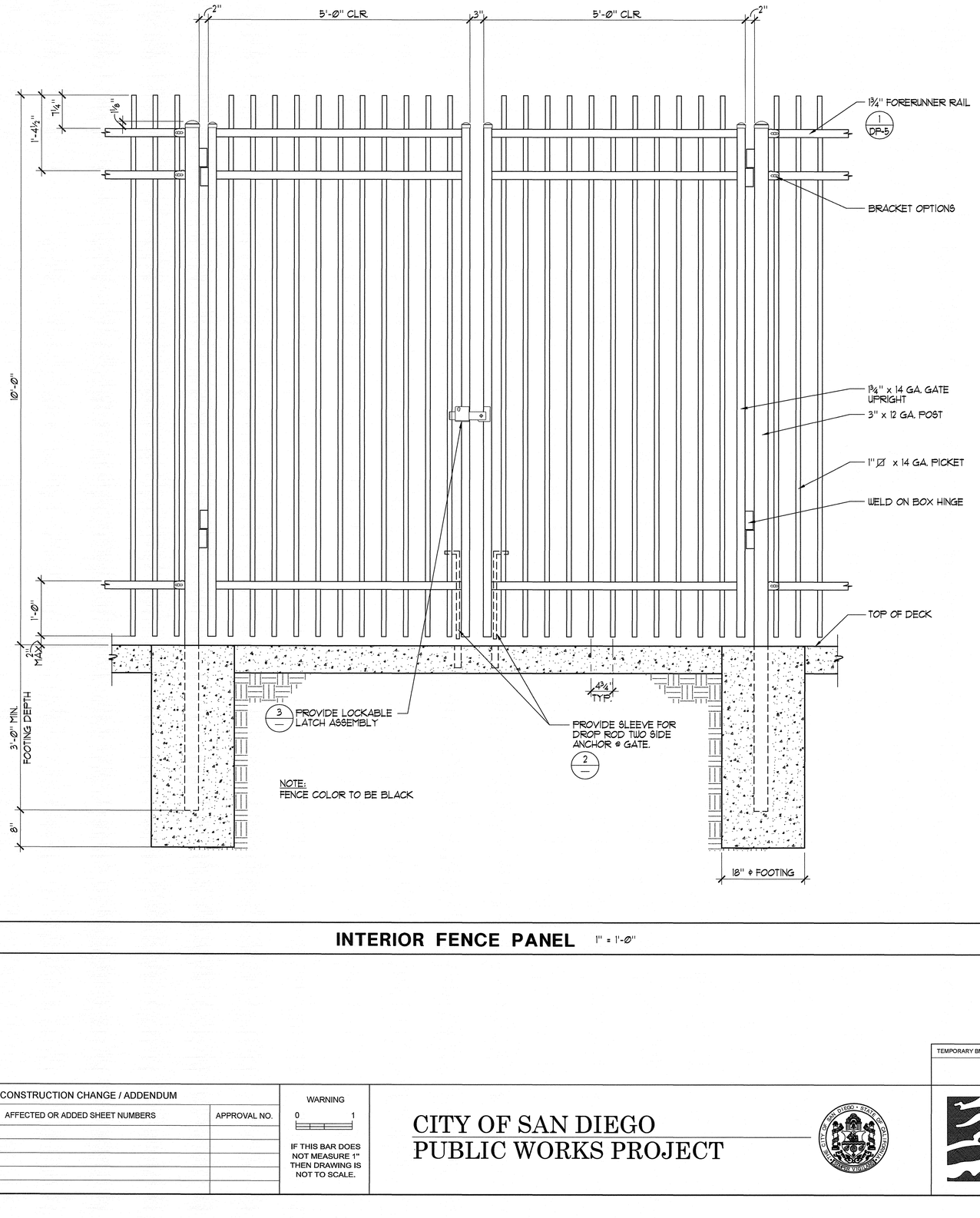
194-1725
CCS27 COORDINATE

6286404. 1834444
CCS83 COORDINATE

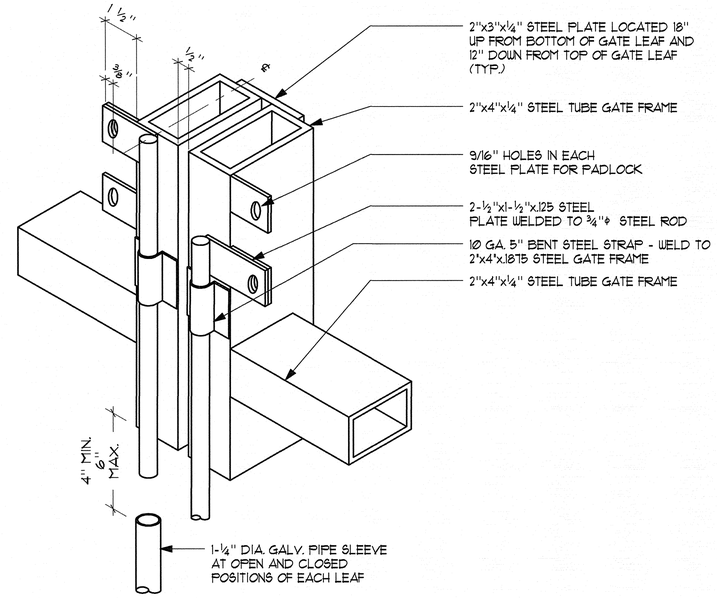
DESCRIPTION	BY	APPROVED	DATE	FILMED
ORIGINAL	ADG			

CONTRACTOR _____ DATE STARTED _____
INSPECTOR _____ DATE COMPLETED _____

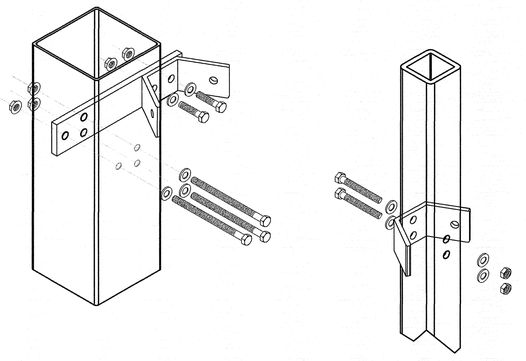
36152-08-D



1 INTERIOR FENCE PANEL 1" = 1'-Ø"



2 CANE BOLT ASSEMBLY NO SCALE



ISO VIEW

3 GATE LATCH ASSEMBLY NO SCALE

DP-8

MEMORIAL POOL

CONSTRUCTION CHANGE / ADDENDUM			
CHANGE	DATE	AFFECTED OR ADDED SHEET NUMBERS	APPROVAL NO.

WARNING
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IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE.

CITY OF SAN DIEGO
PUBLIC WORKS PROJECT

TEMPORARY BMP CONSTRUCTION SITE STORM WATER PRIORITY: HIGH ___ MEDIUM ___ LOW___

CONSULTANT

AQUATIC DESIGN GROUP
2226 FARADAY AVE., CARLSBAD, CA 92008
Tel 760.438.8400 Fax 760.438.5251

SPEC. NO.

LICENSED ARCHITECT SCOTT J. FERGUSON C-26222 STATE OF CALIFORNIA

PLANS FOR THE CONSTRUCTION OF
MEMORIAL POOL
SITE DETAILS

CITY OF SAN DIEGO, CALIFORNIA
ENGINEERING AND CAPITAL PROJECTS DEPARTMENT
SHEET 09 OF 39 SHEETS

WBS S-00970

APPROVED: Samir M. 7/13/12
FOR CITY ENGINEER DATE

DESCRIPTION	BY	APPROVED	DATE	FILMED
ORIGINAL	ADG			

SUBMITTED BY: SAMIR MAHMALJI
PROJECT OFFICER II

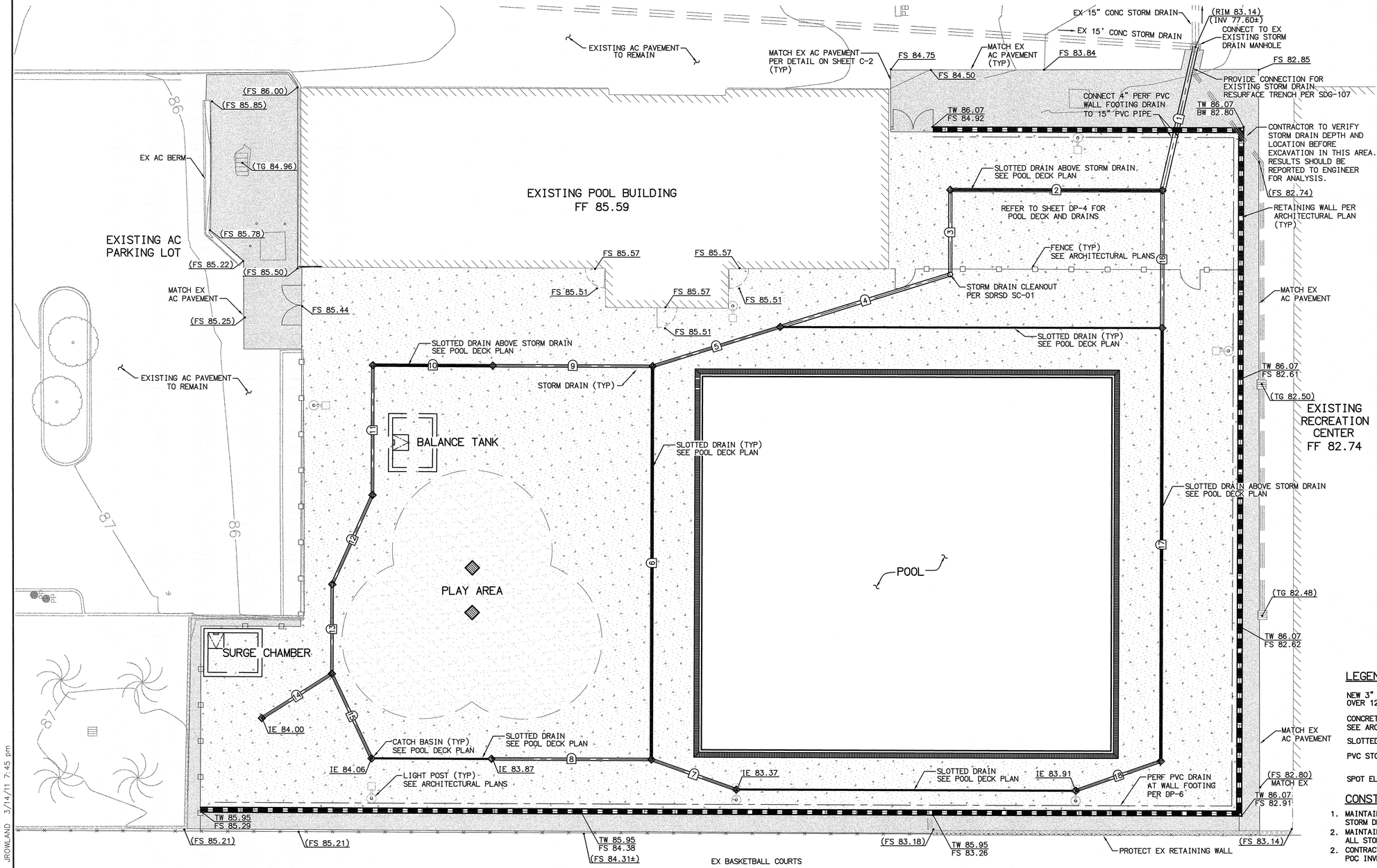
CLARK RITTER
PROJECT MANAGER

194-1725
CCS27 COORDINATE

6286404. 1834444
CCS83 COORDINATE

CONTRACTOR _____ DATE STARTED _____
INSPECTOR _____ DATE COMPLETED _____

36152-09-D



UTILITY PLAN

GENERAL NOTES

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SURVEY MONUMENTS AND/OR VERTICAL CONTROL BENCHMARKS WHICH ARE DISTURBED OR DESTROYED BY CONSTRUCTION. A LAND SURVEYOR MUST FIELD LOCATE, REFERENCE, AND/OR PRESERVE ALL HISTORICAL OR CONTROLLING MONUMENTS PRIOR TO ANY EARTHWORK. IF DESTROYED, A LAND SURVEYOR SHALL REPLACE SUCH MONUMENTS WITH APPROPRIATE MONUMENTS. A CORNER RECORD OR RECORD OF SURVEY, AS APPROPRIATE, SHALL BE FILED AS REQUIRED BY THE PROFESSIONAL LAND SURVEYORS ACT. IF ANY VERTICAL CONTROL IS TO BE DISTURBED OR DESTROYED, THE CITY OF SAN DIEGO FIELD SURVEY SECTION MUST BE NOTIFIED, IN WRITING, AT LEAST 3 DAYS PRIOR TO THE CONSTRUCTION. THE CONTRACTOR WILL BE RESPONSIBLE FOR THE COST OF REPLACING ANY VERTICAL CONTROL BENCHMARKS DESTROYED BY THE CONSTRUCTION.

2. IMPORTANT NOTICE: SECTION 4216 OF THE GOVERNMENT CODE REQUIRES A DIG ALERT IDENTIFICATION NUMBER BE ISSUED BEFORE A "PERMIT TO EXCAVATE" WILL BE VALID. FOR YOUR DIG ALERT I.D. NUMBER, CALL UNDERGROUND SERVICE ALERT, TOLL FREE 1-800-422-4133, TWO DAYS BEFORE YOU DIG.

3. CONTRACTOR SHALL IMPLEMENT AN EROSION AND SEDIMENT CONTROL PROGRAM DURING THE PROJECT GRADING AND/OR CONSTRUCTION ACTIVITIES. THE PROGRAM SHALL MEET ALL APPLICABLE REQUIREMENTS OF THE STATE WATER RESOURCE CONTROL BOARD AND THE CITY OF SAN DIEGO MUNICIPAL CODE AND STORM WATER STANDARDS MANUAL.

4. "PUBLIC IMPROVEMENT SUBJECT TO DESUETUDE OR DAMAGE." IF REPAIR OR REPLACEMENT OF SUCH PUBLIC IMPROVEMENTS IS REQUIRED, THE OWNER SHALL OBTAIN THE REQUIRED PERMITS FOR WORK IN THE PUBLIC RIGHT-OF-WAY, SATISFACTORY TO THE PERMIT- ISSUING AUTHORITY.

5. ALL EXISTING AND/OR PROPOSED PUBLIC UTILITY SYSTEM AND SERVICE FACILITIES SHALL BE INSTALLED UNDERGROUND IN ACCORDANCE WITH SECTION 144.0240 OF THE MUNICIPAL CODE.

6. DEVIATIONS FROM THESE SIGNED PLANS WILL NOT BE ALLOWED UNLESS A CONSTRUCTION CHANGE IS APPROVED BY THE ENGINEER OF WORK.

7. AS-BUILT DRAWINGS MUST BE SUBMITTED TO THE ENGINEER PRIOR TO ACCEPTANCE OF THIS PROJECT BY THE CITY OF SAN DIEGO.

8. CONTRACTOR SHALL REMOVE AND REPLACE ALL UTILITY BOXES SERVING AS HANDHOLES THAT ARE NOT IN "AS-NEW" CONDITION IN PROPOSED SIDEWALK. DAMAGED BOXES, OR THOSE THAT ARE NOT IN COMPLIANCE WITH CURRENT CODE SHALL BE REMOVED AND REPLACED WITH NEW BOXES, INCLUDING WATER, SEWER, TRAFFIC SIGNALS, STREET LIGHTS, DRY UTILITIES-SDG&E, COX, ETC. ALL NEW METAL LIDS SHALL BE SLIP RESISTANT (FRICTION FACTOR >/= 0.50) AND INSTALLED FLUSH WITH PROPOSED SIDEWALK GRADE. IF A SLIP RESISTANT METAL LID IS NOT COMMERCIALLY AVAILABLE FOR THAT USE, NEW BOXES AND LIDS SHALL BE INSTALLED.

SPECIAL NOTES

THE FOLLOWING NOTES ARE PROVIDED TO GIVE DIRECTIONS TO THE CONTRACTOR BY THE ENGINEER OF WORK.

1. THE ENGINEER OF WORK SHALL NOT BE RESPONSIBLE FOR THE CONTRACTOR'S FAILURE TO CARRY OUT CONSTRUCTION WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS, NOR SHALL THE ENGINEER BE REQUIRED TO SUPERVISE CONDUCT OF THE WORK OF THE CONSTRUCTION PROCEDURES AND SAFETY PROCEDURES FOLLOWED BY THE CONTRACTOR OR SUBCONTRACTORS OR THEIR RESPECTIVE EMPLOYEES OR BY ANOTHER PERSON AT THE JOB SITE OTHER THAN THAT OF THE ENGINEER'S EMPLOYEES.

2. THE LOCATIONS OF ANY UNDERGROUND STRUCTURES AS SHOWN ON THESE PLANS HAVE BEEN OBTAINED FROM AVAILABLE RECORDS AND ARE SHOWN FOR THE BENEFIT OF THE CONTRACTOR. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONARY MEASURES TO PROTECT UNDERGROUND OR OVERHEAD STRUCTURES WHETHER SHOWN OR NOT ON THESE DRAWINGS.

LEGEND

NEW 3" AC / 6" BASE PAVEMENT SECTION OVER 12" SUBGRADE COMPACTED TO 95%

CONCRETE POOL DECK SEE ARCHITECTURAL PLAN DP-4

SLOTTED DRAIN PER POOL DECK PLAN DP-4

PVC STORM DRAIN. SIZE PER PLAN

SPOT ELEVATION..... FS 81.10

CONSTRUCTION NOTES

1. MAINTAIN MINIMUM 2% SLOPE ON ALL STORM DRAIN PIPES
2. MAINTAIN MINIMUM 12" COVER ON ALL STORM DRAIN PIPES
2. CONTRACTOR TO VERIFY STORM DRAIN POC INVERT BEFORE CONSTRUCTION

SCALE: 1"=10'

10 5 0 10 20 30

SCALE: 1"=10'

C-1

STORM DRAIN DATA TABLE				
NO	BEARING/DELTA	RADIUS	LENGTH	NOTE
1	N 76°59'21" W	---	29.59'	10" SDR 35 PVC
2	N 00°15'41" E	---	42.50'	8" SDR 35 PVC
3	N 89°52'56" W	---	17.00'	8" SDR 35 PVC
4	N 17°08'36" W	---	35.68'	8" SDR 35 PVC
5	N 17°08'36" W	---	26.75'	8" SDR 35 PVC
6	N 89°44'19" W	---	79.08'	6" SDR 35 PVC
7	N 19°40'46" E	---	18.05'	6" SDR 35 PVC
8	N 00°15'41" E	---	32.00'	6" SDR 35 PVC
9	N 00°15'41" E	---	32.00'	6" SDR 35 PVC

STORM DRAIN DATA TABLE				
NO	BEARING/DELTA	RADIUS	LENGTH	NOTE
10	N 00°15'41" E	---	24.00'	6" SDR 35 PVC
11	N 89°44'19" W	---	26.08'	6" SDR 35 PVC
12	N 65°46'34" W	---	19.70'	6" SDR 35 PVC
13	N 89°44'19" W	---	18.00'	6" SDR 35 PVC
14	N 32°28'26" W	---	16.64'	6" SDR 35 PVC
15	N 65°03'37" E	---	18.79'	6" SDR 35 PVC
16	N 89°44'19" W	---	27.67'	8" SDR 35 PVC
17	N 89°44'19" W	---	87.08'	6" SDR 35 PVC
18	N 19°10'43" W	---	18.03'	6" SDR 35 PVC

CONSTRUCTION CHANGE / ADDENDUM

CHANGE	DATE	AFFECTED OR ADDED SHEET NUMBERS	APPROVAL NO.

WARNING

0 1

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE.

CITY OF SAN DIEGO
PUBLIC WORKS PROJECT

TEMPORARY BMP CONSTRUCTION SITE STORM WATER PRIORITY: HIGH ____ MEDIUM ____ LOW____

CONSULTANT

AQUATIC DESIGN GROUP
2226 FARADAY AVE., CARLSBAD, CA 92008
Tel 760.438.8400 Fax 760.438.5251

SPEC. NO.

REGISTERED PROFESSIONAL ENGINEER ROBERT R. GEORGE No. 67777 Exp. 12/31/12 CIVIL STATE OF CALIFORNIA

PLANS FOR THE CONSTRUCTION OF
MEMORIAL POOL

CITY OF SAN DIEGO, CALIFORNIA
ENGINEERING AND CAPITAL PROJECTS DEPARTMENT

WBS S-00970

SHEET 9 OF 39 SHEETS

APPROVED: _____ FOR CITY ENGINEER

DATE 7/13/12

SUBMITTED BY: SAMIR MAHMALJI PROJECT OFFICER II

DESCRIPTION	BY	APPROVED	DATE	FILMED
ORIGINAL	ADG			

CLARK RITTER PROJECT MANAGER

194-1725 CCS27 COORDINATE

6286404. 1834444 CCS83 COORDINATE

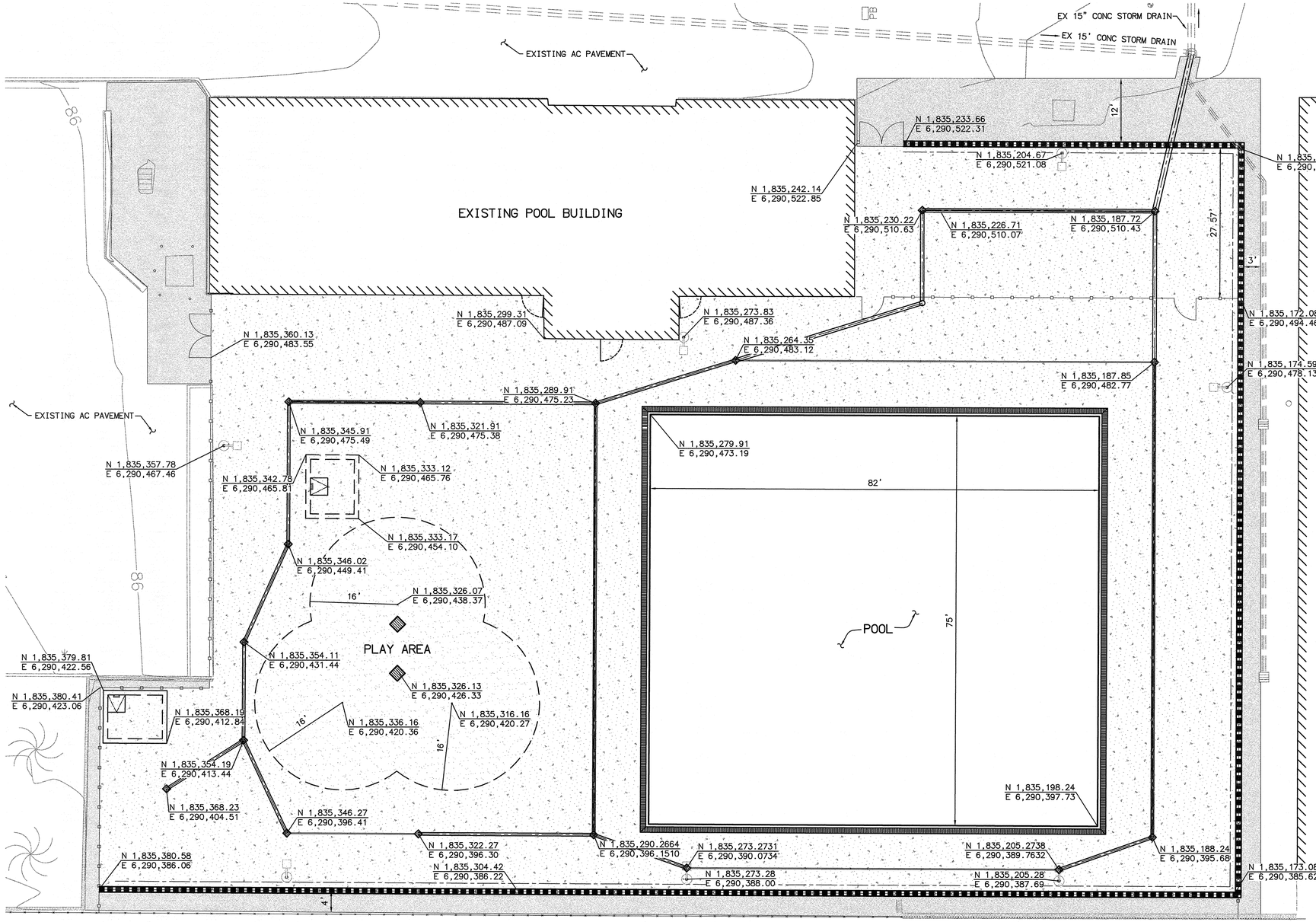
CONTRACTOR _____ DATE STARTED _____

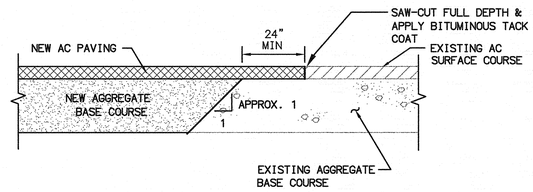
INSPECTOR _____ DATE COMPLETED _____

36152-9-D

MEMORIAL POOL

H:\PDATA\25103682\CADD\LAND\DLV3682-GR-01.DWG JROMLAND 3/14/11 7:45 pm





NEW TO EXISTING PAVEMENT TRANSITION

N.T.S.

BASIS OF BEARINGS

THE BASIS OF BEARINGS FOR THIS SURVEY IS THE CALIFORNIA COORDINATE SYSTEM (NAD83) ZONE 6,AS DETERMINED BY THE LINE BETWEEN STATION 1146 AND STATION 1149 PER ROS 14492 WITH A BEARING OF N35°01'15"E.

BENCHMARK

CITY OF SAN DIEGO BM – THE SOUTHWEST BRASS PLUG AT THE INTERSECTION OF 28TH STREET AND HARRISON AVENUE.
ELEVATION = 89.081 DATUM: NGVD29

SCALE: 1"=10'

10 5 0 10 20 30

SCALE: 1"=10'

HORIZONTAL CONTROL PLAN

C-2

MEMORIAL POOL

H:\PDATA\25103682\CADD\LAND\DLV\3682-HC-01.DWG JROWLAND 3/14/11 7:45 pm

CONSTRUCTION CHANGE / ADDENDUM			
CHANGE	DATE	AFFECTED OR ADDED SHEET NUMBERS	APPROVAL NO.

WARNING
0 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE.

CITY OF SAN DIEGO
PUBLIC WORKS PROJECT

TEMPORARY BMP CONSTRUCTION SITE STORM WATER PRIORITY: HIGH ____ MEDIUM ____ LOW____

SPEC. NO.

CONSULTANT

AQUATIC DESIGN GROUP
2226 FARADAY AVE., CARLSBAD, CA 92008
Tel 760.438.8401 Fax 760.438.5251

REGISTERED PROFESSIONAL ENGINEER ROBERT R. GERMAN No. 67777 Exp. 12/31/12 CIVIL STATE OF CALIFORNIA

PLANS FOR THE CONSTRUCTION OF MEMORIAL POOL

CITY OF SAN DIEGO, CALIFORNIA
ENGINEERING AND CAPITAL PROJECTS DEPARTMENT
SHEET 10 OF 39 SHEETS

APPROVED: Samir M. 7/13/12
FOR CITY ENGINEER DATE

DESCRIPTION	BY	APPROVED	DATE	FILMED
ORIGINAL	ADG			

CONTRACTOR _____ DATE STARTED _____
INSPECTOR _____ DATE COMPLETED _____

WBS S-00970

SUBMITTED BY:
SAMIR MAHMALJI
PROJECT OFFICER

CLARK RITTER
PROJECT MANAGER

194-1725
CCS27 COORDINATE

6286404. 1834444
CCS83 COORDINATE

36152-10-D

EROSION CONTROL NOTES

1. ALL BUILDING PADS ARE TO BE DIKED AND THE DIKES MAINTAINED TO PREVENT WATER FROM FLOWING FROM THE PAD UNTIL THE STREETS AND DRIVEWAYS ARE PAVED AND WATER CAN FLOW FROM THE PADS WITHOUT CAUSING EROSION, OR CONSTRUCT DRAINAGE FACILITES TO THE SATISFACTION OF THE COUNTY DEPARTMENT OF PUBLIC WORKS THAT WILL ALLOW WATER TO DRAIN FROM THE PAD WITHOUT CAUSING EROSION.

2. TOPS OF ALL SLOPES ARE TO BE DIKED OR TRENCHED TO PREVENT WATER FROM FLOWING OVER THE CREST OF THE SLOPES.

3. MANUFACTURED SLOPES AND PADS SHALL BE ROUNDED VERTICALLY AND HORIZONTALLY AS APPROPRIATE TO BLEND WITH THE SURROUNDING TOPOGRAPHY.

4. AS SOON AS CUTS OR EMBANKMENTS ARE COMPLETED, BUT NOT LATER THAN OCTOBER 1, ALL CUT AND FILL SLOPES SHALL BE STABILIZED WITH A HYDROMULCH MIXTURE OR AN EQUAL TREATMENT APPROVED BY THE COUNTY DEPARTMENT OF PUBLIC WORKS. BETWEEN OCTOBER 1 AND APRIL 30, APPROVED SLOPE PROTECTION MEASURES SHALL PROCEED IMMEDIATELY BEHIND THE EXPOSURE OF CUT SLOPES AND/OR THE CREATION OF EMBANKMENT SLOPES.

5. CATCH BASINS, DESILTING BASINS AND STORM DRAIN SYSTEMS SHALL BE INSTALLED TO THE SATISFACTION OF THE COUNTY DEPARMENT OF PUBLIC WORKS.

6. GRAVEL BAG CHECK DAMS ARE TO BE PLACED IN A MANNER APPROVED BY THE COUNTY DEPARTMENT OF PUBLIC WORKS IN UNPAVED STREETS WITH GRADIENTS IN EXCESS OF 2% AND ON OR IN OTHER GRADED OR EXCAVATED AREAS AS REQUIRED BY THE COUNTY DEPARTMENT OF PUBLIC WORKS.

7. THE DEVELOPER TO MAINTAIN THE PLANTING AND EROSION CONTROL MEASURES DESCRIBED ABOVE UNTIL RELIEVED OF SAME BY THE COUNTY DEPARTMENT OF PUBLIC WORKS. THE DEVELOPER TO REMOVE ALL SOIL INTERCEPTED BY THE GRAVEL BAGS, CATCH BASINS AND DESILTING BASINS AND KEEP THESE FACILITIES CLEAN AND FREE OF SALT AND SAND AND SHALL REPAIR ANY ERODED SLOPES AS DIRECTED BY THE COUNTY DEPARTMENT OF PUBLIC WORKS.

SILTATION AND SEDIMENT CONTROL MEASURES NOTES:

1. THE SEDIMENT BASINS SHALL BE PROVIDED AT THE LOWER END OF EVERY DRAINAGE AREAPRODUCING SEDIMENT RUNOFF. THE BASINS SHALL BE MAINTAINED AND CLEANED TO DESIGN CONTOURS AFTER EVERY RUNOFF-PRODUCING STORM. THE BASINS SHOULD BE SEMI-PERMANENT STRUCTURES THAT WOULD REMAIN UNTIL SOIL STABILIZING VEGETATION HAS BECOME WELL ESTABLISHED ON ALL ERODIBLE SLOPES.

2. SEDIMENTATION BASINS MAY NOT BE REMOVED OR MADE INOPERATIVE WITHOUT PRIOR APPROVAL OF THE COUNTY ENGINEER.

3. UTILITY TRENCHES THAT ARE CUT THROUGH BASIN DIKES OR BASIN INLET DIKES SHALL BE PLUGGED WITH GRAVEL BAGS FROM TOP OF PIPE TO TOP OF DIKE.

4. ALL UTILITY TRENCHES SHALL BE BLOCKED AT THE PRESCRIBED INTERVALS WITH A DOUBLE ROW OF GRAVEL BAGS WITH A TOP ELEVATION THAT IS TWO GRAVEL BAGS BELOW THE GRADED SURFACE OF THE STREET. GRAVEL BAGS ARE TO BE PLACED WITH LAPPED COURSES. THE INTERVALS PRESCRIBED BETWEEN GRAVEL BAG BLOCKING SHALL DEPEND ON THE SLOPE OF GROUND SURFACE BUT SHALL NOT EXCEED THE FOLLOWING:

GRADE OF THE STREET	INTERVAL
LESS THAN 2%	200 FEET MAXIMUM
2% TO 4%	100 FEET
4% TO 10%	50 FEET
OVER 10%	25 FEET

5. AFTER UTILITY TRENCHES ARE BACKFILLED AND COMPACTED, THE SURFACES OVER SUCH TRENCHES SHALL BE MOUNDED SLIGHTLY TO PREVENT CHANNELING OF WATER IN THE TRENCH AREA. CARE SHOULD BE EXERCISED TO PROVIDE FOR CROSS FLOW AT FREQUENT INTERVALS WHERE TRENCHES ARE NOT ON THE CENTERLINE OF A CROWNED STREET.

6. ALL BUILDING PADS SHOULD BE SLOPED TOWARDS THE DRIVEWAYS AND VELOCITY CHECK DAMS PROVIDED AT THE BASE OF ALL DRIVEWAYS DRAINING INTO THE STREET.

7. PROVIDE VELOCITY CHECK DAMS IN ALL UNPAVED GRADED CHANNELS AT THE INTERVALS INDICATED BELOW:

GRADE OF CHANNEL	INTERVALS BETWEEN CHECK DAMS
LESS THAN 3%	100 FEET
3% TO 6%	50 FEET
OVER 6%	25 FEET

8. PROVIDE VELOCITY CHECK DAMS IN ALL PAVED STREET AREAS ACCORDING TO INTERVALS INDICATED BELOW. VELOCITY CHECK DAMS MAY BE CONSTRUCTED OF GRAVEL BAGS, TIMBER OR OTHER EROSION RESISTANT MATERIALS APPROVED BY THE COUNTY ENGINEER, AND SHALL EXTEND COMPLETELY ACROSS THE STREET OR CHANNEL AT RIGHT ANGLES TO THE CENTERLINE. VELOCITY CHECK DAMS MAY ALSO SERVE AS SEDIMENT TRAPS.

GRADE OF STREET	INTERVAL	NO. OF BAGS HIGH
LESS THAN 2%	AS REQUIRED, 200' MAX	1
2% TO 4%	100 FEET	1
4% TO 6%	50 FEET	1
6% TO 10%	50 FEET	2
MORE THAN 10%	25 FEET	2

9. PROVIDE A GRAVEL BAG SILT BASIN OR TRAP BY EVERY STORM DRAIN INLET TO PREVENT SEDIMENT FROM ENTERING DRAIN SYSTEM.

10. GRAVEL BAGS AND FILL MATERIAL SHALL BE STOCKPILED AT INTERVALS, READY FOR USE WHEN REQUIRED.

11. ALL EROSION CONTROL DEVICES WITHIN THE DEVELOPMENT SHOULD BE MAINTAINED DURING AND AFTER EVERY RUNOFF-PRODUCING STORM, IF POSSIBLE. MAINTENANCE CREWS WOULD BE REQUIRED TO HAVE ACCESS TO ALL AREAS.

12. PROVIDE ROCK RIPRAP ON CURVES AND STREET DROPS IN ALL EROSION PRONE DRAINAGE CHANNELS DOWNSTREAM FROM THE DEVELOPMENT. THIS PROTECTION WOULD REDUCE EROSION CAUSED BY THE INCREASED FLOWS THAT MAY BE ANTICIPATED FROM DENUDED SLOPES, OR FROM IMPERVIOUS SURFACES.

13. ANY PROPOSED ALTERNATE CONTROL MEASURES MUST BE APPROVED IN ADVANCE BY ALL RESPONSIBLE AGENCIES: I.E., COUNTY ENGINEER, DEPARMENT OF SANITATION AND FLOOD CONTROL, OFFICE OF ENVIRONMENTAL MANAGEMENT, ETC.

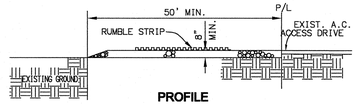
STORMWATER PROTECTION NOTES

1. DURING THE RAINY SEASON THE AMOUNT OF EXPOSED SOIL ALLOWED AT ONE TIME SHALL NOT EXCEED THAT WHICH CAN BE ADEQUATELY PROTECTED BY THE PROPERTY OWNER IN THE THE EVENT OF A RAINSTORM. 125% OF ALL SUPPLIES NEEDED FOR BMP (BEST MANAGEMENT PRACTICES) MEASURES SHALL BE RETAINED ON THE JOB SITE IN A MANNER THAT ALLOWS FULL DEPLOYMENT AND COMPLETE INSTALLATION IN 48 HOURS OR LESS OF A FORECAST RAIN.

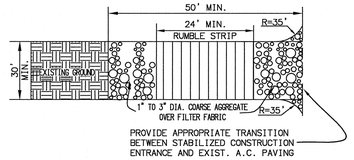
2. NO AREA BEING DISTURBED SHALL EXCEED 50 ACRES AT ANY GIVEN TIME WITHOUT DEMONSTRATING TO THE SAN DIEGO COUNTY DPW DIRECTOR'S SATISFACTION THAT ADEQUATE EROSION AND SEDIMENT CONTROL CAN BE MAINTAINED. ANY DISTURBED AREA THAT IS NOT ACTIVELY GRADED FOR 10 DAYS MUST BE FULLY PROTECTED FROM EROSION. UNTIL ADEQUATE LONG-TERM PROTECTIONS ARE INSTALLED, THE DISTURBED AREA SHALL BE INCLUDED WHEN CALCULATING THE ACTIVE DISTURBANCE AREA. ALL EROSION CONTROL MEASURES SHALL REMAIN INSTALLED AND MAINTAINED DURING ANY INACTIVE PERIOD.

3. THE PROPERTY OWNER IS OBLIGATED TO INSURE COMPLIANCE WITH ALL APPLICABLE STORMWATER REGULATIONS AT ALL TIMES. THE BMP'S THAT HAVE BEEN INCORPORATED INTO THIS PLAN SHALL BE IMPLEMENTED AND MAINTAINED TO EFFECTIVELY PREVENT THE POTENTIALLY NEGATIVE IMPACTS OF THIS PROJECT'S CONSTRUCTION ACTIVITIES ON STORWATER QUALITY. THE MAINTENANCE OF THE BMP'S IS THE PERMITTEE'S RESPONSIBILITY, AND FAILURE TO PROPERLY INSTALL OR MAINTAIN THE BMP'S MAY RESULT IN ENFORCEMENT ACTION BY THE COUNTY OF SAN DIEGO OR OTHERS. IF INSTALLED BMP'S FAIL, THEY MUST BE REPAIRED OR REPLACED WITH AN ACCEPTABLE ALTERNATIVE WITHIN 24 HOURS, OR AS SOON AS SAFE TO DO SO.

4. ON PROJECTS OF GREATER THAN 1 ACRE, A NOTICE OF INTENT (NOI) MUST BE FILED WITH THE STATE WATER RESOURCES CONTROL BOARD (SWRCB) AND A STORMWATER POLLUTION PREVENTION PLAN (SWPPP) MUST BE PREPARED IN ACCORDANCE WITH THE REQUIREMENT OF CALIFORNIA GENERAL PERMIT FOR STORMWATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITY (PERMIT NO. %%U %%U) FOR ALL OPERATIONS ASSOCIATED WITH THESE PLANS. IF APPLICABLE, THE NON NUMBER ASSIGNED BY SWRCB FOR THIS PROJECT IS %%U %%U AND THE PERMITTEE SHALL KEEP A COPY OF THE SWPPP ON SITE AND AVAILABLE FOR REVIEW BY COUNTY.



PROFILE



PLAN

TEMPORARY GRAVEL CONSTRUCTION ENTRANCE/EXIT

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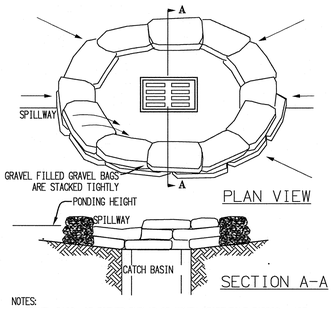


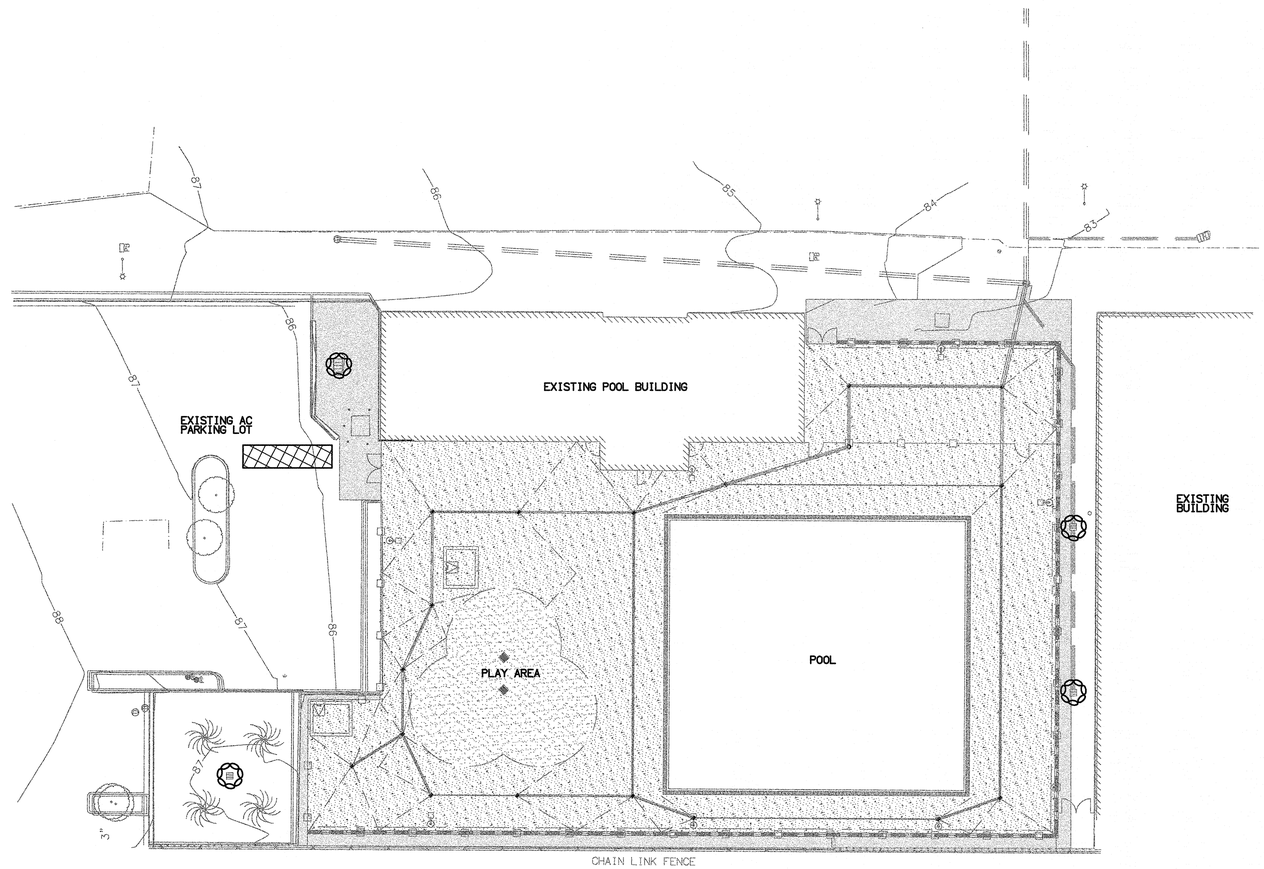
PLAN VIEW

SECTION A-A

NOTES:
1. GRAVEL BAGS, OF EITHER BURLAP OR WOVEN GEOTEXTILE FABRIC, ARE FILLED WITH GRAVEL, LAYERED AND PACKED TIGHTLY.
2. LEAVE ONE GRAVEL BAGS GAP IN THE TOP ROW TO PROVIDE A SPILLWAY FOR OVERFLOW.
3. INSPECT BARRIERS AND REMOVE SEDIMENT AFTER EACH STORM EVENT. SEDIMENT AND GRAVEL MUST BE REMOVED FROM THE TRAVELED WAY IMMEDIATELY.

CATCH BASIN / INLET PROTECTION

N.T.S.



LEGEND

ITEM	STANDARD DRAWING	SYMBOL
PROPOSED CATCH BASIN		
GRAVEL BAGS		
CATCH BASIN/INLET PROTECTION (SC-10)		
STABILIZED CONSTRUCTION ENTRANCE/EXIT		

SITE DRAINAGE NOTES:

1. NO OFFSITE DRAINAGE ENTERS THE PROJECT SITE.
2. PROVIDE CATCH BASIN INLET PROTECTION AT ALL PROPOSED CATCH BASINS.

SCALE: 1"=20'

20 10 0 20 40 60

SCALE: 1"=20'

EROSION CONTROL PLAN

C-3

MEMORIAL POOL

H:\PDATA\25103682\CADD\LAND\DLVY\3682-EC-01.DWG JROWLAND 3/14/11 7:46 pm

CONSTRUCTION CHANGE / ADDENDUM			
CHANGE	DATE	AFFECTED OR ADDED SHEET NUMBERS	APPROVAL NO.

WARNING

0 1

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE.

CITY OF SAN DIEGO
PUBLIC WORKS PROJECT

TEMPORARY BMP CONSTRUCTION SITE STORM WATER PRIORITY: HIGH ____ MEDIUM ____ LOW____

CONSULTANT

AQUATIC DESIGN GROUP
2226 FARADAY AVE., CARLSBAD, CA 92008
Tel 760.438.8400 Fax 760.438.5251

SPEC. NO.

REGISTERED PROFESSIONAL ENGINEER ROBERT R. GEORGE No. 67719 Exp. 12/31/12 CIVIL STATE OF CALIFORNIA

PLANS FOR THE CONSTRUCTION OF MEMORIAL POOL

CITY OF SAN DIEGO, CALIFORNIA
ENGINEERING AND CAPITAL PROJECTS DEPARTMENT
SHEET 11 OF 39 SHEETS

WBS S-00970

APPROVED: FOR CITY ENGINEER — DATE 7/13/12

SUBMITTED BY: SAMIR MAHMALJI, PROJECT OFFICER

DESCRIPTION	BY	APPROVED	DATE	FILMED
ORIGINAL	ADG			

CLARK RITTER, PROJECT MANAGER

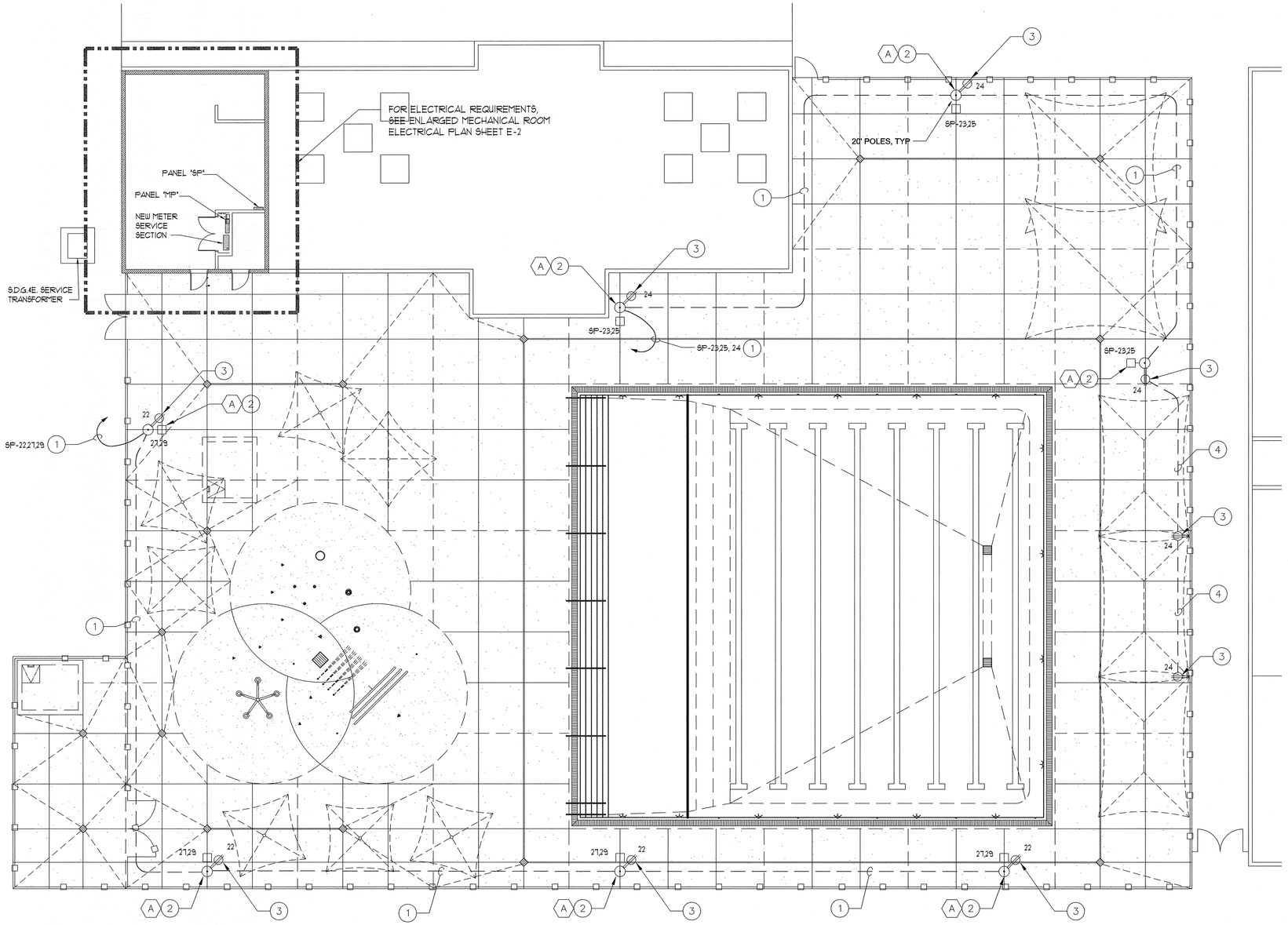
194-1725 CCS27 COORDINATE

6286404. 1834444 CCS83 COORDINATE

CONTRACTOR _____ DATE STARTED _____

INSPECTOR _____ DATE COMPLETED _____

36152-11-D



ELECTRICAL SYMBOLS LEGEND

SYMBOL	DESCRIPTION
(4)	NOTE DESINATION
(A)	LIGHT FIXTURE DESIGNATION
$	LIGHT SWITCH, TOGGLE TYPE, FLUSH WALL MOUNTED AT +42" U.N.O.
	DUPLEX CONVENIENCE OUTLET, FLUSH WALL MOUNTED AT +15" U.N.O.
	QUADRUPLEX (DOUBLE DUPLEX) CONVENIENCE OUTLET, FLUSH WALL MOUNTED AT +15" U.N.O.
DF	DISCONNECT SWITCH, FUSED TYPE
J	JUNCTION BOX
P-1,3,5	HOMERUN WITH PANEL AND CIRCUIT DESINATIONS
	CONDUIT RUN CONCEALED IN WALL OF ABOVE CEILING
	CONDUIT RUN CONCEALED BELOW FLOOR OF GRADE
	CONDUIT RUN EXPOSED
	FLEX CONDUIT CONNECTION TO LIGHT FIXTURE. LESS THAN 6'
WP	WEATHERPROOF
GFI	GROUND FAULT INTERRUPTING

LIGHTING FIXTURE SCHEDULE

FIXT DES	FIXT SYMBOL	LAMP TYPE	FIXTURE MOUNTING	LAMP DESC	WATTS	VOLTS	MFR/CATALOG	DESCRIPTION
A	⊡	METAL HALIDE	POLE	750W. METEAL HALIDE	790	208	GARDCO 'GULL WING' GW-1-4XL-750PSMH-208-BRR OR APPROVED EQUAL	SINGLE LUMINAIRE ON 20' ROUND STRAIGHT ALUMINUM POLE, PULSE START MH WITH TYPE IV OPTICS.

NOTES:

1. 1" C, PVC, SCHEDULE 40, WITH (4) #10 & (1) #10 GROUND.
2. FOR POLE BASE AND INSTALLATION REQUIREMENTS SEE DETAIL — A / E-2
3. PROVIDE DUPLEX CONVENIENCE OUTLET, ON GFI CIRCUIT, MOUNTED IN CAST ALUMINUM, WEATHERPROOF BOX WITH LOCKING COVERPLATE.
4. 1" C, PVC, SCHEDULE 40, WITH (2) #10 & (1) #10 GROUND.

ELECTRICAL SITE PLAN

SCALE: 1" = 10'-0"

E-1

MEMORIAL POOL

CONSTRUCTION CHANGE / ADDENDUM			
CHANGE	DATE	AFFECTED OR ADDED SHEET NUMBERS	APPROVAL NO.

WARNING

0 1

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CITY OF SAN DIEGO
PUBLIC WORKS PROJECT

TEMPORARY BMP CONSTRUCTION SITE STORM WATER PRIORITY: HIGH _____ MEDIUM _____ LOW ___ SPEC. NO.

CONSULTANT

KANRAD ENGINEERING, INC.
CONSULTING ELECTRICAL ENGINEERS
9466 Black Mountain Road, Suite 250
San Diego, CA 92126
Phone (858)547-1100
Fax (858)547-1104
Email: kanrad@kanrad.net
Website: www.kanrad.net
FTP: ftp.kanrad.net

REGISTERED PROFESSIONAL ENGINEER — MICHAEL WAI KAN — No. 22004 — Exp. 9-30-13 — ELECTRICAL — STATE OF CALIFORNIA

PLANS FOR THE CONSTRUCTION OF
MEMORIAL POOL
ELECTRICAL SITE PLAN

CITY OF SAN DIEGO, CALIFORNIA
ENGINEERING AND CAPITAL PROJECTS DEPARTMENT
SHEET _____ OF 39 SHEETS

WBS S-00970

APPROVED: Susan M. FOR CITY ENGINEER — DATE 7/13/12

SUBMITTED BY: SAMIR MAHMALJI PROJECT OFFICER

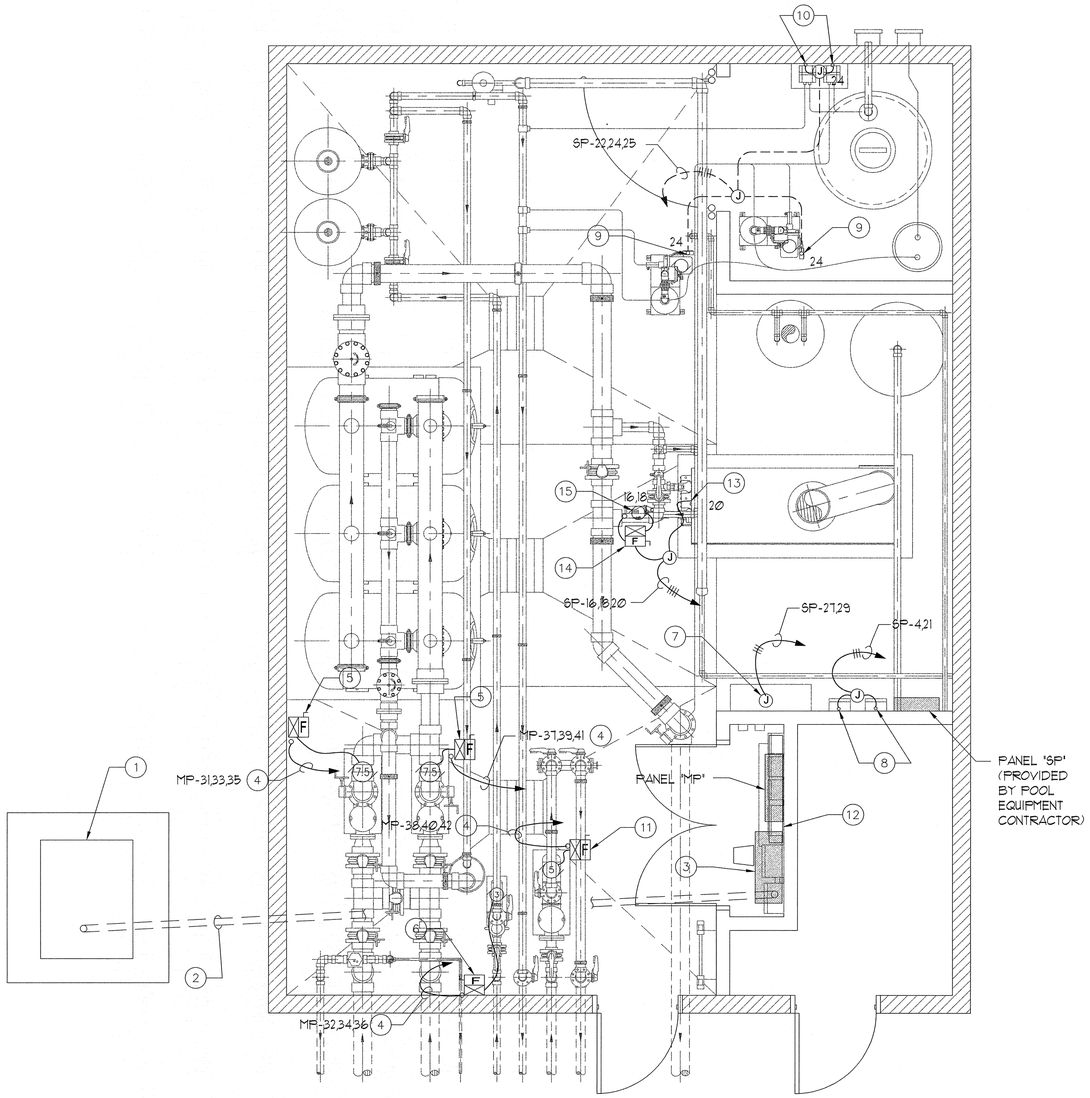
DESCRIPTION	BY	APPROVED	DATE	FILMED
ORIGINAL	ADG			

CLARK RITTER PROJECT MANAGER

CCS27 COORDINATE

CCS83 COORDINATE

CONTRACTOR _____ DATE STARTED _____
INSPECTOR _____ DATE COMPLETED _____

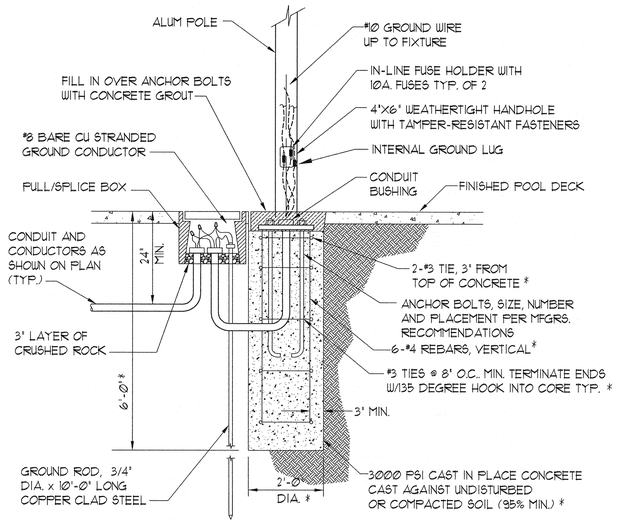


MECHANICAL ROOM ELECTRICAL PLAN

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

NOTES:

1. EXISTING PAD MOUNT SERVICE TRANSFORMER
2. EXISTING SECONDARY POWER SERVICE DUCT, (1) 3" PVC SCHED 40 PER S.D.G.4E. REQUIREMENTS.
3. UNDERGROUND PULL/TERMIATION AND METER SECTION, 400A, 3φ, 4-WIRE PER S.D.G.4E. REQUIREMENTS
4. SEE SINGLE LINE DIAGRAM SHEET E-3 FOR FEEDER REQUIREMENTS.
5. COMBINATION FUSED DISCONNECT SWITCH & MAGNETIC MOTOR STARTER, 60A, 3-POLE SWITCH & SIZE "1" STARTER. PROVIDE 30" W. x 36" D. CLEAR IN FRONT.
6. COMBINATION FUSED DISCONNECT SWITCH & MAGNETIC MOTOR STARTER, 30A, 3-POLE SWITCH & SIZE "0" STARTER. PROVIDE 30" W. x 36" D. CLEAR IN FRONT.
7. PROVIDE CONNECTION TO WET PLAY ULTRA VIOLET CONTROLLER, 1.1 KVA AT 208V. 1φ.
8. WATER CHEMISTRY, PROVIDE POWER CONNECTIONS AS NECESSARY.
9. PROVIDE POWER CONNECTIONS TO CO_2 FEED SYSTEMS.
10. PROVIDE POWER CONNECTIONS TO CHLORINE FEED SYSTEMS.
11. COMBINATION FUSED DISCONNECT SWITCH & MAGNETIC MOTOR STARTER, 30A, 3-POLE SWITCH & SIZE "0" STARTER. PROVIDE 30" W. x 36" D. CLEAR IN FRONT.
12. PROVIDE (2) 6" X 6" x 48" ELECTRICAL GUTTER ASSEMBLY. MOUNT (1) GUTTER ABOVE PANELS AND (1) BELOW PANELS. INTERCEPT EXISTING CIRCUITS TO REMAIN AND BE MAINTAINED AND EXTEND TO NEW PANEL "MP". MAKE ALL SPLICES AS NECESSARY TO RECONNECT EXISTING CIRCUITS.
13. PROVIDE CONNECTION TO HEATER GAS IGNITION, 120V. 1φ.
14. COMBINATION FUSED DISCONNECT SWITCH & MAGNETIC MOTOR STARTER, 30A, 2-POLE SWITCH & SIZE "0" STARTER. PROVIDE 30" W. x 36" D. CLEAR IN FRONT.
15. PROVIDE CONNECTION TO HEATER CIRCULATION PUMP 1½ HP, 208V. 1φ.



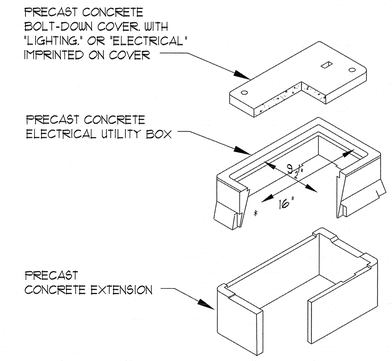
LIGHT POLE BASE & INSTALLATION DETAIL

A
E-2

SCALE: NOT TO SCALE

NOTE:

1. "*" POLE BASE FOUNDATION DESIGN SHALL BE REVIEWED AND APPROVED BY A REGISTERED STRUCTURAL ENGINEER PRIOR TO CONSTRUCTION



PULL/SPLICE BOX DETAIL

B
E-2

SCALE: NOT TO SCALE

* DIMENSIONS SHOWN UNLESS OTHERWISE SPECIFIED

E-2

MEMORIAL POOL

CONSTRUCTION CHANGE / ADDENDUM			
CHANGE	DATE	AFFECTED OR ADDED SHEET NUMBERS	APPROVAL NO.

WARNING
0 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE.

CITY OF SAN DIEGO
PUBLIC WORKS PROJECT

TEMPORARY BMP CONSTRUCTION SITE STORM WATER PRIORITY: HIGH _____ MEDIUM _____ LOW ___ SPEC. NO.

CONSULTANT

KANRAD ENGINEERING, INC.
CONSULTING ELECTRICAL ENGINEERS
9466 Black Mountain Road, Suite 250
San Diego, CA 92126
Phone (858)547-1100
Fax (858)547-1104
Email: kanrad@kanrad.net
Website: www.kanrad.net
FTP: ftp.kanrad.net

REGISTERED PROFESSIONAL ENGINEER
MOK W KAN
No. 8004
Exp. 9-30-13
ELECTRICAL
STATE OF CALIFORNIA

PLANS FOR THE CONSTRUCTION OF MEMORIAL POOL MECHANICAL ROOM ELECTRICAL PLAN

CITY OF SAN DIEGO, CALIFORNIA
ENGINEERING AND CAPITAL PROJECTS DEPARTMENT
SHEET _____ OF 39 SHEETS

WBS S-00970

APPROVED: Samir M. FOR CITY ENGINEER — DATE 7/13/12

SUBMITTED BY: SAMIR MAHMALJI PROJECT OFFICER

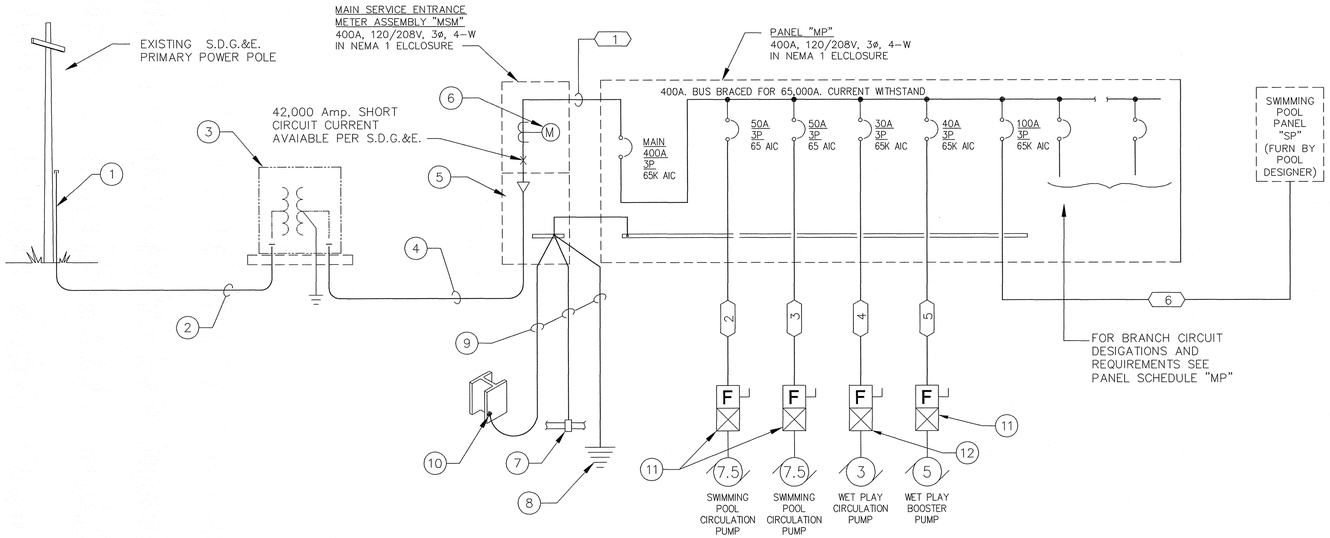
DESCRIPTION	BY	APPROVED	DATE	FILMED
ORIGINAL	ADG			

CLARK RITTER PROJECT MANAGER

CCS27 COORDINATE

CCS83 COORDINATE

CONTRACTOR _____ DATE STARTED _____
INSPECTOR _____ DATE COMPLETED _____



SINGLE LINE DIAGRAM

SCALE: NONE

NOTES:

1. EXISTING CONDUIT RISERS PER S.D.G.& E. REQUIREMENTS.
2. EXISTING PRIMARY POWER SERVICE DUCT RUN BELOW GRADE.
3. EXISTING PAD MOUNT SERVICE TRANSFORMER, BY S.D.G.&E.
4. EXISTING SECONDARY POWER SERVICE DUCT, (1) 3" PVC SCHED 40, WITH PULL ROPE PER S.D.G.&E. REQUIREMENTS.
5. UNDERGROUND PULL/TERMIATION SECTION, 400A, 3ϕ, 4-WIRE PER S.D.G.&E. REQUIREMENTS
6. PROVIDE KWH METERS AND CURRENT TRANSFORMERS PER S.D.G.&E. REQUIREMENTS.
7. GROUND CLAMP AT NEAREST ACCESSIBLE COLD METALLIC WATER PIPE.
8. "UFER" TYPE GROUNDING ELECTRODE PER NATIONAL ELECTRIC CODE SECTION 250 PARA 81(c). (IF AVAILABLE)
9. (1) #1/0 COPPER OR #3/0 ALUMINUM GROUND BOND.
10. GROUND BOND TO STRUCTURAL STEEL.
11. COMBINATION FUSED DISCONNECT SWITCH & MAGNETIC MOTOR STARTER, 60A, 3-POLE SWITCH & SIZE "1" STARTER.
12. COMBINATION FUSED DISCONNECT SWITCH & MAGNETIC MOTOR STARTER, 30A, 3-POLE SWITCH & SIZE "0" STARTER.

PANEL: "MP"	VOLTAGE: 120/208 V, 3 Φ 4 W	BUS SIZE: 400A.	MAIN: 400A. 3P.
LOC: SEE PLANS	MOUNTING: SURFACE	AIC RATING: 65000	FEED: TOP [X] BOTTOM [X]

CIRCUIT CODE: blank or N : NON-CONTINUOUS | L : LONG-CONTINUOUS | R : N.E.C Art 220-3 RECEPT | K : KITCHEN

ITEM	CODE	BKR	#	Φ A	Φ B	Φ C	#	BKR	CODE	ITEM	
LIGHTING, UTILITY AND REST ROOMS	L	20/1	1	600			2	40/1	L	LIGHTING EXTREIOR	[R]
				874							
LIGHTING PRIVATE OFFICES	L	20/1	3		600		4	20/1	N	MISCELANEOUS –	[X]
					500						
LIGHTING, OPER'S CENTER RECEPT & GENERAL OFF.	L	20/1	5			1440	6	20/1	N	SECIRITY SYSTEMS –	[X]
						180					
OFFICE RECEPTACLES	R	20/1	7	720			8	20/1	R	RESTROOMS & GENERAL RECEPTACLES	
				900							
HAND DRYER BOYS	R	20/1	9		600		10	20/1	R		
					720						
HAND DRYER GIRLS	R	20/1	11			900	12	20/1	R		
						720					
VENDING MACHINE RECEPTACLE	R	20/1	13	720			14	20/1	N	FIRE ALARM CONTROL PANEL	[X]
				180							
VENDING MACHINE RECEPTACLES	R	20/1	15		720		16	40/2	N	HVAC SYSTEM	
					2500						
	R	20/1	17			1080	18	2	N	PART OF CIRCUIT #16	
						2500					
FAN COILS	L	20	19	907			20	20/1	R	DIRECTORS OFF. RECEPTACLES	
				1080							
PART OF CIRC. #19	L	2	21		907		22	20/1	R	POOL AREA RECEPTACLES	GFI
					900						
[R] POOL DECK LIGHTING	L	20	23			1200	24	20/1	R	POOL AREA RECEPTACLES	GFI
						900					
[R] PART OF CIRCUIT #23	N	2	25	1200			26	100	R	SUBFEED TO PANEL "SP"	
				7701							
[R] POOL DECK LIGHTING	N	20	27		1600		28		R	PART OF CIRCUIT #26	
					8451						
[R] PART OF CIRCUIT #27	N	2	29			1600	30	3	R	PART OF CIRCUIT #26	
						8432					
SWIMMING POOL CIRCULATION PUMP	N	50	31	2900			32	30	R	WET PLAY CIRCULATION PUMP	
				1280							
PART OF CIRCUIT #31	N		33		2900		34		N	PART OF CIRCUIT #32	
					1280						
PART OF CIRCUIT #31		3	35			2900	36	3	N	PART OF CIRCUIT #32	
						1280					
SWIMMING POOL CIRCULATION PUMP	N	50	37	2900			38	40	N	WET PLAY BOOSTER PUMP	
				2000							
PART OF CIRCUIT #37	N		39		2900		40			PART OF CIRCUIT #38	
					2000						
PART OF CIRCUIT #37	N	3	41			2900	42	3		PART OF CIRCUIT #38	
						2000					

CONN. VA Φ A	18175	CONN. VA (CODE N)	35260	PANEL DEMAND KVA	56.8
CONN. VA Φ B	20729	CONN. VA (CODE L)	7864	PANEL DEMAND AMPS	157.6
CONN. VA Φ C	17540	CONN. VA (CODE R)	13320	PANEL CONN. AMPS	156.8
TOTAL CONNECTED VA	56444	CONN. VA (CODE K)		HIGH Φ AMPS W/LCL	176.7

[R] INDICATES CIRCUITS CONTROLLED BY AN ELECTRONIC TIME SWITCH WITH RESERVE POWER BATTERY/MECHANISM AND (6) 20A. 1-POLE LIGHTING RELAYS.

[X] INDICATES CIRCUIT BREAKER HANDLE FURNISHED WITH "LOCK-ON" DEVICE.

[GFI] INDICATES CIRCUIT BREAKER SHALL BE "GFI" (GROUND FAULT INTERRUPTING) TYPE.

FEEDER SCHEDULE

CABLE NO.	CONDUIT QTY	CONDUIT SIZE	CONDUIT MAT'L	CONDUCTORS IN EACH CONDUIT WIRE	INSULATION	MATERIAL	GROUND	REMARKS
1	1	3"	EMT	(4) #4/0 AWG	THWN	CU	(1) #2	FEED TO PANEL "MP" LESS THAM 10'
2	1	1"	EMT	(3) #8 AWG	THWN	CU	(1) #10	POOL CIRCULATION PUMP POWER
3	1	1"	EMT	(3) #8 AWG	THWN	CU	(1) #10	POOL CIRCULATION PUMP POWER
4	1	3/4"	EMT	(3) #12	THWN	CU	(1) #12	WET PLAY CIRCULATION PUMP
5	1	3/4"	EMT	(3) #10 AWG	THWN	CU	(1) #10	WET PLAY BOOSTER PUMP
6	1	1½"	EMT	(4) #2 AWG	THWN	CU	(1) #8	SUB-FEED TO POOL PANEL "SP"

ELECTRICAL LOAD SUMMARY

ITEM	DESCRIPTION	LOAD AMPS
1.	SWIMMING POOL CIRCULATION PUMP, 7½ HP	24.2
2.	SWIMMING POOL CIRCULATION PUMP, 7½ HP	24.2
3.	WET PLAY CIRCULATION PUMP, 3 HP	10.6
4.	WET PLAY BOOSTER PUMP, 5 HP	16.7
5.	LARGEST MOTOR LOAD AT 25%	6.1
6.	PANEL "MP" (WITHOUT PUMP LOADS)	81.1
TOTAL LOAD:		181.7

SINGLE LINE DIAGRAM, PANEL SCHEDULE AND LOAD SUMMARY

SCALE: NONE

E-3

MEMORIAL POOL

CONSTRUCTION CHANGE / ADDENDUM

CHANGE	DATE	AFFECTED OR ADDED SHEET NUMBERS	APPROVAL NO.

WARNING

0 1

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CITY OF SAN DIEGO
PUBLIC WORKS PROJECT

TEMPORARY BMP CONSTRUCTION SITE STORM WATER PRIORITY: HIGH _____ MEDIUM _____ LOW __SPEC. NO.

CONSULTANT

KANRAD ENGINEERING, INC.
CONSULTING ELECTRICAL ENGINEERS
9466 Black Mountain Road, Suite 250
San Diego, CA 92126
Phone (858)547-1100
Fax (858)547-1104
Email: kanrad@kanrad.net
Website: www.kanrad.net
FTP: ftp.kanrad.net

REGISTERED PROFESSIONAL ENGINEER — KNOK WAI KAM — No. 20304 — Exp. 9-30-13 — ELECTRICAL — STATE OF CALIFORNIA

PLANS FOR THE CONSTRUCTION OF
MEMORIAL POOL
SINGLE LINE DIAGRAM, PANEL SCHEDULE AND LOAD SUMMARY

CITY OF SAN DIEGO, CALIFORNIA
ENGINEERING AND CAPITAL PROJECTS DEPARTMENT
SHEET _____ OF 39 SHEETS

WBS S-00970

APPROVED: Samir M. FOR CITY ENGINEER — DATE 7/3/13

SUBMITTED BY: SAMIR MAHMALJI, PROJECT OFFICER

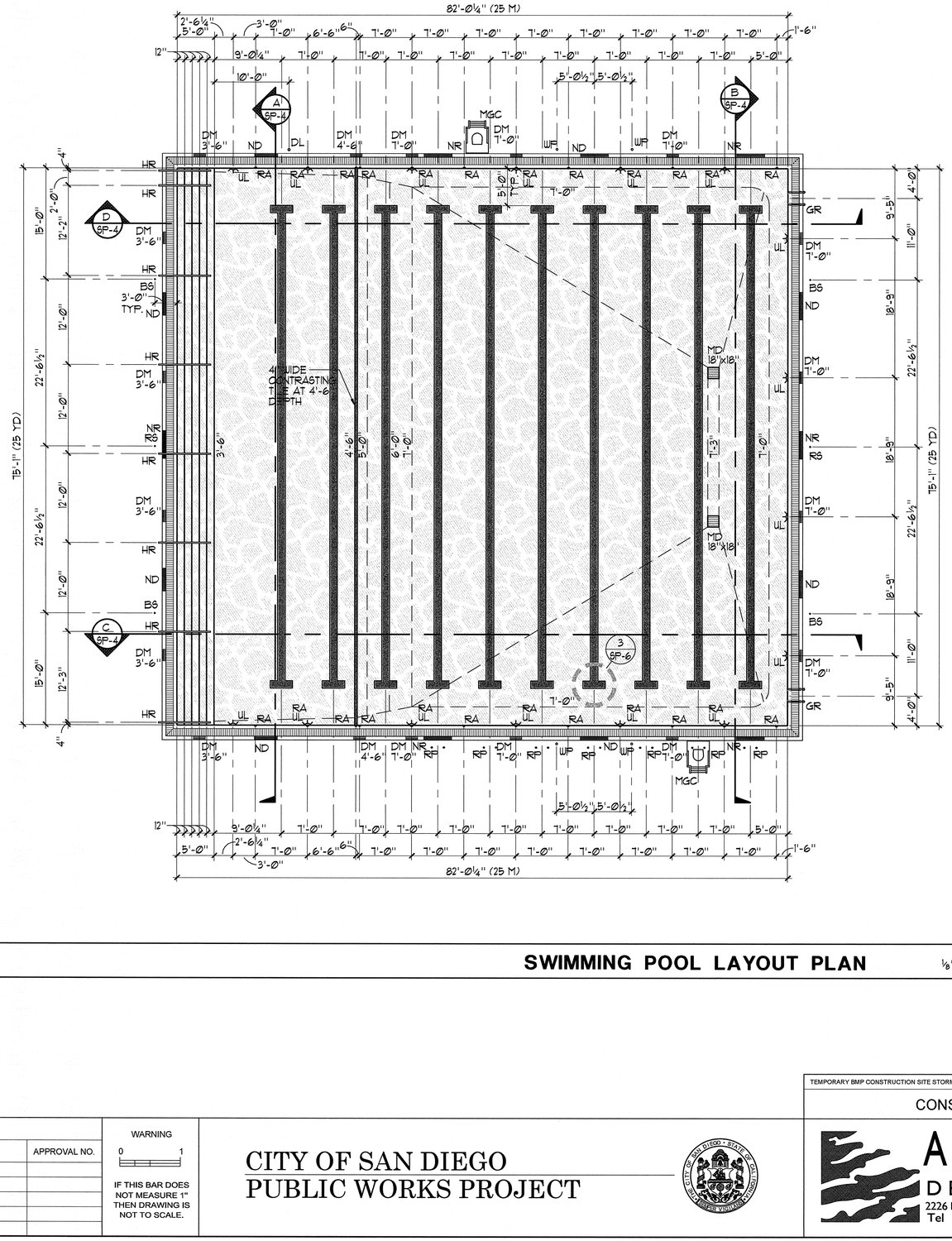
CLARK RITTER, PROJECT MANAGER

CCS27 COORDINATE

CCS83 COORDINATE

DESCRIPTION	BY	APPROVED	DATE	FILMED
ORIGINAL	ADG			

CONTRACTOR _____ DATE STARTED _____
INSPECTOR _____ DATE COMPLETED _____



SWIMMING POOL DATA

SURFACE AREA	=	6,158 SQ. FT.
PERIMETER	=	314 FT.
DEPTH	=	3'-6" TO 7'-3"
VOLUME	=	270,411 GAL.
6 HR TURNOVER	=	752 GPM

LEGEND

MD	=	MAIN DRAIN	1 / SP-9
RA	=	ROPE ANCHOR	2 / SP-11
UL	=	UNDERWATER LIGHT	1 / SP-11
GR	=	GRABRAIL	1 / SP-8
RP	=	RACING PLATFORM (PROVIDE ANCHORS ONLY)	2 / SP-8
DM	=	DEPTH MARKER	5 / SP-6
NR	=	'NO RUNNING'	4 / SP-6
ND	=	'NO DIVING'	4 / SP-6, 6 / SP-6
MGC	=	MOVEABLE GUARD CHAIR	4 / SP-8
BS/RS	=	BACKSTROKE/RECALL STANCHION	3 / SP-8
WP	=	WATER POLO GOAL (PROVIDE ANCHORS ONLY)	5 / SP-8
HR	=	HANDRAIL	1 / SP-10
DL	=	ACCESSIBLE LIFT	1 / SP-7

CERTIFICATION REQUIREMENTS

* THE CONTRACTOR SHALL RETAIN AN INDEPENDENT LICENSED SURVEYOR TO PROVIDE USA SWIMMING CERTIFICATION OF COMPLIANCE FOR REQUIRED POOL LENGTHS AS FOLLOWS: (RECOMMEND PATRELL ENG. GROUP (626) 335-4362)

  SHORT COURSE-25YDS: (ALLOWS FOR TOUCH PADS AT ONE END) 75'-0 5/16" MIN.: 75'-1 3/16" MAX.

  TOLERANCE AGAINST LENGTH SHALL EXTEND IN A VERTICAL PLANE Ø3M (12") ABOVE AND Ø8M. (2'-7½") BELOW THE SURFACE OF THE WATER AT ALL POINTS OF BOTH END WALLS TYP. OF ALL COURSES.

NORTH

MEMORIAL POOL

(1) **SWIMMING POOL LAYOUT PLAN** 1/8" = 1'-0"

SP-1

PLANS FOR THE CONSTRUCTION OF
MEMORIAL POOL
SWIMMING POOL LAYOUT PLAN

CONSTRUCTION CHANGE / ADDENDUM

CHANGE	DATE	AFFECTED OR ADDED SHEET NUMBERS	APPROVAL NO.

WARNING
0 1
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CITY OF SAN DIEGO
PUBLIC WORKS PROJECT

TEMPORARY BMP CONSTRUCTION SITE STORM WATER PRIORITY: HIGH ___ MEDIUM ___ LOW___

SPEC. NO.

CONSULTANT

AQUATIC DESIGN GROUP
2226 FARADAY AVE., CARLSBAD, CA 92008
Tel 760.438.8400 Fax 760.438.5251

LICENSED ARCHITECT MATT J. FERRARA C-26022 STATE OF CALIFORNIA

CITY OF SAN DIEGO, CALIFORNIA
ENGINEERING AND CAPITAL PROJECTS DEPARTMENT
SHEET 15 OF 39 SHEETS

WBS S-00970

APPROVED: Samir M FOR CITY ENGINEER — DATE 7/13/12

SUBMITTED BY: SAMIR MAHMALJI, PROJECT OFFICER II

DESCRIPTION	BY	APPROVED	DATE	FILMED
ORIGINAL	ADG			

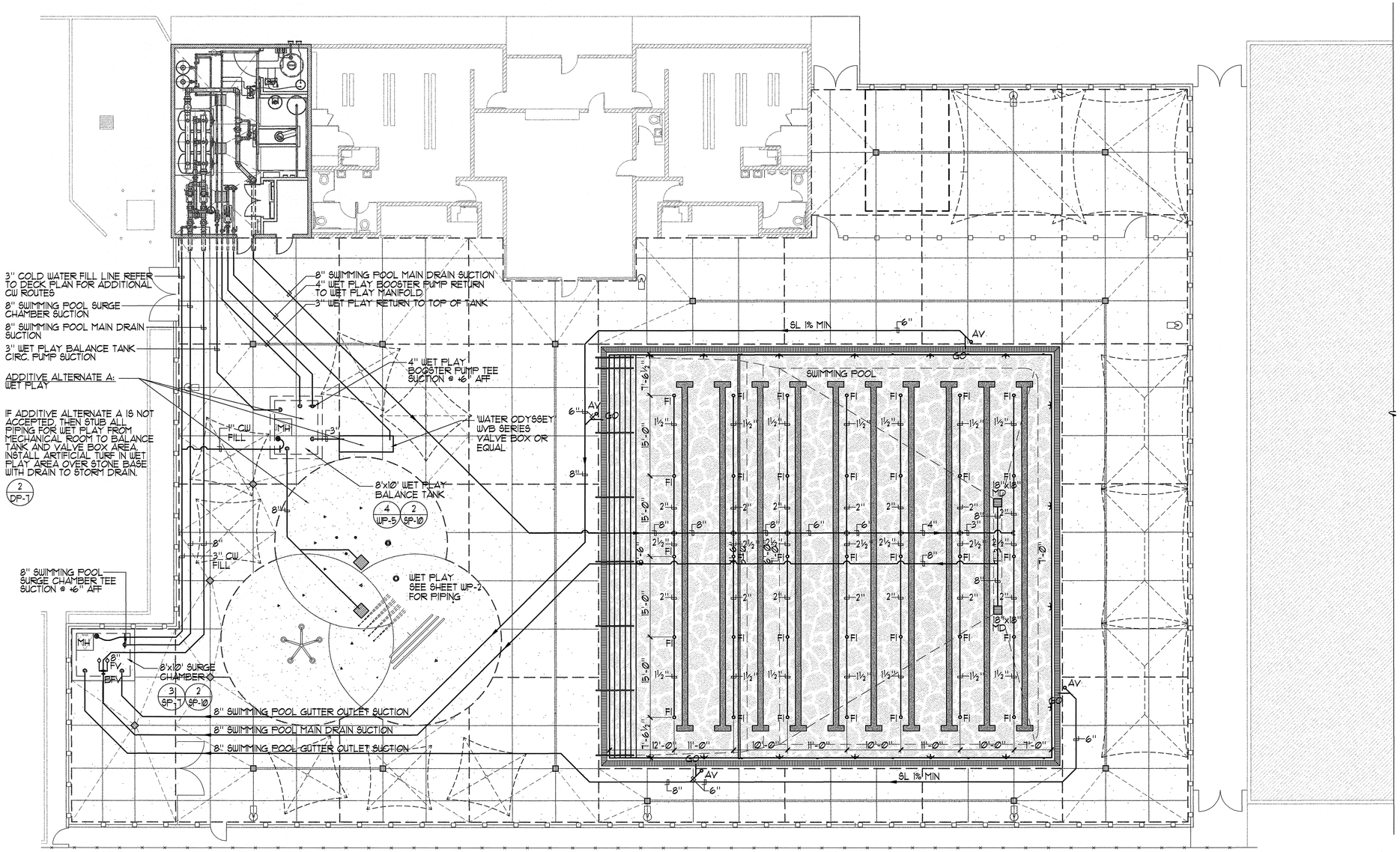
CLARK RITTER, PROJECT MANAGER

194-1725 CCS27 COORDINATE

6286404. 1834444 CCS83 COORDINATE

CONTRACTOR _____ DATE STARTED _____
INSPECTOR _____ DATE COMPLETED _____

36152-15-D



SWIMMING POOL DATA

SURFACE AREA	=	6,158 SQ. FT.
PERIMETER	=	314 FT.
DEPTH	=	3'-6" TO 7'-3"
VOLUME	=	270,411 GAL.
6 HR TURNOVER	=	752 GPM

SWIMMING POOL SURGE DATA

REQUIRED SURGE CAPACITY	=	6,158 GAL.
SURGE IN PERIMETER GUTTER	=	2,645 GAL.
SURGE IN SURGE CHAMBER	=	938 GAL.
TOTAL SUPPLIED SURGE	=	6,579 GAL.

∴ 6,579 GAL. > 6,158 GAL. + 6% OK

WET PLAY DATA

SURFACE AREA	=	1,895 SQ. FT.
VOLUME	=	4,000 GAL.
30 MIN. TURNOVER	=	133 GPM

WET PLAY WATER CALCULATIONS

CIRCULATION PUMP	=	143 GPM
BOOSTER PUMP	=	170 GPM
TOTAL	=	313 GPM

∴ 313 GPM. x 3 = 939 GPM. < 4,000 GPM. OK

LEGEND

MD	=	MAIN DRAIN — 1 SP-9
FI	=	FLOOR INLET — 2 SP-9
GO	=	GUTTER OUTLET — 4 SP-9
AV	=	AIR VENT — 3 SP-9
MH	=	MANHOLE — 4 SP-7, 5 WP-5
FV	=	FLOAT VALVE
BFV	=	BUTTERFLY VALVE
A.F.F.	=	ABOVE FINISHED FLOOR
CW	=	COLD WATER

NORTH

1 **SWIMMING POOL/WET PLAY PIPING PLAN** 1" = 10'-0"

SP-2

MEMORIAL POOL

PLANS FOR THE CONSTRUCTION OF
MEMORIAL POOL
SWIMMING POOL PIPING PLAN

CITY OF SAN DIEGO, CALIFORNIA
ENGINEERING AND CAPITAL PROJECTS DEPARTMENT
SHEET 16 OF 39 SHEETS

WBS S-00970

APPROVED: Samir M. FOR CITY ENGINEER — DATE 7/13/12

SUBMITTED BY: SAMIR MAHMALJI, PROJECT OFFICER II

DESCRIPTION	BY	APPROVED	DATE	FILMED
ORIGINAL	ADG			

CLARK RITTER, PROJECT MANAGER
194-1725, CCS27 COORDINATE
6286404, 1834444, CCS83 COORDINATE
CONTRACTOR — DATE STARTED
INSPECTOR — DATE COMPLETED
36152-16-D

TEMPORARY BMP CONSTRUCTION SITE STORM WATER PRIORITY: HIGH ___ MEDIUM ___ LOW ___

SPEC. NO.

CONSULTANT

AQUATIC DESIGN GROUP
2226 FARADAY AVE., CARLSBAD, CA 92008
Tel 760.438.8400 Fax 760.438.5251

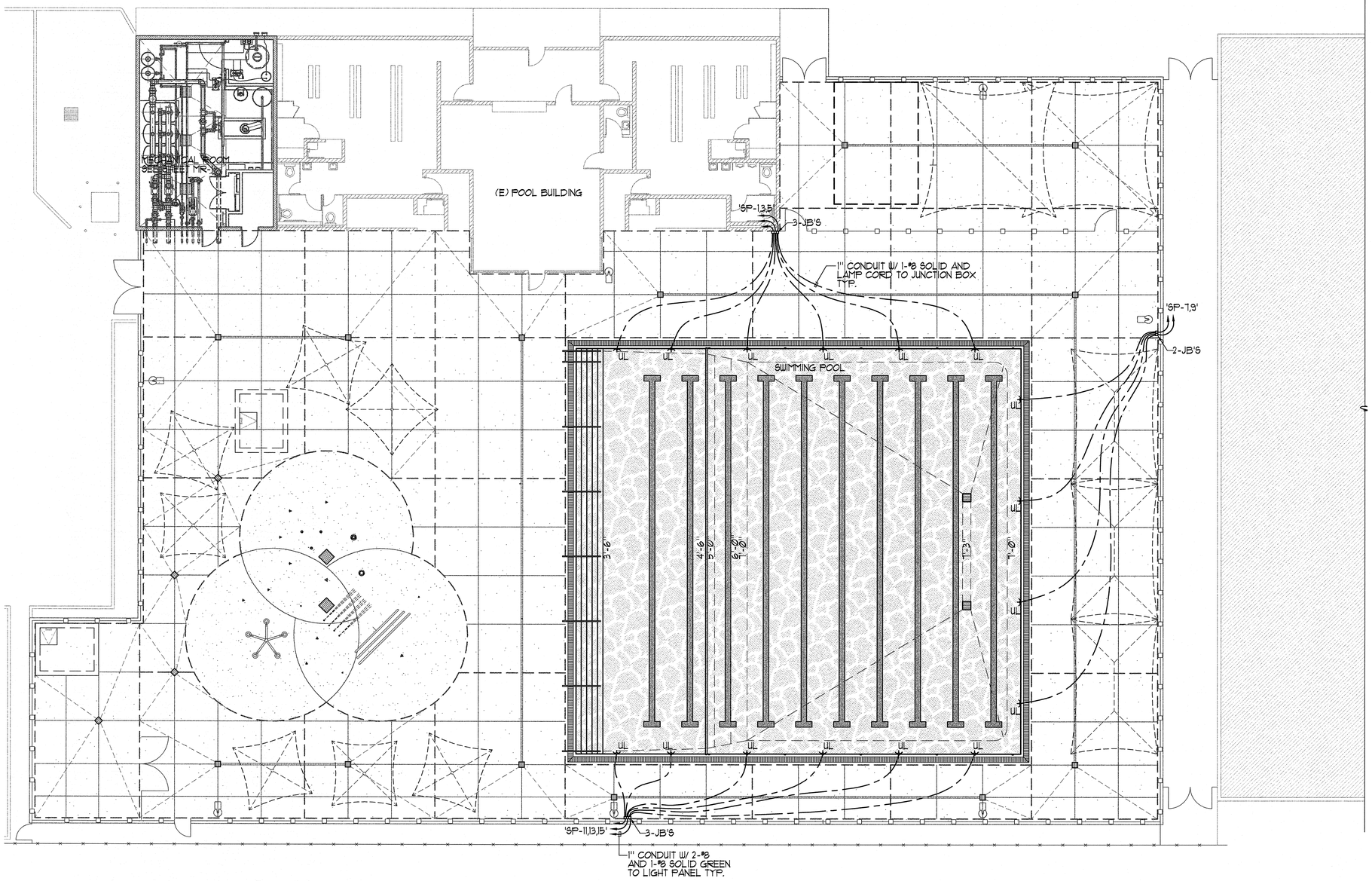
LICENSED ARCHITECT SCOTT J. FERRY C-25623 STATE OF CALIFORNIA

CONSTRUCTION CHANGE / ADDENDUM

CHANGE	DATE	AFFECTED OR ADDED SHEET NUMBERS	APPROVAL NO.

WARNING
0 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE.

CITY OF SAN DIEGO
PUBLIC WORKS PROJECT



SWIMMING POOL DATA

SURFACE AREA	=	6,158 SQ. FT.
PERIMETER	=	314 FT.
DEPTH	=	3'-6" TO 7'-3"
VOLUME	=	270,411 GAL.
6 HR TURNOVER	=	752 GPM

WET PLAY DATA

SURFACE AREA	=	1,895 SQ. FT.
VOLUME	=	4,000 GAL.
30 MIN. TURNOVER	=	133 GPM

LEGEND

UL = UNDERWATER LIGHT (1 / SP-11)

JB = JUNCTION BOX (3 / SP-10)

MEMORIAL POOL

1 SWIMMING POOL UNDERWATER LIGHT PLAN

1" = 10'-0"

SP-3

PLANS FOR THE CONSTRUCTION OF
MEMORIAL POOL
SWIMMING POOL UNDERWATER LIGHT PLAN

CONSTRUCTION CHANGE / ADDENDUM

CHANGE	DATE	AFFECTED OR ADDED SHEET NUMBERS	APPROVAL NO.

WARNING
0 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE.

CITY OF SAN DIEGO
PUBLIC WORKS PROJECT

TEMPORARY BMP CONSTRUCTION SITE STORM WATER PRIORITY: HIGH ___ MEDIUM ___ LOW___

CONSULTANT

AQUATIC DESIGN GROUP
2226 FARADAY AVE., CARLSBAD, CA 92008
Tel 760.438.8400 Fax 760.438.5251

SPEC. NO.

LICENSED ARCHITECT — ROBERT J. FERRARA — C-26222 — STATE OF CALIFORNIA

CITY OF SAN DIEGO, CALIFORNIA
ENGINEERING AND CAPITAL PROJECTS DEPARTMENT
SHEET 17 OF 39 SHEETS

WBS S-00970

APPROVED: Samir M. FOR CITY ENGINEER — DATE 7/13/12

SUBMITTED BY: SAMIR MAHMALJI, PROJECT OFFICER II

DESCRIPTION	BY	APPROVED	DATE	FILMED
ORIGINAL	ADG			

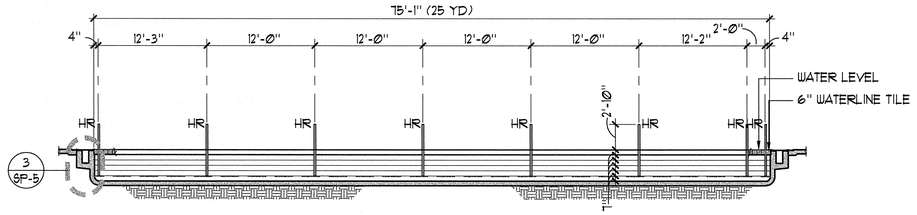
CLARK RITTER, PROJECT MANAGER

194-1725 CCS27 COORDINATE

6286404, 1834444 CCS83 COORDINATE

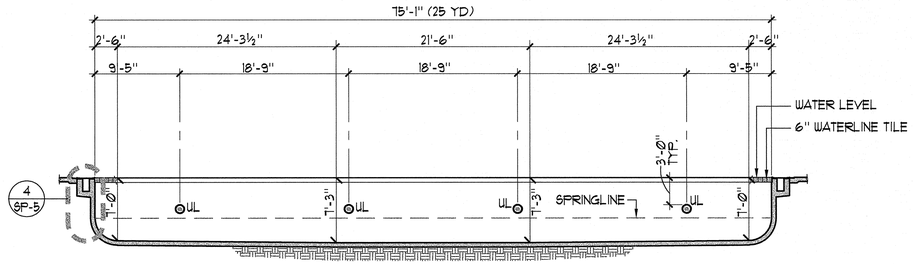
CONTRACTOR _____ DATE STARTED _____
INSPECTOR _____ DATE COMPLETED _____

36152-17-D



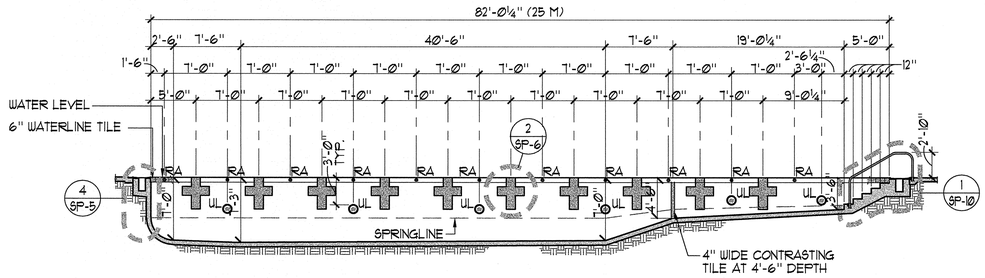
A SWIMMING POOL SECTION

1/8" = 1'-0"



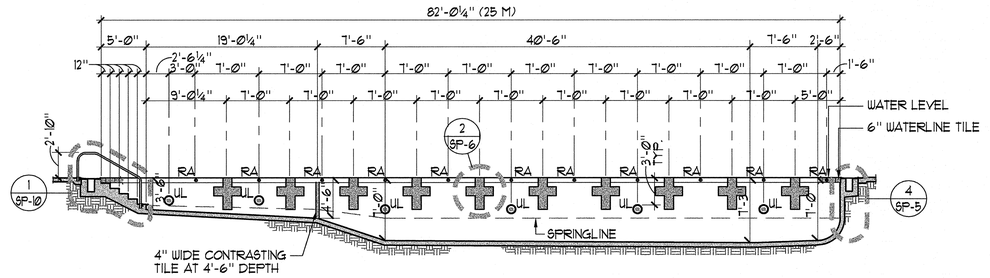
B SWIMMING POOL SECTION

1/8" = 1'-0"



C SWIMMING POOL SECTION

1/8" = 1'-0"



D SWIMMING POOL SECTION

1/8" = 1'-0"

SP-4

MEMORIAL POOL

CONSTRUCTION CHANGE / ADDENDUM			
CHANGE	DATE	AFFECTED OR ADDED SHEET NUMBERS	APPROVAL NO.

WARNING

0 1

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE.

CITY OF SAN DIEGO
PUBLIC WORKS PROJECT

TEMPORARY BMP CONSTRUCTION SITE STORM WATER PRIORITY: HIGH ___ MEDIUM ___ LOW ___

SPEC. NO.

CONSULTANT

AQUATIC DESIGN GROUP
2226 FARADAY AVE., CARLSBAD, CA 92008
Tel 760.438.8400 Fax 760.438.5251

LICENSED ARCHITECT — ROBERT J. FERRARA — C-25222 — STATE OF CALIFORNIA

PLANS FOR THE CONSTRUCTION OF
MEMORIAL POOL
SWIMMING POOL SECTIONS

CITY OF SAN DIEGO, CALIFORNIA
ENGINEERING AND CAPITAL PROJECTS DEPARTMENT
SHEET 18 OF 39 SHEETS

WBS S-00970

APPROVED: Samir M. 7/13/12
FOR CITY ENGINEER DATE

SUBMITTED BY:
SAMIR MAHMALJI
PROJECT OFFICER II

CLARK RITTER
PROJECT MANAGER

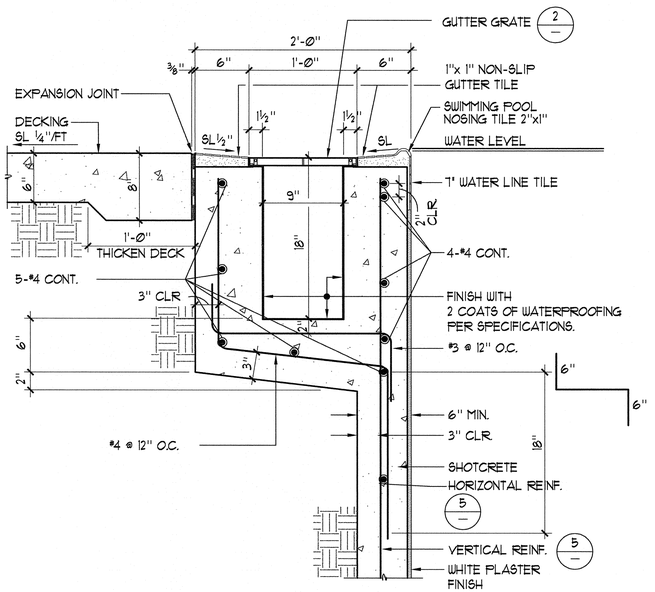
194-1725
CCS27 COORDINATE

6286404, 1834444
CCS83 COORDINATE

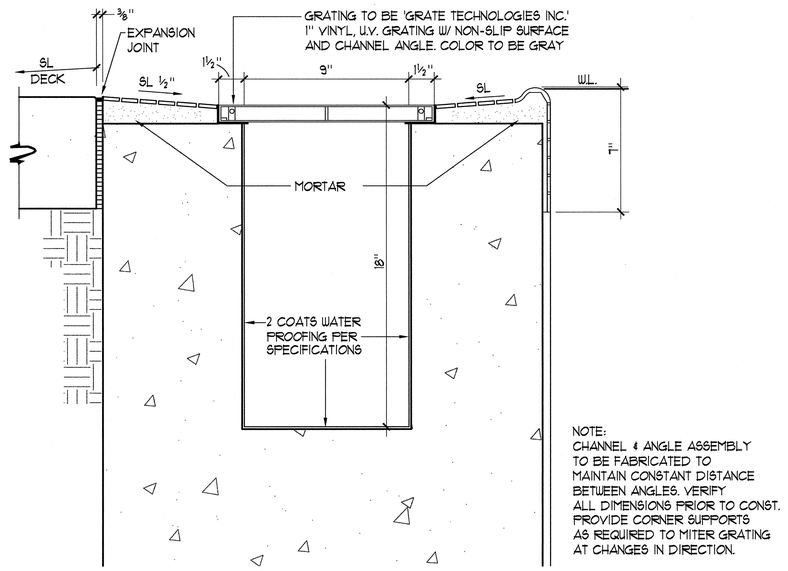
36152-18-D

DESCRIPTION	BY	APPROVED	DATE	FILMED
ORIGINAL	ADG			

CONTRACTOR _____ DATE STARTED _____
INSPECTOR _____ DATE COMPLETED _____

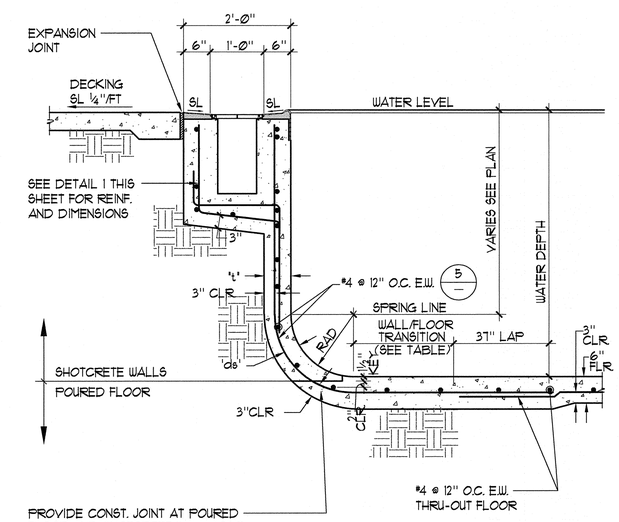


1 RIM FLOW GUTTER 1½"=1'-Ø"



NOTE:
CHANNEL & ANGLE ASSEMBLY TO BE FABRICATED TO MAINTAIN CONSTANT DISTANCE BETWEEN ANGLES. VERIFY ALL DIMENSIONS PRIOR TO CONST. PROVIDE CORNER SUPPORTS AS REQUIRED TO MITER GRATING AT CHANGES IN DIRECTION.

2 RIM FLOW GUTTER GRATE 3"=1'-Ø"



3 POOL WALL 3'-6" TO 5'-0" ¾" = 1'-Ø"

4 POOL WALL 5'-0" TO 7'-0" ¾"=1'-Ø"

REINFORCEMENT TABLE

WATER DEPTH	't'	'ds'	RADIUS	VERTICAL REINF.	HORIZONTAL REINF.	TRANSITION TO FLOOR REINF. BEYOND END RADIUS
3'-6"	6"	3"	6"	#4 @ 12" O.C.	#4 @ 12" O.C.	24"
3'-6" TO 5'-Ø"	7"	4"	6" TO 18"	#4 @ 12" O.C.	#4 @ 12" O.C.	24"
5'-Ø" TO 7'-Ø"	8"	5"	18" TO 2'-6"	#4 @ 6" O.C.	#4 @ 8" O.C.	24"

CONCRETE NOTES:
1. THE MINIMUM ULTIMATE COMPRESSIVE STRENGTH AT 28 DAYS
   POOL = 3000 PSI
   SLAB-ON-GRADE = 3000 PSI
   MAX. WATER TO CEMENT RATIO = Ø.45
2. CONTINUOUS INSPECTION BY AN APPROVED INSPECTOR IS REQUIRED OF ALL CONCRETE PLACEMENT.
3. ALL CEMENT USED SHALL CONFORM TO A.S.T.M. C-150 TYPE V.
4. FINE AND COARSE AGGREGATE SHALL CONFORM TO A.S.T.M. C-33. MAXIMUM SIZE OF AGGREGATE TO BE 1".
5. CONCRETE MIX DESIGNS SHALL BE BASED UPON CBC SECTION 1905.3.
6. CONCRETE SHALL BE TESTED AND INSPECTED PER SECTION CBC 1704.4 AND 1916.
7. REMOVAL OF FORMS SHALL COMPLY WITH CBC SECTION 1906.2.
8. ALL REINFORCING SHALL BE ASTM A-615, GRADE 60, UNLESS OTHERWISE NOTED. LAPS SHALL BE 74 BAR DIA.

SHOTCRETE NOTES:
1. THE MINIMUM ULTIMATE COMPRESSIVE STRENGTH AT 28 DAYS POOL WALLS = 3000 PSI. MAX. WATER TO CEMENT RATIO = Ø.45
2. CONTINUOUS INSPECTION BY AN APPROVED INSPECTOR IS REQUIRED OF ALL SHOTCRETE PLACEMENT.
3. ALL CEMENT USED SHALL CONFORM TO A.S.T.M. C-150 TYPE V.
4. FINE AND COARSE AGGREGATE SHALL CONFORM TO A.S.T.M. C-33. MAXIMUM SIZE OF AGGREGATE TO BE ⅜".
5. SHOTCRETE MIX DESIGNS SHALL BE PER CBC SECTION 1913.2.
6. SHOTCRETE SHALL BE TESTED AND INSPECTED PER SECTION 1913.5 AND 1913.10 AND 1704.15.
7. ANCHOR BOLTS, ANCHORS, DOWELS, INSERTS, ETC. SHALL BE SECURELY TIED IN PLACE PRIOR TO PLACING OF SHOTCRETE.
8. ALL REINFORCEMENT WITHIN SHOTCRETE SHALL MAINTAIN MINIMUM 2" CLEAR NON-CONTACT SPLICES.
9. THE FILM OF LAITANCE WHICH FORMS ON THE SURFACE OF THE SHOTCRETE SHALL BE REMOVED WITHIN APPROXIMATELY TWO HOURS AFTER APPLICATION BY BRUSHING WITH A STIFF BROOM. IF THIS IS NOT REMOVED WITHIN TWO HOURS, IT SHALL BE REMOVED BY THOROUGH WIRE BRUSHING OR SAND BLASTING. CONSTRUCTION JOINTS OVER EIGHT HOURS OLD SHALL BE THOROUGHLY CLEANED WITH AIR AND WATER PRIOR TO RECEIVING SHOTCRETE.
10. ALL REINFORCING SHALL BE ASTM A-615, GRADE 60, UNLESS OTHERWISE NOTED. LAPS SHALL BE 74 BAR DIA.

5 REINFORCEMENT TABLE SP-5

MEMORIAL POOL

PLANS FOR THE CONSTRUCTION OF
MEMORIAL POOL
DETAILS

CONSTRUCTION CHANGE / ADDENDUM

CHANGE	DATE	AFFECTED OR ADDED SHEET NUMBERS	APPROVAL NO.

WARNING
0 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE.

CITY OF SAN DIEGO
PUBLIC WORKS PROJECT

TEMPORARY BMP CONSTRUCTION SITE STORM WATER PRIORITY: HIGH ____ MEDIUM ____ LOW____

CONSULTANT

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SPEC. NO.

LICENSED ARCHITECT ROBERT J. FERRY C-26522 STATE OF CALIFORNIA

CITY OF SAN DIEGO, CALIFORNIA
ENGINEERING AND CAPITAL PROJECTS DEPARTMENT
SHEET 19 OF 39 SHEETS

WBS S-00970

APPROVED: Samir M. FOR CITY ENGINEER 7/13/12 DATE

SUBMITTED BY: SAMIR MAHMALJI, PROJECT OFFICER II

CLARK RITTER, PROJECT MANAGER

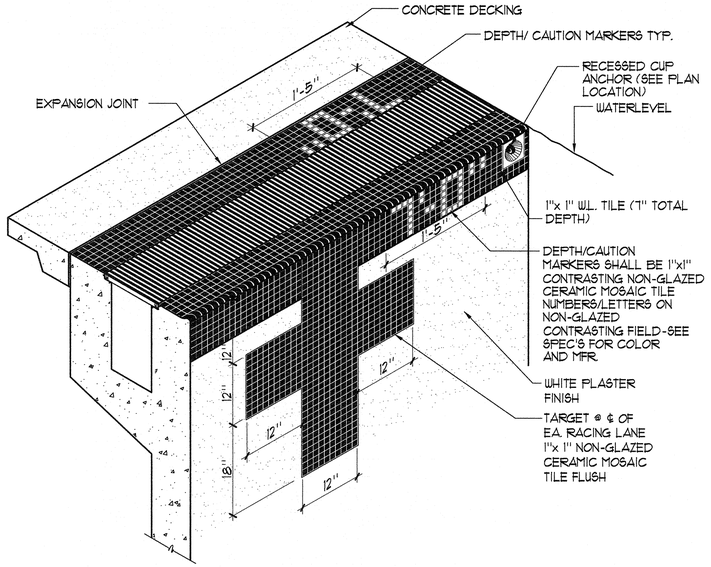
194-1725 CCS27 COORDINATE

6286404, 1834444 CCS83 COORDINATE

DESCRIPTION	BY	APPROVED	DATE	FILMED
ORIGINAL	ADG			

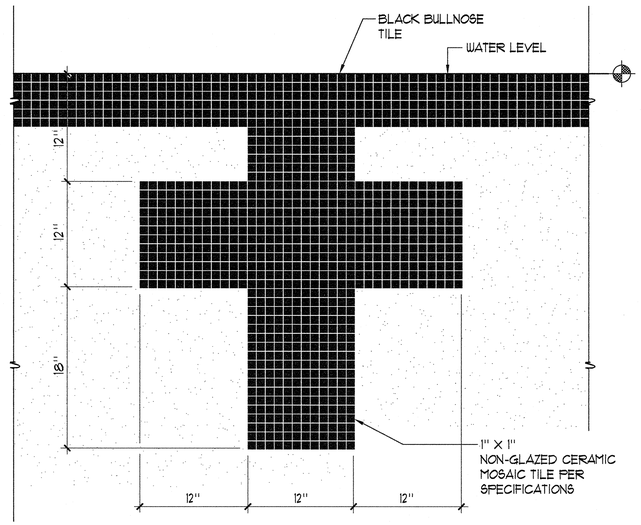
CONTRACTOR _____ DATE STARTED _____
INSPECTOR _____ DATE COMPLETED _____

36152-19-D



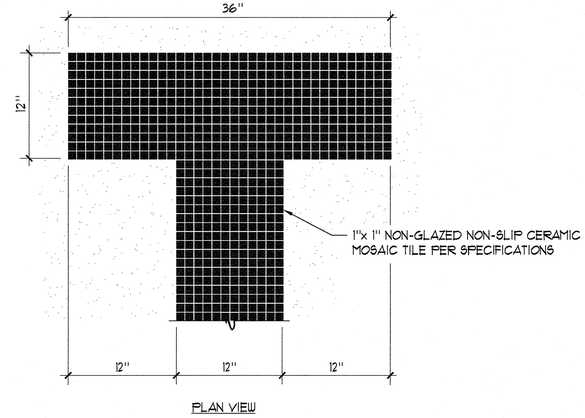
1 RIM FLOW GUTTER PERSPECTIVE

NO SCALE



2 END WALL TARGETS

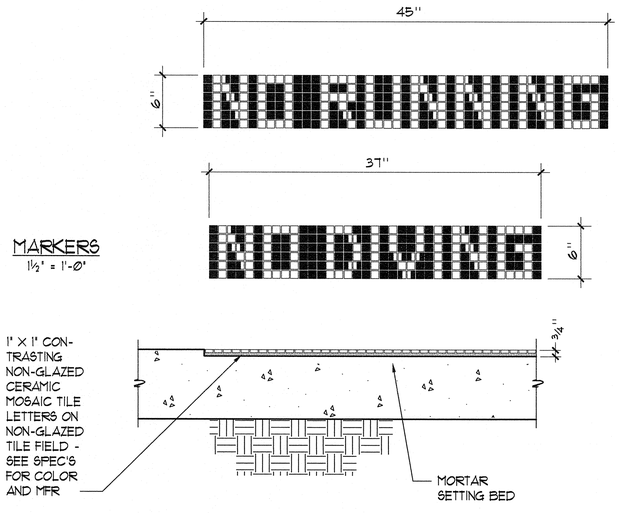
1½" = 1'-Ø"



PLAN VIEW

3 RACING LANE LINE

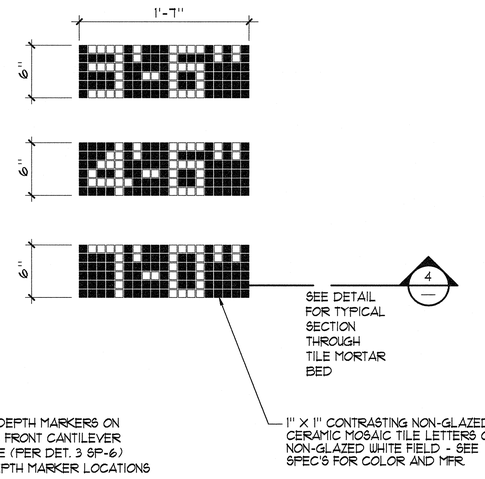
1½"=1'-Ø"



MARKERS
1½" = 1'-Ø"

SECTION THROUGH TILE
1½" = 1'-Ø"

4 "NO RUNNING" / "NO DIVING" MARKERS



5 DEPTH MARKERS

1½" = 1'-Ø"

NOTE: PLACE IN DECK AT ALL 'NO DIVING' TILE MARKER LOCATIONS

SILK SCREEN

1. 4¼"x4¼" DOUBLE GLAZED WHITE SLIP RESISTANT TILE TYP. OF (4) PIECES OVER ¼" MORTAR BED WITH 1/16" GROUT JOINTS. SEE PLAN FOR LOCATION.
2. 1" WIDE RED CIRCLE WITH 1" WIDE RED DIAGONAL LINE.
3. ⅛" BLUE WATER.
4. 1/16" RED TICKS ABOUT THE HEAD.
5. TAN COLOR BODY WITH BLACK OUTLINE, HAIR AND TRUNKS.
6. ⅛" BLACK POOL FLOOR.

6 INTERNATIONAL 'NO DIVING' MARKER

3"=1'-Ø"

SP-6

MEMORIAL POOL

PLANS FOR THE CONSTRUCTION OF
MEMORIAL POOL
DETAILS

CONSTRUCTION CHANGE / ADDENDUM

CHANGE	DATE	AFFECTED OR ADDED SHEET NUMBERS	APPROVAL NO.

WARNING
0 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE.

CITY OF SAN DIEGO
PUBLIC WORKS PROJECT

TEMPORARY BMP CONSTRUCTION SITE STORM WATER PRIORITY: HIGH ___ MEDIUM ___ LOW___

CONSULTANT

AQUATIC DESIGN GROUP
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Tel 760.438.8400 Fax 760.438.5251

SPEC. NO.

LICENSED ARCHITECT — SCOTT J. FORD — C-25026 — STATE OF CALIFORNIA

CITY OF SAN DIEGO, CALIFORNIA
ENGINEERING AND CAPITAL PROJECTS DEPARTMENT
SHEET 20 OF 39 SHEETS

WBS S-00970

APPROVED _____ FOR CITY ENGINEER
7/13/12 DATE

SUBMITTED BY
SAMIR MAHMALJI
PROJECT OFFICER II

DESCRIPTION	BY	APPROVED	DATE	FILMED
ORIGINAL	ADG			

CLARK RITTER
PROJECT MANAGER

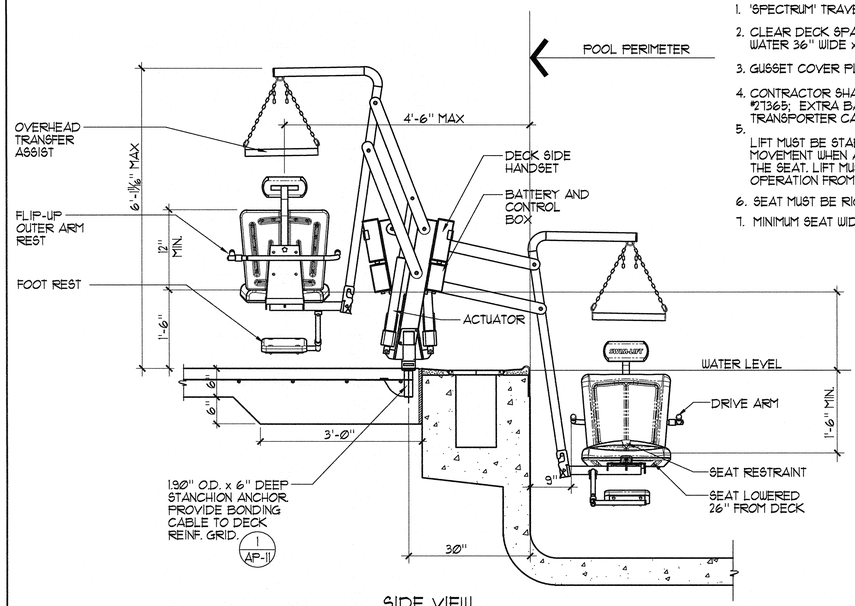
194-1725
CCS27 COORDINATE

6286404, 1834444
CCS83 COORDINATE

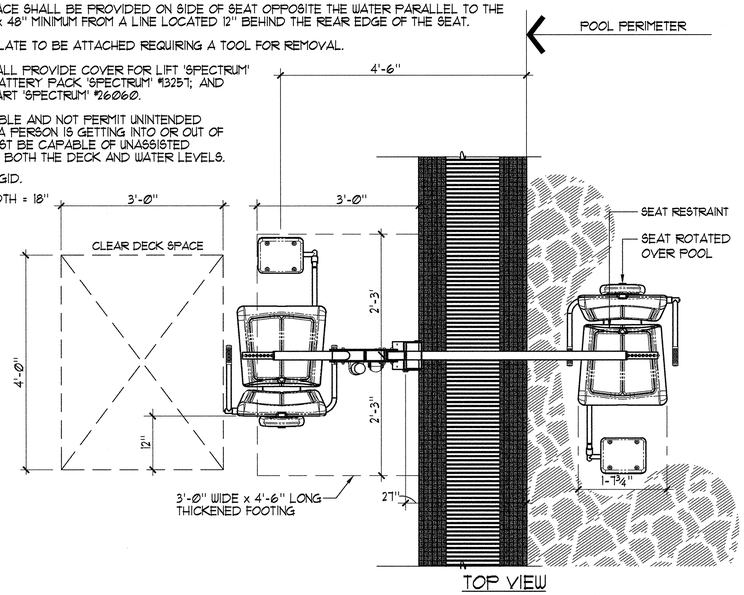
CONTRACTOR _____ DATE STARTED _____
INSPECTOR _____ DATE COMPLETED _____

36152-20-D

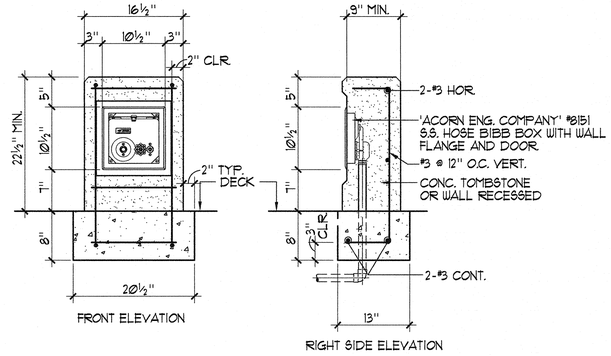
1. 'SPECTRUM' TRAVELER II XRC 500 #27610 (500 lbs. LIVE LOAD CAPACITY MIN.)
2. CLEAR DECK SPACE SHALL BE PROVIDED ON SIDE OF SEAT OPPOSITE THE WATER PARALLEL TO THE WATER 36" WIDE x 48" MINIMUM FROM A LINE LOCATED 12" BEHIND THE REAR EDGE OF THE SEAT.
3. GUSSET COVER PLATE TO BE ATTACHED REQUIRING A TOOL FOR REMOVAL.
4. CONTRACTOR SHALL PROVIDE COVER FOR LIFT 'SPECTRUM' #27365; EXTRA BATTERY PACK 'SPECTRUM' #13257; AND TRANSPORTER CART 'SPECTRUM' #26060.
5. LIFT MUST BE STABLE AND NOT PERMIT UNINTENDED MOVEMENT WHEN A PERSON IS GETTING INTO OR OUT OF THE SEAT. LIFT MUST BE CAPABLE OF UNASSISTED OPERATION FROM BOTH THE DECK AND WATER LEVELS.
6. SEAT MUST BE RIGID.
7. MINIMUM SEAT WIDTH = 18"



SIDE VIEW



TOP VIEW



NOTE:
PROVIDE ¾" CHAMFER ON ALL CONCRETE CORNERS.

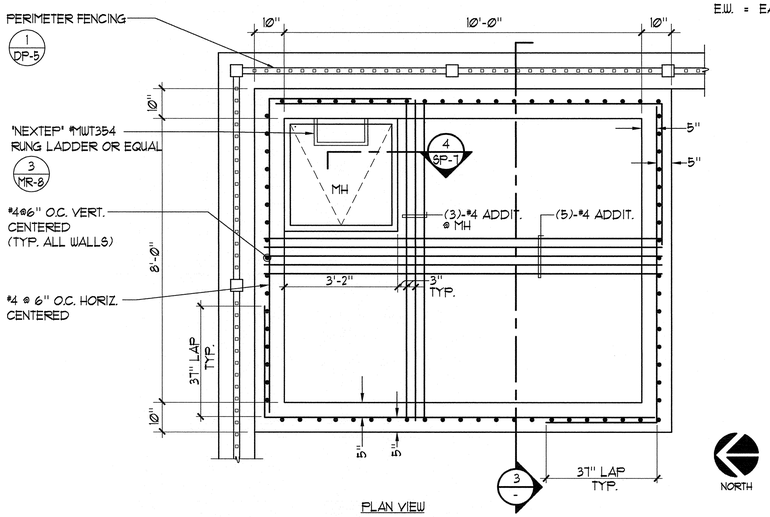
1 ACCESSIBLE LIFT

¾"=1'-Ø"

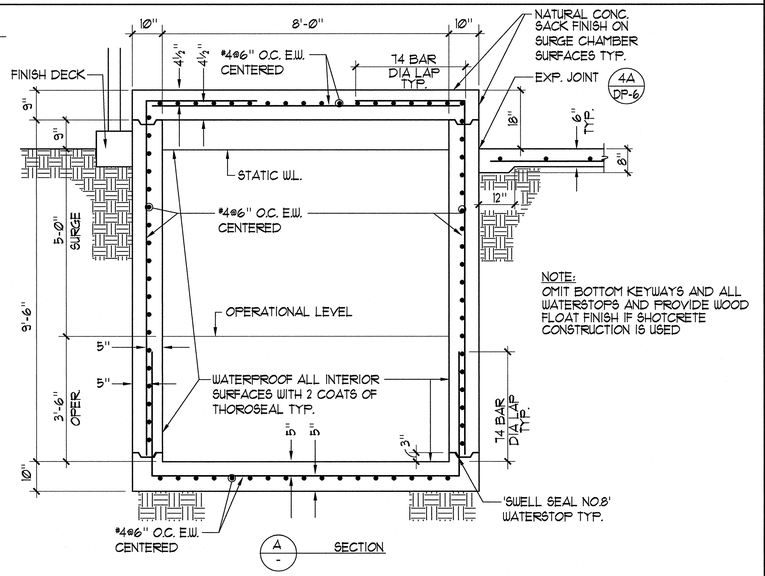
2 HOSE BIBB

NO SCALE

LEGEND
O.C. = ON CENTER
E.W. = EACH WAY

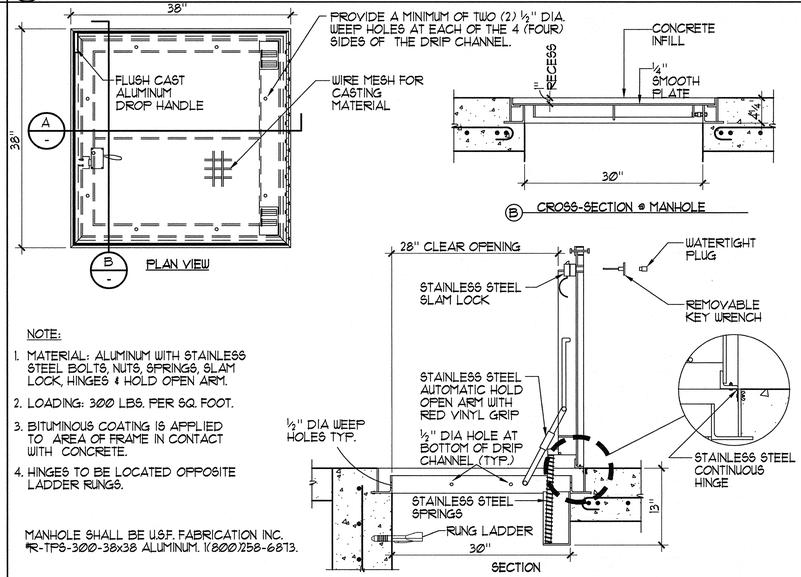


PLAN VIEW



A - SECTION

NOTE:
OMIT BOTTOM KEYWAYS AND ALL WATERSTOPS AND PROVIDE WOOD FLOAT FINISH IF SHOTCRETE CONSTRUCTION IS USED



NOTE:
1. MATERIAL: ALUMINUM WITH STAINLESS STEEL BOLTS, NUTS, SPRINGS, SLAM LOCK, HINGES & HOLD OPEN ARM.
2. LOADING: 300 LBS. PER SQ. FOOT.
3. BITUMINOUS COATING IS APPLIED TO AREA OF FRAME IN CONTACT WITH CONCRETE.
4. HINGES TO BE LOCATED OPPOSITE LADDER RUNGS.

MANHOLE SHALL BE U.S.F. FABRICATION INC. #R-TPS-300-38x38 ALUMINUM. 1(800)258-6873.

3 SURGE CHAMBER

½"=1'-Ø"

4 SURGE CHAMBER ACCESS COVER

1"=1'-Ø"

SP-7

MEMORIAL POOL

PLANS FOR THE CONSTRUCTION OF
MEMORIAL POOL
DETAILS

CONSTRUCTION CHANGE / ADDENDUM			
CHANGE	DATE	AFFECTED OR ADDED SHEET NUMBERS	APPROVAL NO.

WARNING
0 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE.

CITY OF SAN DIEGO
PUBLIC WORKS PROJECT

TEMPORARY BMP CONSTRUCTION SITE STORM WATER PRIORITY: HIGH ____ MEDIUM ____ LOW____

SPEC. NO.

CONSULTANT

AQUATIC DESIGN GROUP
2226 FARADAY AVE., CARLSBAD, CA 92008
Tel 760.438.8400 Fax 760.438.5251

LICENSED ARCHITECT SCOTT J. FERRY C-35222 STATE OF CALIFORNIA

CITY OF SAN DIEGO, CALIFORNIA
ENGINEERING AND CAPITAL PROJECTS DEPARTMENT
SHEET 21 OF 39 SHEETS

WBS S-00970

APPROVED: Samir M. FOR CITY ENGINEER — DATE 7/13/12

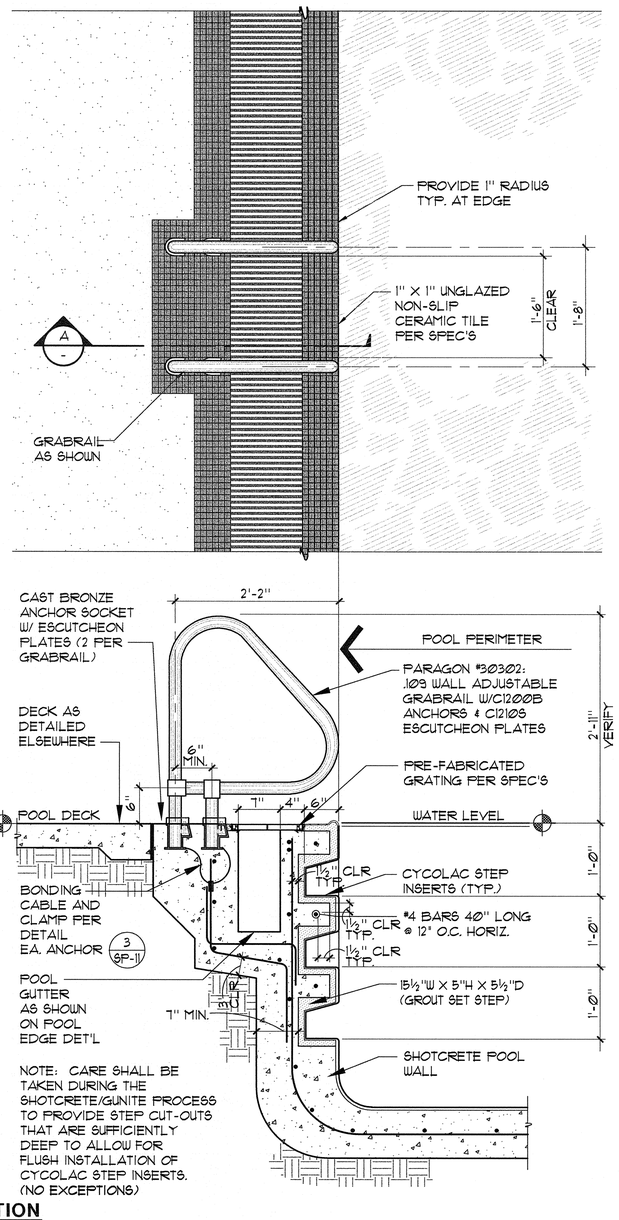
SUBMITTED BY: SAMIR MAHMALJI, PROJECT OFFICER II

DESCRIPTION	BY	APPROVED	DATE	FILMED
ORIGINAL	ADG			

CLARK RITTER, PROJECT MANAGER
194-1725, CCS27 COORDINATE
6286404, 1834444, CCS83 COORDINATE

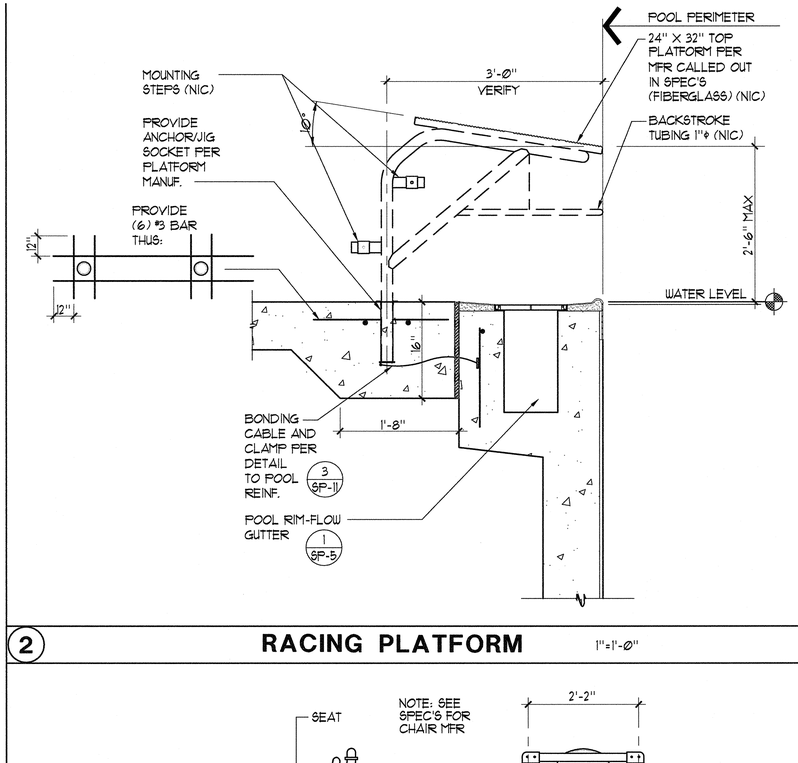
CONTRACTOR _____ DATE STARTED _____
INSPECTOR _____ DATE COMPLETED _____

36152-21-D

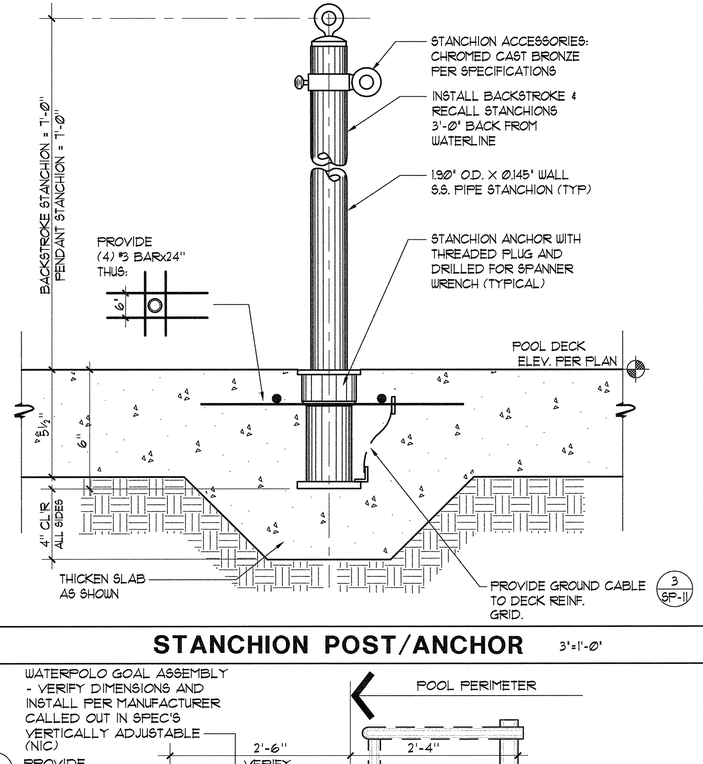


A SECTION

1 GRABRAIL WITH STEPS 1"=1'-0"



2 RACING PLATFORM 1"=1'-0"



3 STANCHION POST/ANCHOR 3"=1'-0"

4 MOVEABLE LIFEGUARD CHAIR ¾"=1'-0"

5 WATERPOLO GOAL 1"=1'-0"

SP-8

MEMORIAL POOL

CONSTRUCTION CHANGE / ADDENDUM

CHANGE	DATE	AFFECTED OR ADDED SHEET NUMBERS	APPROVAL NO.

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CITY OF SAN DIEGO
PUBLIC WORKS PROJECT

TEMPORARY BMP CONSTRUCTION SITE STORM WATER PRIORITY: HIGH ___ MEDIUM ___ LOW___

CONSULTANT

AQUATIC DESIGN GROUP
2226 FARADAY AVE., CARLSBAD, CA 92008
Tel 760.438.8400 Fax 760.438.5251

SPEC. NO.

LICENSED ARCHITECT ROBERT J. FERRARO C-26222 STATE OF CALIFORNIA

PLANS FOR THE CONSTRUCTION OF
MEMORIAL POOL
DETAILS

CITY OF SAN DIEGO, CALIFORNIA
ENGINEERING AND CAPITAL PROJECTS DEPARTMENT
SHEET 22 OF 39 SHEETS

WBS S-00970

APPROVED: Samir M. 7/13/12
FOR CITY ENGINEER DATE

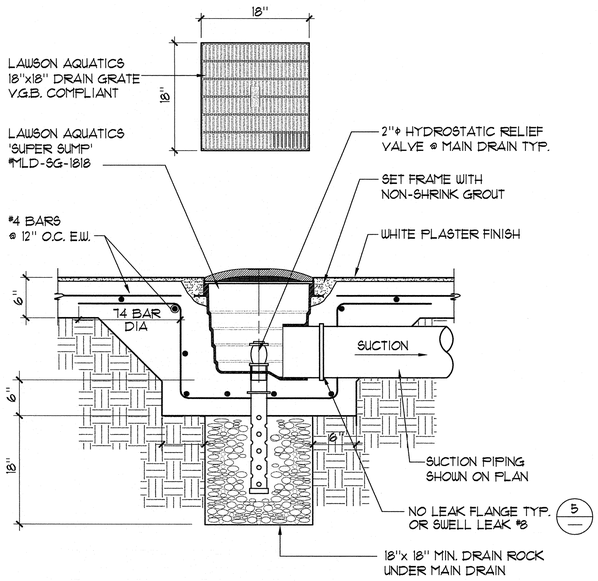
SUBMITTED BY: SAMIR MAHMALJI, PROJECT OFFICER II

DESCRIPTION	BY	APPROVED	DATE	FILMED
ORIGINAL	ADG			

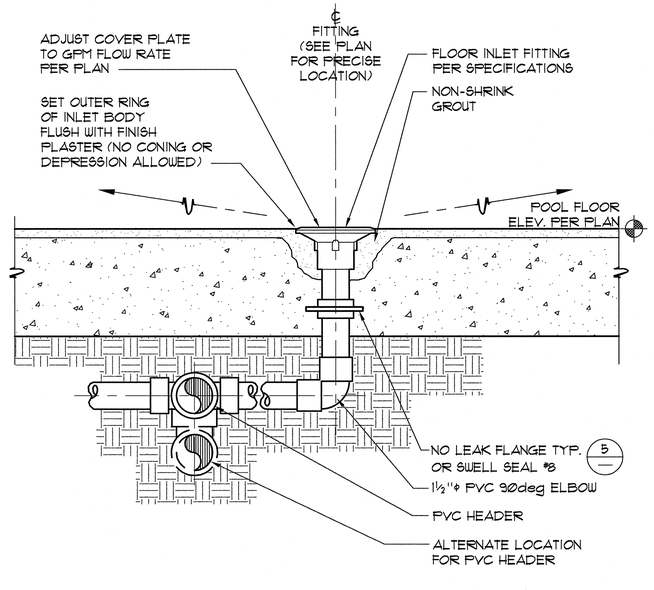
CLARK RITTER, PROJECT MANAGER
194-1725 CCS27 COORDINATE
6286404, 1834444 CCS83 COORDINATE

CONTRACTOR _____ DATE STARTED _____
INSPECTOR _____ DATE COMPLETED _____

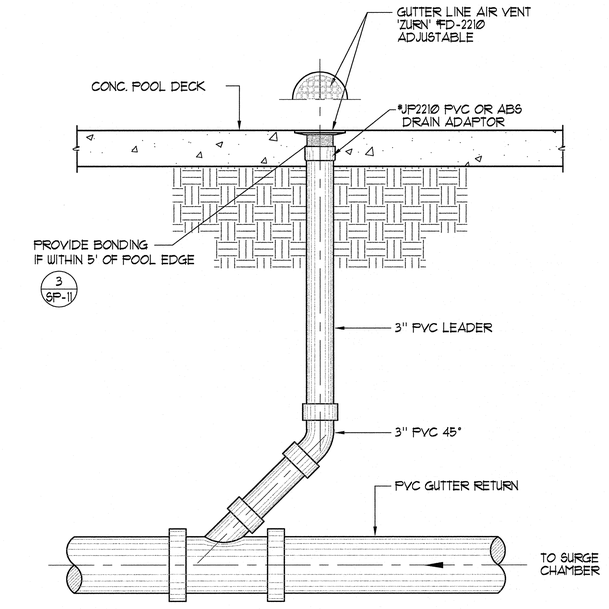
36152-22-D



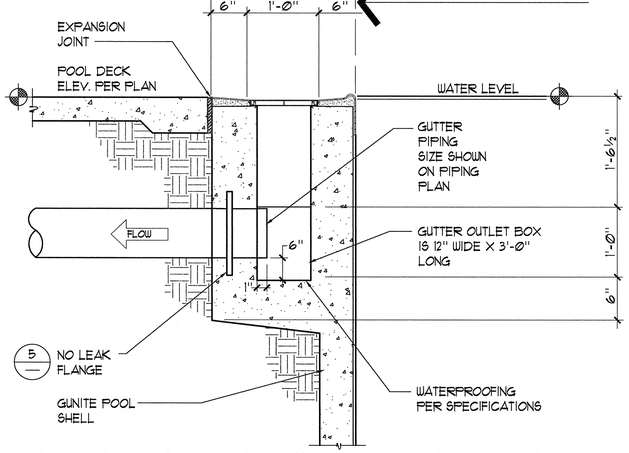
1 MAIN DRAIN NO SCALE



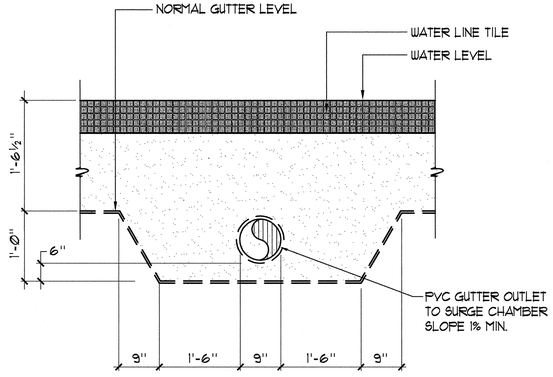
2 FLOOR INLET 3"=1'-Ø"



3 AIR VENT 1"=1'-Ø"

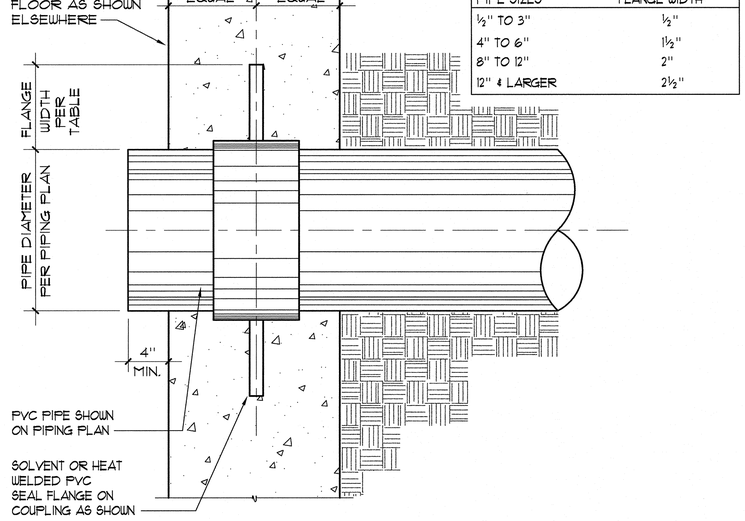


SECTION



ELEVATION

4 GUTTER OUTLET 1"=1'-Ø"



FLANGES:

PIPE SIZES	FLANGE WIDTH
½" TO 3"	½"
4" TO 6"	1½"
8" TO 12"	2"
12" & LARGER	2½"

5 WATER STOP DETAIL NO SCALE

SP-9

MEMORIAL POOL

PLANS FOR THE CONSTRUCTION OF
MEMORIAL POOL
DETAILS

CITY OF SAN DIEGO, CALIFORNIA
ENGINEERING AND CAPITAL PROJECTS DEPARTMENT
SHEET 23 OF 39 SHEETS

WBS S-00970

APPROVED: Samir M. FOR CITY ENGINEER — DATE 7/13/12

SUBMITTED BY: SAMIR MAHMALJI, PROJECT OFFICER II

CLARK RITTER, PROJECT MANAGER

194-1725 CCS27 COORDINATE

6286404, 1834444 CCS83 COORDINATE

36152-23-D

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CONTRACTOR _____ DATE STARTED _____
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CONSTRUCTION CHANGE / ADDENDUM

CHANGE	DATE	AFFECTED OR ADDED SHEET NUMBERS	APPROVAL NO.

WARNING
0 1
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CITY OF SAN DIEGO
PUBLIC WORKS PROJECT

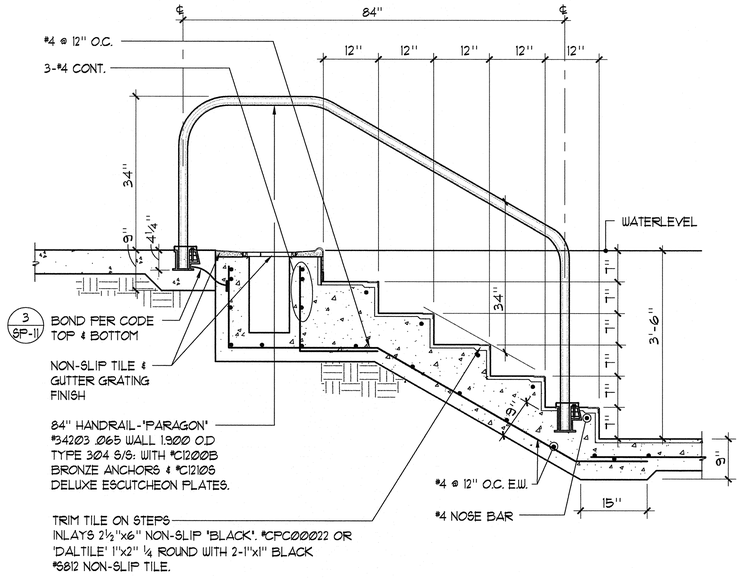
TEMPORARY BMP CONSTRUCTION SITE STORM WATER PRIORITY: HIGH ____ MEDIUM ____ LOW____

SPEC. NO.

CONSULTANT

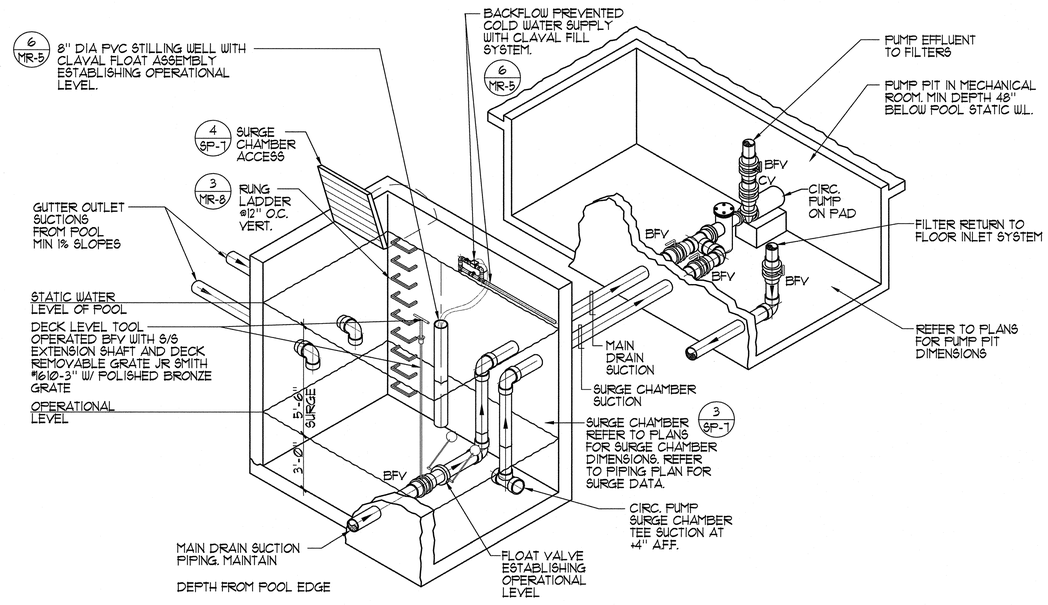
AQUATIC DESIGN GROUP
2226 FARADAY AVE., CARLSBAD, CA 92008
Tel 760.438.8400 Fax 760.438.5251

LICENSED ARCHITECT — RANDY J. FERRIS — C-26222 — STATE OF CALIFORNIA



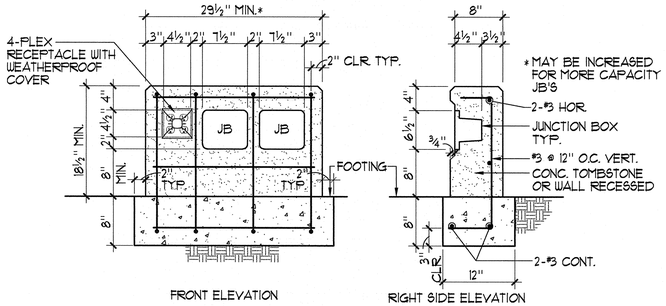
1 HANDRAIL DETAIL

¾"=1'-0"



2 SURGE CHAMBER PIPING SCHEMATIC

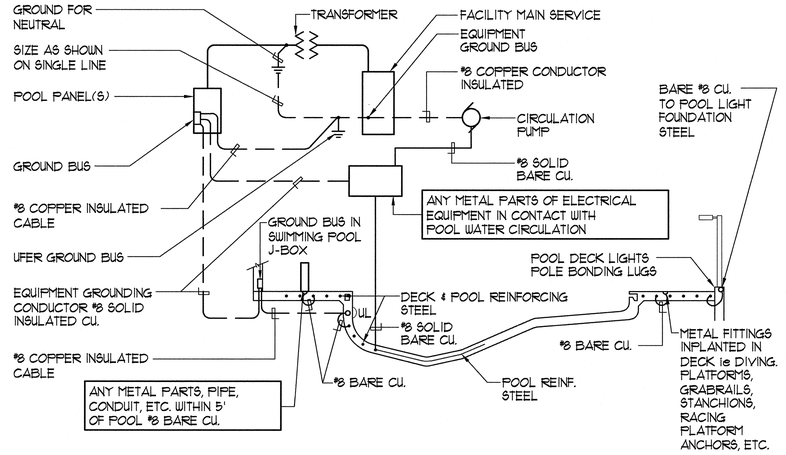
NO SCALE



NOTE:
PROVIDE ¾" CHAMFER ON ALL CONCRETE CORNERS.

1"=1'-0"

3 UNDERWATER LIGHT JUNCTION BOX CONCRETE SURROUND DETAIL



NOTES:

1. STRUCTURAL STEEL IN POOL DECK AND POOL SHALL BE BONDED TOGETHER (STEEL TIE-WIRES ARE APPROVED FOR BONDING STRUCTURAL ELEMENTS).
2. BONDING CONNECTOR TO COMMON GRID. (POOL STEEL MAY BE USED FOR THAT PURPOSE) SHALL BE MADE BY PRESSURE CONNECTORS OR CLAMPS OF BRASS, COPPER, OR COPPER ALLOY.
3. ALL GROUND BUSES SHALL BE SIZED FOR CONNECTION TO AWG SIZE 8 WIRE PROVIDING ONE SPARE TERMINAL.
4. GROUND AND BOND IN ACCORDANCE WITH ARTICLE 680 OF THE NATIONAL ELECTRICAL CODE. ie. LADDERS, FENCING, POLE LIGHTS, DIVING & STARTING STANCHIONS, HANDICAP HOIST ETC.

4 TYPICAL POOL BONDING AND GROUND DETAIL

NO SCALE

SP-10

MEMORIAL POOL

CONSTRUCTION CHANGE / ADDENDUM

CHANGE	DATE	AFFECTED OR ADDED SHEET NUMBERS	APPROVAL NO.

WARNING

0 1

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE.

CITY OF SAN DIEGO
PUBLIC WORKS PROJECT

TEMPORARY BMP CONSTRUCTION SITE STORM WATER PRIORITY: HIGH ___ MEDIUM ___ LOW___

SPEC. NO.

CONSULTANT

AQUATIC DESIGN GROUP
2226 FARADAY AVE., CARLSBAD, CA 92008
Tel 760.438.8400 Fax 760.438.5251

LICENSED ARCHITECT SCOTT J. FERRY C-26222 STATE OF CALIFORNIA

PLANS FOR THE CONSTRUCTION OF
MEMORIAL POOL
DETAILS

CITY OF SAN DIEGO, CALIFORNIA
ENGINEERING AND CAPITAL PROJECTS DEPARTMENT
SHEET 24 OF 39 SHEETS

WBS S-00970

APPROVED: Samir M FOR CITY ENGINEER 7/13/12 DATE

SUBMITTED BY: SAMIR MAHMALJI PROJECT OFFICER II

CLARK RITTER PROJECT MANAGER

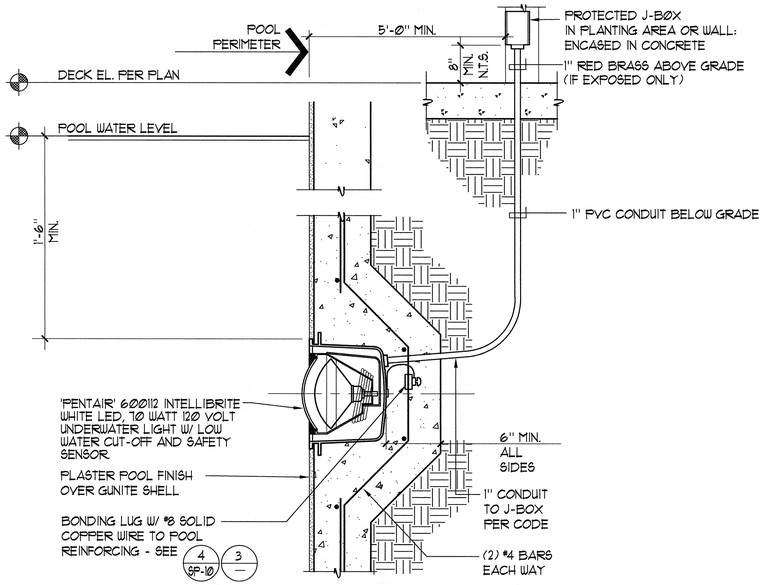
DESCRIPTION	BY	APPROVED	DATE	FILMED
ORIGINAL	ADG			

194-1725 CCS27 COORDINATE

6286404, 1834444 CCS83 COORDINATE

CONTRACTOR _____ DATE STARTED _____
INSPECTOR _____ DATE COMPLETED _____

36152-24-D

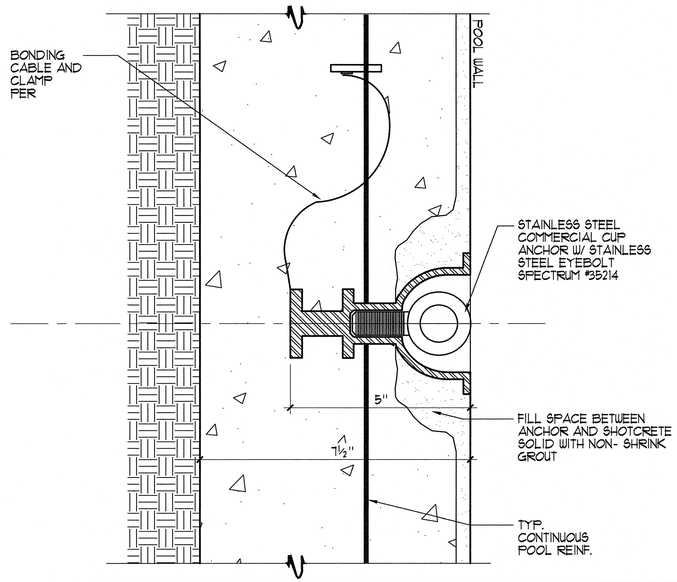


UNDERWATER LIGHT NOTES:

1. ALL CONDUITS IN POOL LIGHTING SYSTEM TO BE A MINIMUM OF 1"ø.
2. (4/SP-10) CONDUCTORS TO POOL J-BOXES SHALL BE MINIMUM 2-#8 & 1#8 (SEE UNDERWATER LIGHT PLAN) SOLID UNBROKEN TO MAIN PANEL ISOLATED GROUND BUSS. THIS BUSS IS TO BE CONNECTED WITH SOLID INSULATED #8 COPPER WIRE TO UFER & COLDWATER GROUNDING LUG ON GROUNDING BUSS. UPSIZE CONDUCTORS AS REQUIRED FOR HOMERUNS EXCEEDING 100'.
3. (3/SP-10) ALL BRASS POOL J-BOXES SHALL BE FLUSH MOUNTED IN WALLS. IF FLUSH MOUNTING IS NOT POSSIBLE THEN MOUNTING SHALL BE SURFACE MOUNTED AND CONCRETE ENCASED.
4. CONDUITS WHERE ALLOWED BY CODE SHALL BE P.V.C. (POLYVINYL CHLORIDE) FROM WET NICHES TO BRASS J-BOXES TO LIGHTING PANEL. ALL CONDUITS IN FREE AIR SPACE AND ALL RISERS SHALL BE RED BRASS TYPICAL. PVC CONDUITS SHALL BE SOLVENT WELDED WITH PURPLE PRIMER AND GRAY HEAVY BODIED GLUE.
5. LIGHTING CONTACTORS SHALL BE 'ALLEN-BRADLEY' #500 L± OR EQUAL MOUNTED IN A NEMA 12 HINGED COVER - LOCKABLE ENCLOSURE. CONTACTORS TO BE SWITCHED BY MOMENTARY SWITCH EQUAL TO 'HUBBELL' #1557 MOUNTED IN J-BOX IN MECHANICAL EQUIPMENT ROOM. REFER TO ELECTRICAL PLANS FOR LOCATION OF OWNER COORDINATED REMOTE UNDERWATER LIGHT SWITCH.
6. BRASS POOL J-BOXES SHALL BE 'HYDREL' #1119 ± W/ 1" HUBS OR EQUAL. (NO DIE CAST BOXES).
7. STRINGS SHALL BE PULLED IN ALL CONDUITS PRIOR TO PLACEMENT OF CONCRETE.
8. LOCAL, COUNTY OR CITY CODES SHALL BE ADHERED TO, SPECIFICATIONS TO BE IN ACCORDANCE WITH SECTION 680 OF LATEST N.E.C. BOOK.
9. PROVIDE PULL BOXES AS MAY BE REQUIRED FOR RUNS EXCEEDING 150 FT. OR DUE TO CHANGES IN GRADE OR DIRECTION.
10. CONTRACTOR SHALL TEST UNDERWATER POOL LIGHT GFIC CIRCUITS AND PROVIDE LETTER TO OWNER/DSA UPON SUCCESSFUL TEST.
11. SEAL CONDUIT OPENING IN LIGHT NICHE WITH SILICON CAULKING AFTER LIGHT IS INSTALLED.
12. PRIOR TO LIGHT INSTALLATION, PROVIDE MINIMUM 10 PSI PRESSURE TEST ON ALL POOL LIGHT CONDUITS FOR FOUR (4) HOURS OBSERVED BY INSPECTOR OF RECORD. MAINTAIN PRESSURE UNTIL ALL DECKS ARE POURED.

1 UNDERWATER LIGHT

1½"=1'-0"



2 HEAVY EYEBOLT ANCHOR

1½"=1'-0"

NICHE CONNECTOR

NO SCALE

STANCHION ANCHOR

NO SCALE

WEDGE ANCHOR

NO SCALE

GROUNDING CLAMP

NO SCALE

STARTING BLOCK ANCHOR

NO SCALE

3 BONDING DETAILS

NO SCALE

SP-11

MEMORIAL POOL

CONSTRUCTION CHANGE / ADDENDUM			
CHANGE	DATE	AFFECTED OR ADDED SHEET NUMBERS	APPROVAL NO.

WARNING

0 1

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CITY OF SAN DIEGO
PUBLIC WORKS PROJECT

TEMPORARY BMP CONSTRUCTION SITE STORM WATER PRIORITY: HIGH ___ MEDIUM ___ LOW___

SPEC. NO.

CONSULTANT

AQUATIC DESIGN GROUP
2226 FARADAY AVE., CARLSBAD, CA 92008
Tel 760.438.8400 Fax 760.438.5251

LICENSED ARCHITECT SCOTT J. FERRY C-35222 STATE OF CALIFORNIA

PLANS FOR THE CONSTRUCTION OF
MEMORIAL POOL
DETAILS

CITY OF SAN DIEGO, CALIFORNIA
ENGINEERING AND CAPITAL PROJECTS DEPARTMENT
SHEET 25 OF 39 SHEETS

WBS S-00970

APPROVED: Samir M. FOR CITY ENGINEER 7/13/12 DATE

SUBMITTED BY: SAMIR MAHMALJI PROJECT OFFICER II

DESCRIPTION	BY	APPROVED	DATE	FILMED
ORIGINAL	ADG			

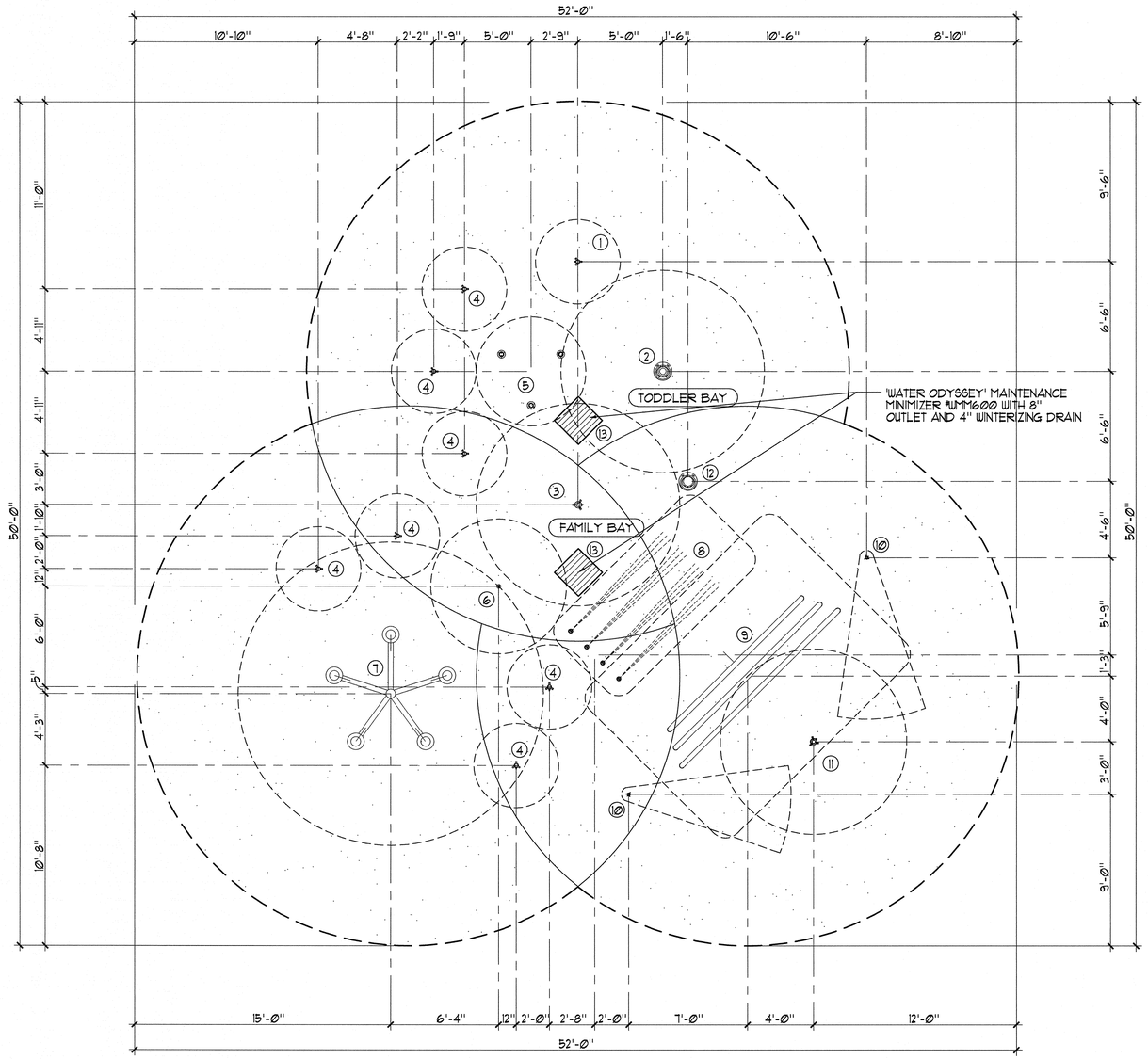
CLARK RITTER PROJECT MANAGER

194-1725 CCS27 COORDINATE

6286404. 1834444 CCS83 COORDINATE

CONTRACTOR _____ DATE STARTED _____
INSPECTOR _____ DATE COMPLETED _____

36152-25-D



WET PLAY DATA

SURFACE AREA	=	1,895 SQ. FT.
VOLUME	=	4,000 GAL.
30 MIN. TURNOVER	=	133 GPM

PRODUCT LEGEND

	PRODUCT CODE	QTY	TOTAL FLOW	BAY	
①	FOAMING GEYSER N°1 'VORTEX' VØR-7010	1	14 GPM 53 LPM	TODDLER	2 / WP-3
②	AQUA DOME N°1 'VORTEX' VØR-555	1	14 GPM 53 LPM	TODDLER	1 / WP-4
③	SIDE WINDER 'VORTEX' VØR-7518	1	15 GPM 56 LPM	FAMILY	3 / WP-4
④	JET STREAM 'VORTEX' VOR-7512	7	18 GPM 66 LPM	FAMIILY	1 / WP-5
⑤	WATER JELLY N°3 'VORTEX' VOR-7010	1	33 GPM 123 LPM	TODDLER	6 / WP-3
⑥	GROUND GEYSER 'VORTEX' VØR-301	1	5 GPM 17 LPM	FAMILY	5 / WP-3
⑦	FUMBLING FIVE 'VORTEX' VØR-7384	1	12 GPM 45 LPM	FAMILY	3 / WP-3
⑧	WATER TUNNEL N°2 'VORTEX' VOR-309	1	12 GPM 45 LPM	FAMILY	4 / WP-3
⑨	RAINBOW N°2 'VORTEX' VOR-548	1	23 GPM 85 LPM	FAMILY	5 / WP-4
⑩	SPLIT STREAM 'VORTEX' VØR-7516	2	15 GPM 56 LPM	FAMILY	4 / WP-4
⑪	SPIDEY SPRAY 'VORTEX' VØR-7517	1	9 GPM 32 LPM	FAMILY	2 / WP-4
⑫	BOLLARD ACTIVATOR N°1 'VORTEX' VØR-600	1	170 GPM TOTAL	—	2 / WP-5
⑬	MAINTENANCE MINIMIZER 'WATER ODYSSEY' #MM1600	2	125 GPM EA	—	3 / WP-5

2 / DP-1 IF WET PLAY ADDITIVE ALTERNATE A IS NOT ACCEPTED, THEN REMOVE THE WET PLAY AND INSTALL ARTIFICIAL TURF IN THE WET PLAY AREA (1,895 SQ. FT.). PROVIDE 6" ROCK SUB-BASE DRAINING TO PERFORATED DRAIN CONNECTED TO STORM DRAIN SYSTEM.

NORTH

1 WET PLAY LAYOUT PLAN (ADDITIVE ALTERNATE A)

1/4" = 1'-Ø"

WP-1

MEMORIAL POOL

CONSTRUCTION CHANGE / ADDENDUM			
CHANGE	DATE	AFFECTED OR ADDED SHEET NUMBERS	APPROVAL NO.

WARNING
0 1
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CITY OF SAN DIEGO
PUBLIC WORKS PROJECT

TEMPORARY BMP CONSTRUCTION SITE STORM WATER PRIORITY: HIGH ___ MEDIUM ___ LOW___

CONSULTANT

AQUATIC DESIGN GROUP
2226 FARADAY AVE., CARLSBAD, CA 92008
Tel 760.438.8400 Fax 760.438.5251

SPEC. NO.

LICENSED ARCHITECT — BRENT J. FERRIS — C-25022 — STATE OF CALIFORNIA

PLANS FOR THE CONSTRUCTION OF
MEMORIAL POOL
WET PLAY LAYOUT PLAN

CITY OF SAN DIEGO, CALIFORNIA
ENGINEERING AND CAPITAL PROJECTS DEPARTMENT
SHEET 26 OF 39 SHEETS

WBS S-00970

APPROVED: Samir M. FOR CITY ENGINEER — DATE 7/13/12

SUBMITTED BY: SAMIR MAHMALJI, PROJECT OFFICER II

DESCRIPTION	BY	APPROVED	DATE	FILMED
ORIGINAL	ADG			

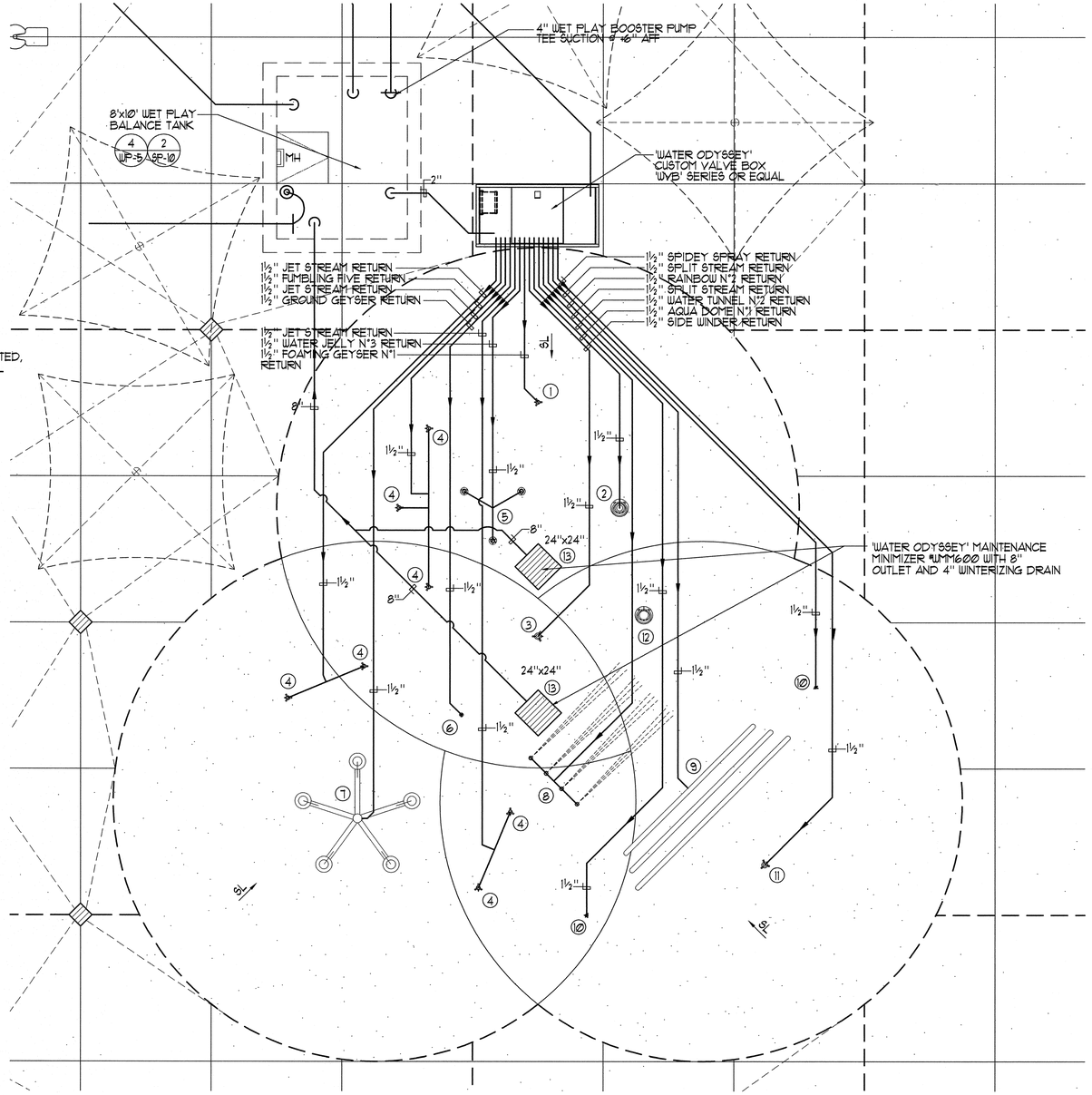
CLARK RITTER, PROJECT MANAGER

194-1725 CCS27 COORDINATE

6286404, 1834444 CCS83 COORDINATE

CONTRACTOR _____ DATE STARTED _____
INSPECTOR _____ DATE COMPLETED _____

36152-26-D



IF WET PLAY ADDITIVE ALTERNATE A IS NOT ACCEPTED, THEN STUB ALL PIPING FROM INSIDE OF MECHANICAL ROOM TO BALANCE TANK AND WET PLAY VALVE BOX AT APPROPRIATE ELEVATION FOR FUTURE WET PLAY IMPROVEMENTS.

WET PLAY DATA

SURFACE AREA	=	1,895 SQ. FT.
VOLUME	=	4,000 GAL.
30 MIN. TURNOVER	=	133 GPM

WET PLAY WATER CALCULATIONS

CIRCULATION PUMP	=	143 GPM
BOOSTER PUMP	=	170 GPM
TOTAL	=	313 GPM

∴ 313 GPM. x 3 = 939 GPM. < 4,000 GPM. OK

NOTES

1. WET PLAY AREA MUST BE CONSTRUCTED, DESIGNED, & MAINTAINED SO THAT THERE ARE NO SLIP, TRIP OR FALL HAZARDS, OR OTHER CONDITIONS THAT MAY POSE A SAFETY HAZARD.
2. NOZZLES THAT SPRAY FROM THE GROUND LEVEL, MUST BE FLUSH WITH THE GROUND, HAVING OPENINGS NO GREATER THAN ½". SPRAY DEVICES THAT EXTEND ABOVE THE GROUND MUST BE HIGH ENOUGH SO THAT THEY CAN BE CLEARLY SEEN AND ARE NOT A TRIP HAZARD.
3. AREAS ADJACENT TO SPLASH ZONE MUST BE SLOPED AWAY FROM THE COLLECTION DRAINS.
4. PLANTS OR VEGETATION WITHIN THE IMMEDIATE AREA OF THE SPLASH ZONES ARE PROHIBITED.
#5. PROVIDE SIGNAGE STATING "CAUTION: WATER IS RECIRCULATED, DO NOT DRINK" IN 4" MIN. TALL LETTERING.

LEGEND

MH = MANHOLE — 5 / WP-5

AFF = ABOVE FINISH FLOOR

PRODUCT LEGEND

	PRODUCT CODE	QTY	TOTAL FLOW	BAY	
①	FOAMING GEYSER N°1 'VORTEX' VØR-1Ø2Ø	1	14 GPM 53 LPM	TODDLER	2 / WP-3
②	AQUA DOME N°1 'VORTEX' VØR-555	1	14 GPM 53 LPM	TODDLER	1 / WP-4
③	SIDE WINDER 'VORTEX' VØR-7518	1	15 GPM 56 LPM	FAMILY	3 / WP-4
④	JET STREAM 'VORTEX' VOR-7512	7	18 GPM 66 LPM	FAMIILY	1 / WP-5
⑤	WATER JELLY N°3 'VORTEX' VOR-1Ø1Ø	1	33 GPM 123 LPM	TODDLER	6 / WP-3
⑥	GROUND GEYSER 'VORTEX' VØR-3Ø1	1	5 GPM 17 LPM	FAMILY	5 / WP-3
⑦	FUMBLING FIVE 'VORTEX' VØR-7384	1	12 GPM 45 LPM	FAMILY	3 / WP-3
⑧	WATER TUNNEL N°2 'VORTEX' VOR-3Ø9	1	12 GPM 45 LPM	FAMILY	4 / WP-3
⑨	RAINBOW N°2 'VORTEX' VOR-548	1	23 GPM 85 LPM	FAMILY	5 / WP-4
⑩	SPLIT STREAM 'VORTEX' VØR-7516	2	15 GPM 56 LPM	FAMILY	4 / WP-4
⑪	SPIDEY SPRAY 'VORTEX' VØR-7517	1	9 GPM 32 LPM	FAMILY	2 / WP-4
⑫	BOLLARD ACTIVATOR N°1 'VORTEX' VØR-6ØØ	1	170 GPM TOTAL	——	2 / WP-5
⑬	MAINTENANCE MINIMIZER 'WATER ODYSSEY' #MM6ØØ	2	125 GPM EA	——	3 / WP-5

NORTH

1 WET PLAY PIPING PLAN (ADDITIVE ALTERNATE A) 1/4" = 1'-Ø"

WP-2

MEMORIAL POOL

PLANS FOR THE CONSTRUCTION OF
MEMORIAL POOL
WET PLAY PIPING PLAN

CONSTRUCTION CHANGE / ADDENDUM

CHANGE	DATE	AFFECTED OR ADDED SHEET NUMBERS	APPROVAL NO.

WARNING
0 1
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CITY OF SAN DIEGO
PUBLIC WORKS PROJECT

TEMPORARY BMP CONSTRUCTION SITE STORM WATER PRIORITY: HIGH ____ MEDIUM ____ LOW____

CONSULTANT

AQUATIC DESIGN GROUP
2226 FARADAY AVE., CARLSBAD, CA 92008
Tel 760.438.8400 Fax 760.438.5251

SPEC. NO.

LICENSED ARCHITECT SCOTT J. FERRY C-26022 STATE OF CALIFORNIA

CITY OF SAN DIEGO, CALIFORNIA
ENGINEERING AND CAPITAL PROJECTS DEPARTMENT
SHEET 27 OF 39 SHEETS

WBS S-00970

APPROVED: Samir M. FOR CITY ENGINEER DATE 7/13/12

SUBMITTED BY: SAMIR MAHMALJI, PROJECT OFFICER II

CLARK RITTER, PROJECT MANAGER

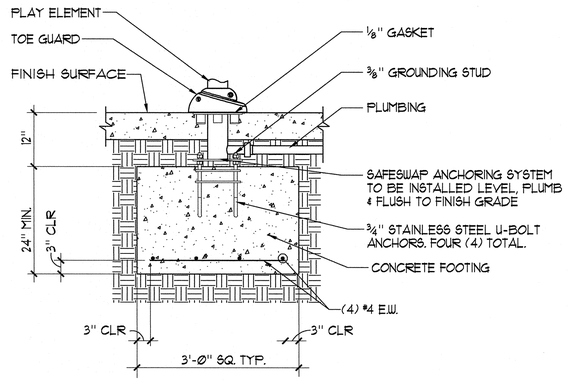
194-1725, CCS27 COORDINATE

6286404. 1834444, CCS83 COORDINATE

36152-27-D

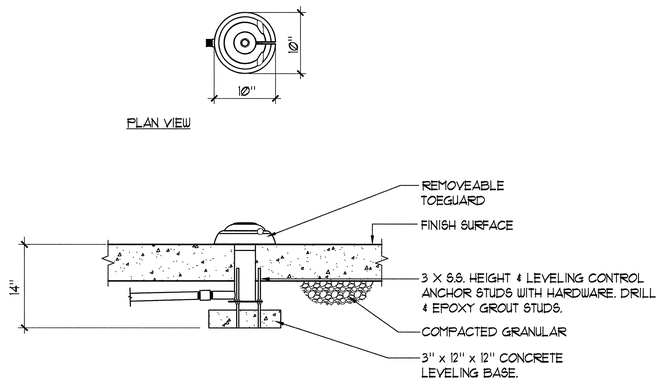
DESCRIPTION	BY	APPROVED	DATE	FILMED
ORIGINAL	ADG			

CONTRACTOR _____ DATE STARTED _____
INSPECTOR _____ DATE COMPLETED _____



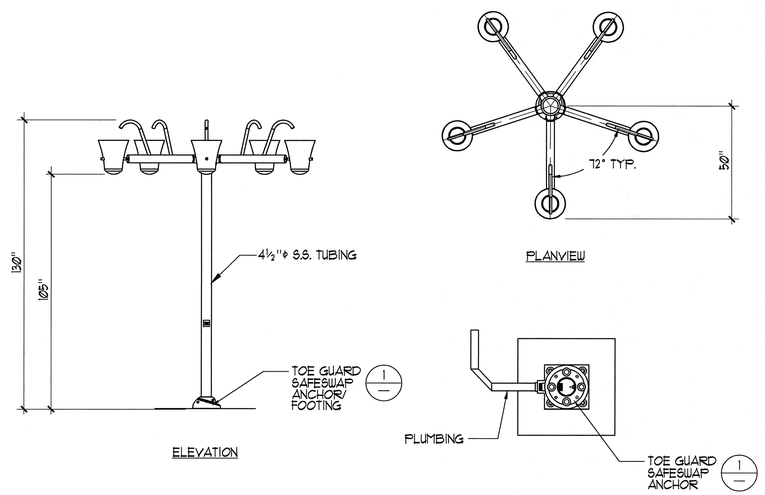
SAFESWAP ANCHOR DETAIL

1 SAFESWAP ANCHOR 1" = 1'-0"



PLAN VIEW

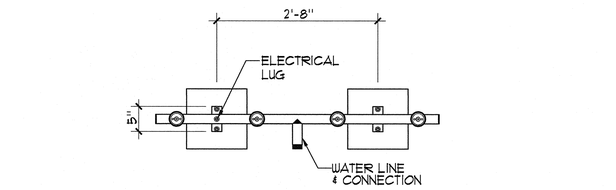
2 FOAMING GEYSER NO.1 DETAIL NO SCALE



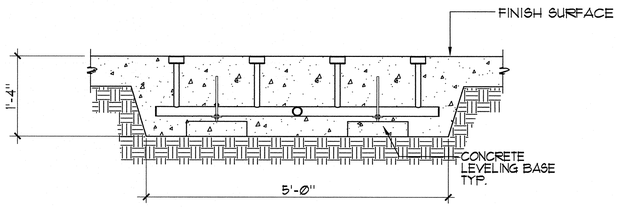
PLANVIEW

ELEVATION

3 FUMBLING FIVE NO SCALE

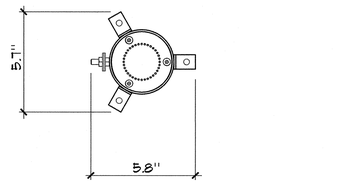


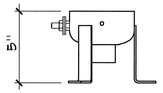
PLAN VIEW

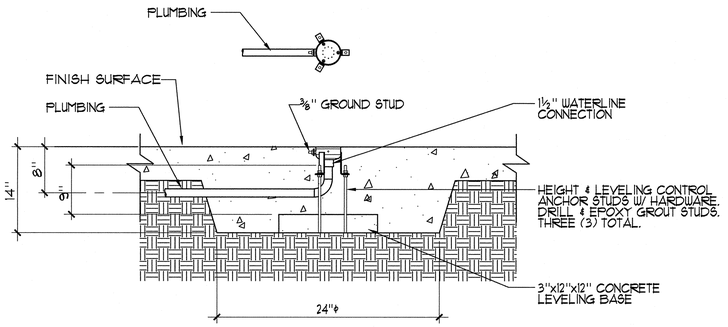


ELEVATION VIEW

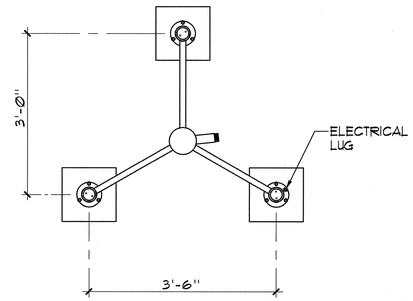
4 WATER TUNNEL NO.2 NO SCALE



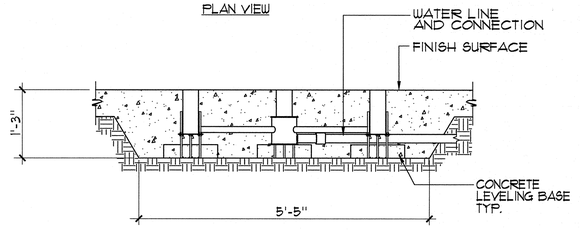




5 GROUND GEYSER NO SCALE



PLAN VIEW



ELEVATION VIEW

6 WATER JELLY NO.3 NO SCALE

WP-3

MEMORIAL POOL

THIS SHEET ADDITIVE ALTERNATE A

CONSTRUCTION CHANGE / ADDENDUM			
CHANGE	DATE	AFFECTED OR ADDED SHEET NUMBERS	APPROVAL NO.

WARNING
0 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE.

CITY OF SAN DIEGO
PUBLIC WORKS PROJECT

TEMPORARY BMP CONSTRUCTION SITE STORM WATER PRIORITY: HIGH ___ MEDIUM ___ LOW___

SPEC. NO.

CONSULTANT

AQUATIC DESIGN GROUP
2226 FARADAY AVE., CARLSBAD, CA 92008
Tel 760.438.8400 Fax 760.438.5251

LICENSED ARCHITECT — JEFFREY J. FERRY — C-26022 — STATE OF CALIFORNIA

PLANS FOR THE CONSTRUCTION OF
MEMORIAL POOL
WET PLAY DETAILS

CITY OF SAN DIEGO, CALIFORNIA
ENGINEERING AND CAPITAL PROJECTS DEPARTMENT
SHEET 28 OF 39 SHEETS

WBS S-00970

APPROVED: Samir M. FOR CITY ENGINEER — DATE 7/13/12

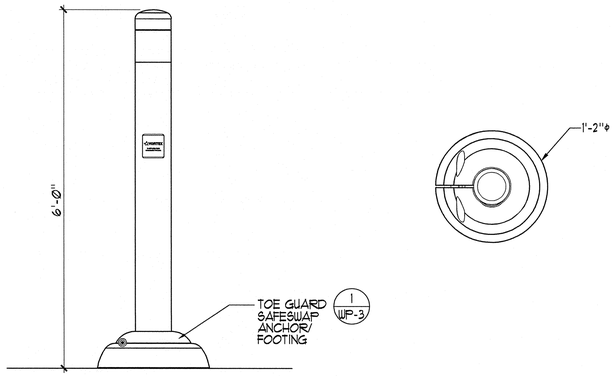
SUBMITTED BY: SAMIR MAHMALJI, PROJECT OFFICER II

DESCRIPTION	BY	APPROVED	DATE	FILMED
ORIGINAL	ADG			

CLARK RITTER, PROJECT MANAGER
194-1725, CCS27 COORDINATE
6286404, 1834444, CCS83 COORDINATE

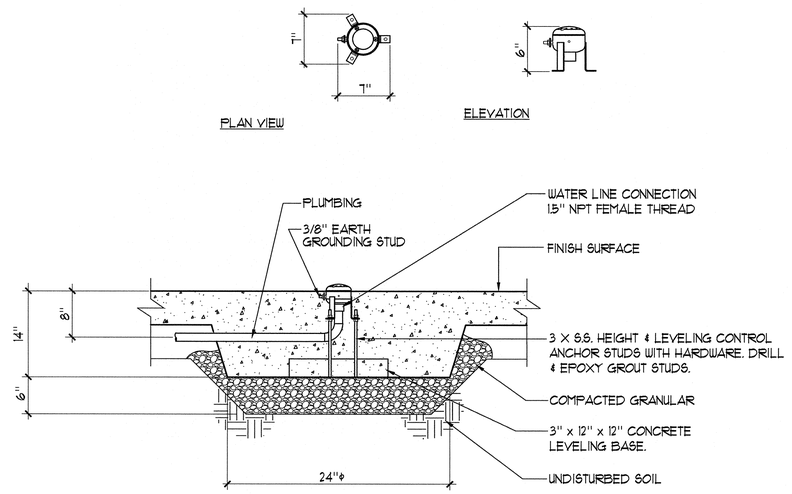
CONTRACTOR _____ DATE STARTED _____
INSPECTOR _____ DATE COMPLETED _____

36152-28-D



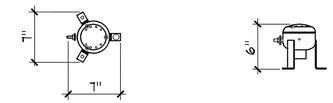
1 AQUA DOME NO.1 DETAIL

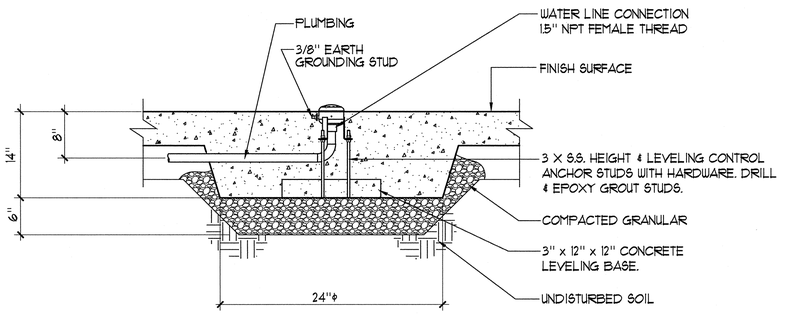
NO SCALE



4 SPLIT STREAM

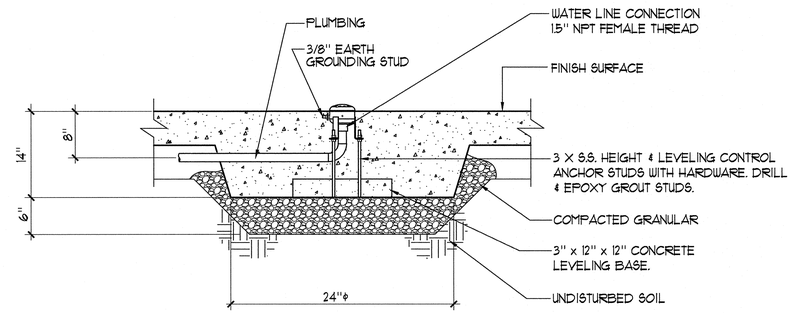
NO SCALE





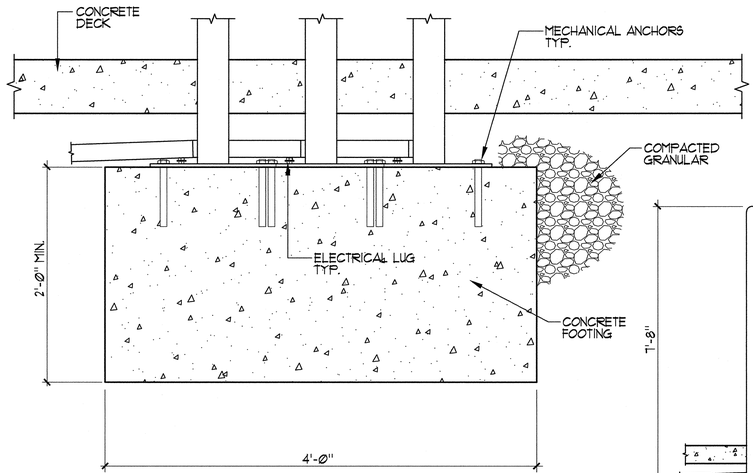
2 SPIDEY SPRAY

NO SCALE

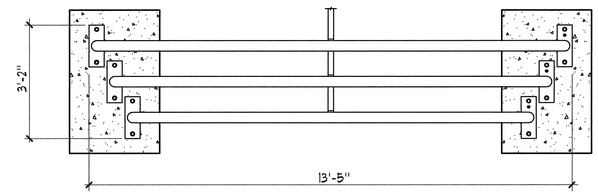


3 SIDE WINDER

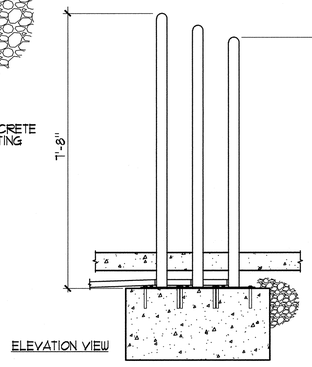
NO SCALE



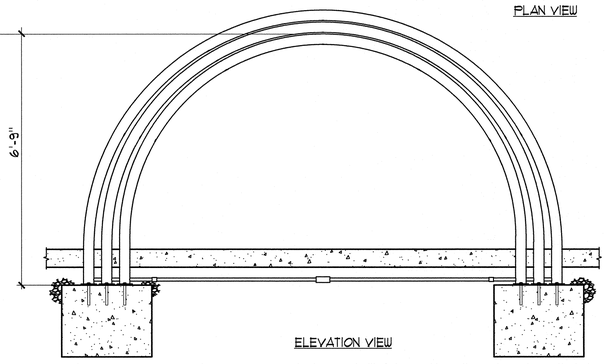
ANCHORING DETAIL



PLAN VIEW



ELEVATION VIEW



ELEVATION VIEW

5 RAINBOW NO.2 DETAIL

NO SCALE

WP-4

MEMORIAL POOL

THIS SHEET ADDITIVE ALTERNATE A

CONSTRUCTION CHANGE / ADDENDUM

CHANGE	DATE	AFFECTED OR ADDED SHEET NUMBERS	APPROVAL NO.

WARNING

0 1

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE.

CITY OF SAN DIEGO
PUBLIC WORKS PROJECT

TEMPORARY BMP CONSTRUCTION SITE STORM WATER PRIORITY: HIGH ___ MEDIUM ___ LOW___

SPEC. NO.

CONSULTANT

AQUATIC DESIGN GROUP
2226 FARADAY AVE., CARLSBAD, CA 92008
Tel 760.438.8400 Fax 760.438.5251

LICENSED ARCHITECT MATT J. FERRARA C-26522 STATE OF CALIFORNIA

PLANS FOR THE CONSTRUCTION OF
MEMORIAL POOL
WET PLAY DETAILS

CITY OF SAN DIEGO, CALIFORNIA
ENGINEERING AND CAPITAL PROJECTS DEPARTMENT
SHEET 29 OF 39 SHEETS

WBS S-00970

APPROVED: Samir M. FOR CITY ENGINEER — DATE 7/13/12

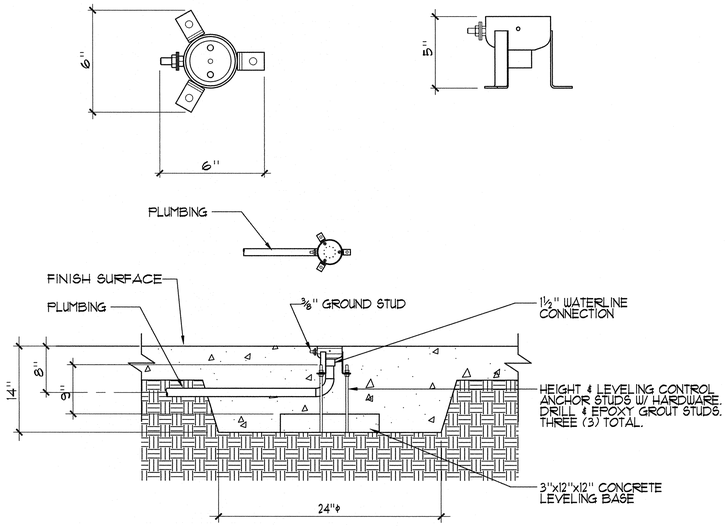
SUBMITTED BY: SAMIR MAHMALJI, PROJECT OFFICER II

DESCRIPTION	BY	APPROVED	DATE	FILMED
ORIGINAL	ADG			

CLARK RITTER, PROJECT MANAGER
194-1725, CCS27 COORDINATE
6286404, 1834444, CCS83 COORDINATE

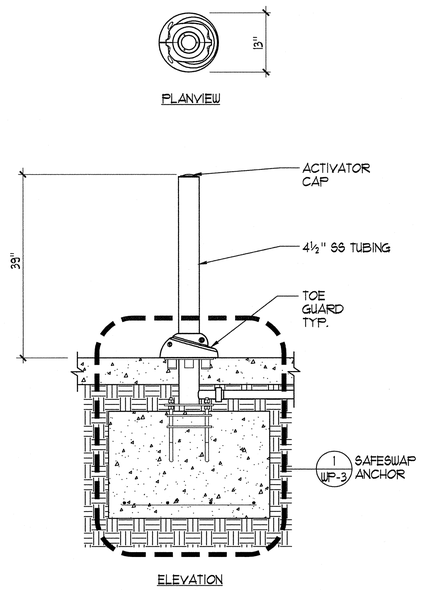
CONTRACTOR _____ DATE STARTED _____
INSPECTOR _____ DATE COMPLETED _____

36152-29-D



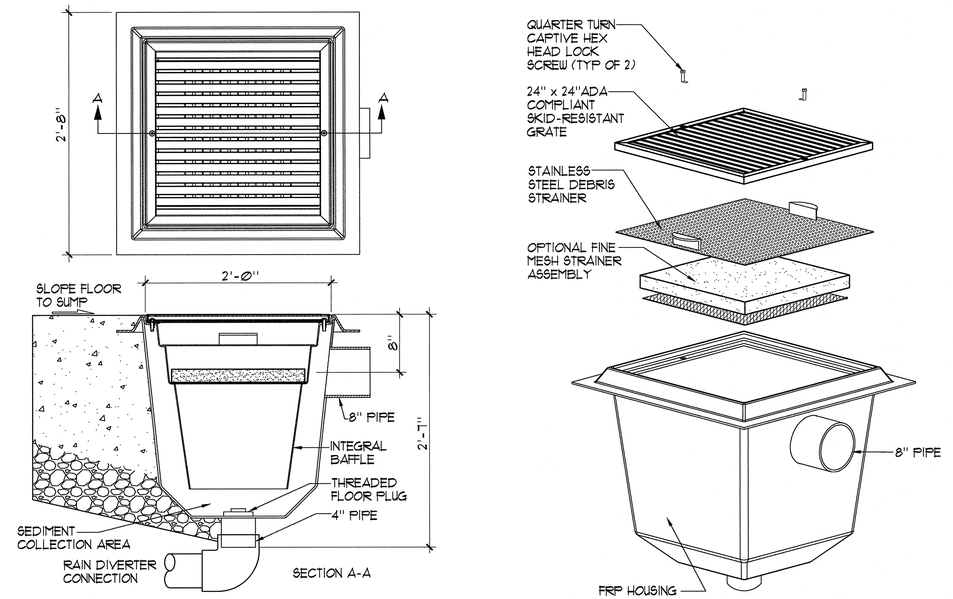
1 JET STREAM

NO SCALE



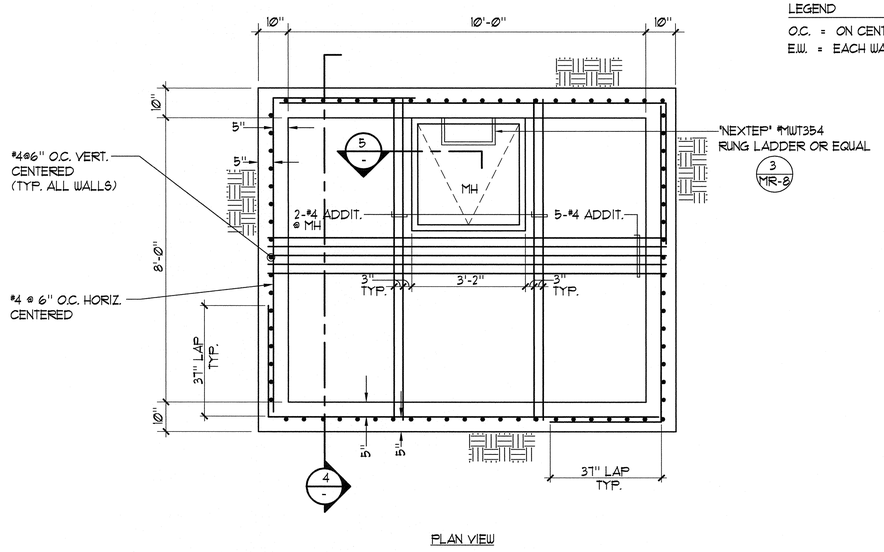
2 BOLLARD ACTIVATOR NO.3

NO SCALE



3 MAINTENANCE MINIMIZER

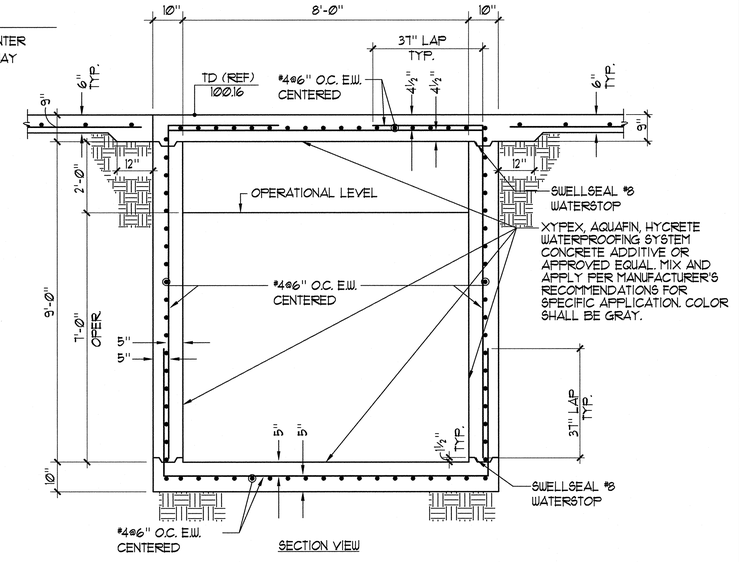
NO SCALE



LEGEND

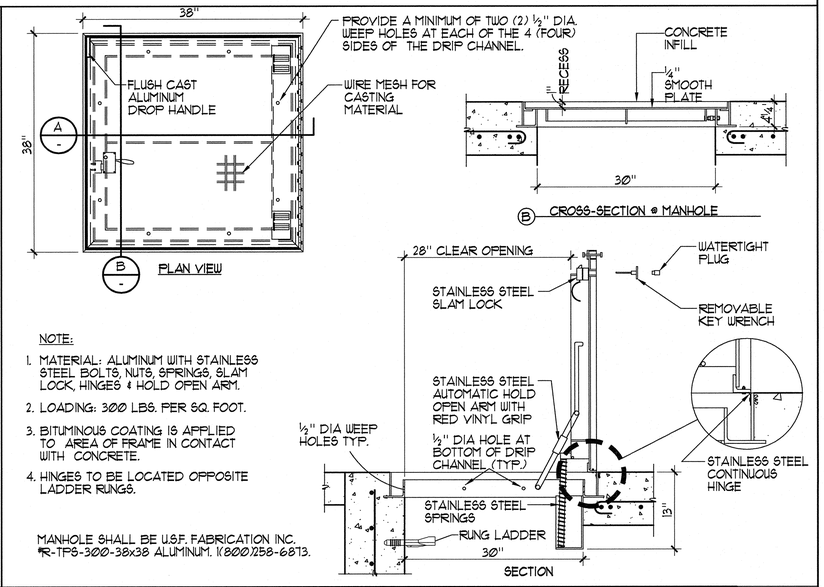
O.C. = ON CENTER

E.W. = EACH WAY



4 BALANCE TANK

½"=1'-0"



5 BALANCE TANK MANHOLE

1"=1'-0"

WP-5

MEMORIAL POOL

THIS SHEET ADDITIVE ALTERNATE A

CONSTRUCTION CHANGE / ADDENDUM			
CHANGE	DATE	AFFECTED OR ADDED SHEET NUMBERS	APPROVAL NO.

WARNING

0 1

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CITY OF SAN DIEGO
PUBLIC WORKS PROJECT

TEMPORARY BMP CONSTRUCTION SITE STORM WATER PRIORITY: HIGH ___ MEDIUM ___ LOW___

SPEC. NO.

CONSULTANT

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LICENSED ARCHITECT SCOTT J. FERGUSON C-26022 STATE OF CALIFORNIA

PLANS FOR THE CONSTRUCTION OF
MEMORIAL POOL
WET PLAY DETAILS

CITY OF SAN DIEGO, CALIFORNIA
ENGINEERING AND CAPITAL PROJECTS DEPARTMENT
SHEET 30 OF 39 SHEETS

WBS S-00970

APPROVED: Samir M. FOR CITY ENGINEER — DATE 7/13/12

SUBMITTED BY: SAMIR MAHMALJI, PROJECT OFFICER II

DESCRIPTION	BY	APPROVED	DATE	FILMED
ORIGINAL	ADG			

CLARK RITTER, PROJECT MANAGER

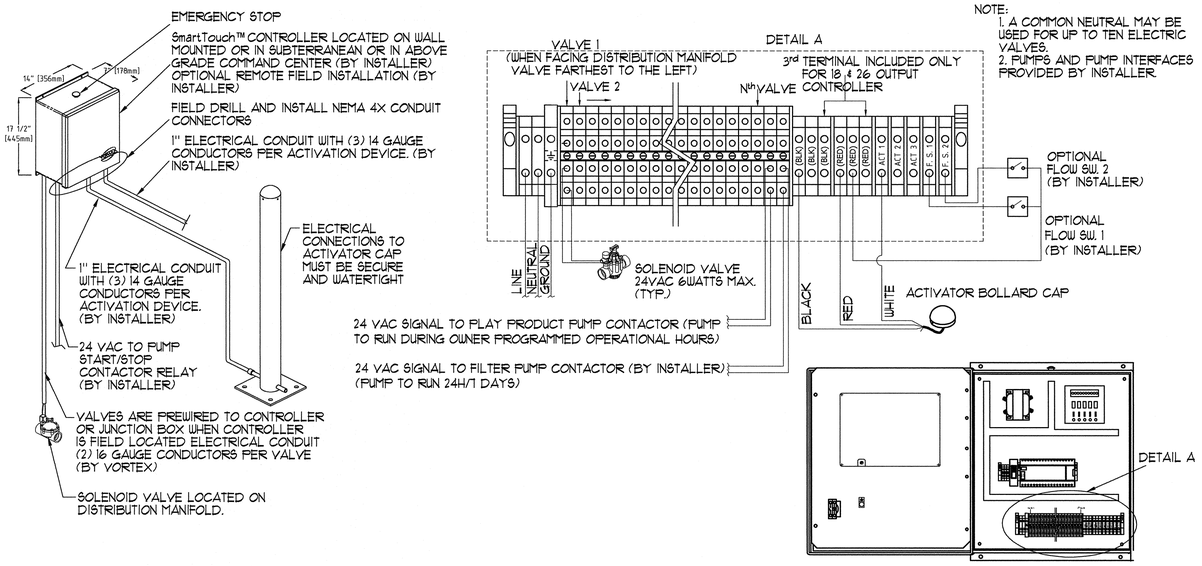
194-1725 CCS27 COORDINATE

6286404, 1834444 CCS83 COORDINATE

CONTRACTOR _____ DATE STARTED _____

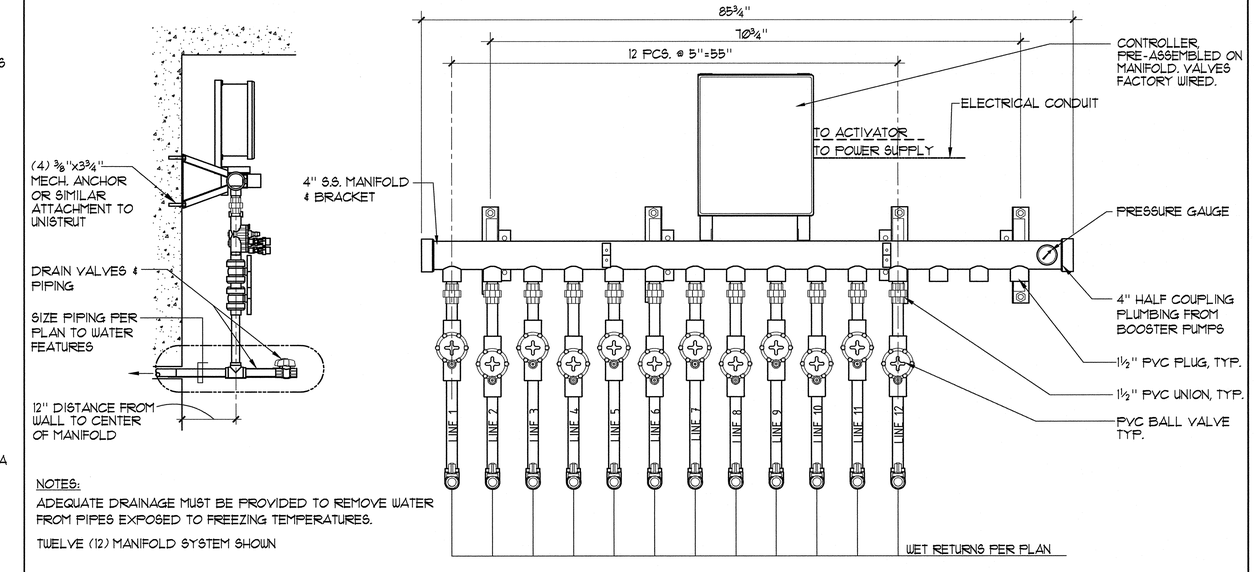
INSPECTOR _____ DATE COMPLETED _____

36152-30-D



1 SMART TOUCH CONTROLLER INSTALLATION DETAIL

NO SCALE



NOTES:

ADEQUATE DRAINAGE MUST BE PROVIDED TO REMOVE WATER FROM PIPES EXPOSED TO FREEZING TEMPERATURES.

TWELVE (12) MANIFOLD SYSTEM SHOWN

2 WALL MOUNTED COMMAND CENTER MANIFOLD

3/4" = 1'-0"

MEMORIAL POOL

WP-6

THIS SHEET ADDITIVE ALTERNATE A

CONSTRUCTION CHANGE / ADDENDUM			
CHANGE	DATE	AFFECTED OR ADDED SHEET NUMBERS	APPROVAL NO.

WARNING

0 1

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CITY OF SAN DIEGO
PUBLIC WORKS PROJECT

TEMPORARY BMP CONSTRUCTION SITE STORM WATER PRIORITY: HIGH ___ MEDIUM ___ LOW___

CONSULTANT

AQUATIC DESIGN GROUP
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Tel 760.438.8400 Fax 760.438.5251

SPEC. NO.

LICENSED ARCHITECT SCOTT J. FERGUSON C-26032 STATE OF CALIFORNIA

PLANS FOR THE CONSTRUCTION OF
MEMORIAL POOL
WET PLAY DETAILS

CITY OF SAN DIEGO, CALIFORNIA
ENGINEERING AND CAPITAL PROJECTS DEPARTMENT
SHEET 31 OF 39 SHEETS

WBS S-00970

APPROVED: FOR CITY ENGINEER — DATE 7/13/12

SUBMITTED BY: SAMIR MAHMALJI, PROJECT OFFICER II

DESCRIPTION	BY	APPROVED	DATE	FILMED
ORIGINAL	ADG			

CLARK RITTER, PROJECT MANAGER

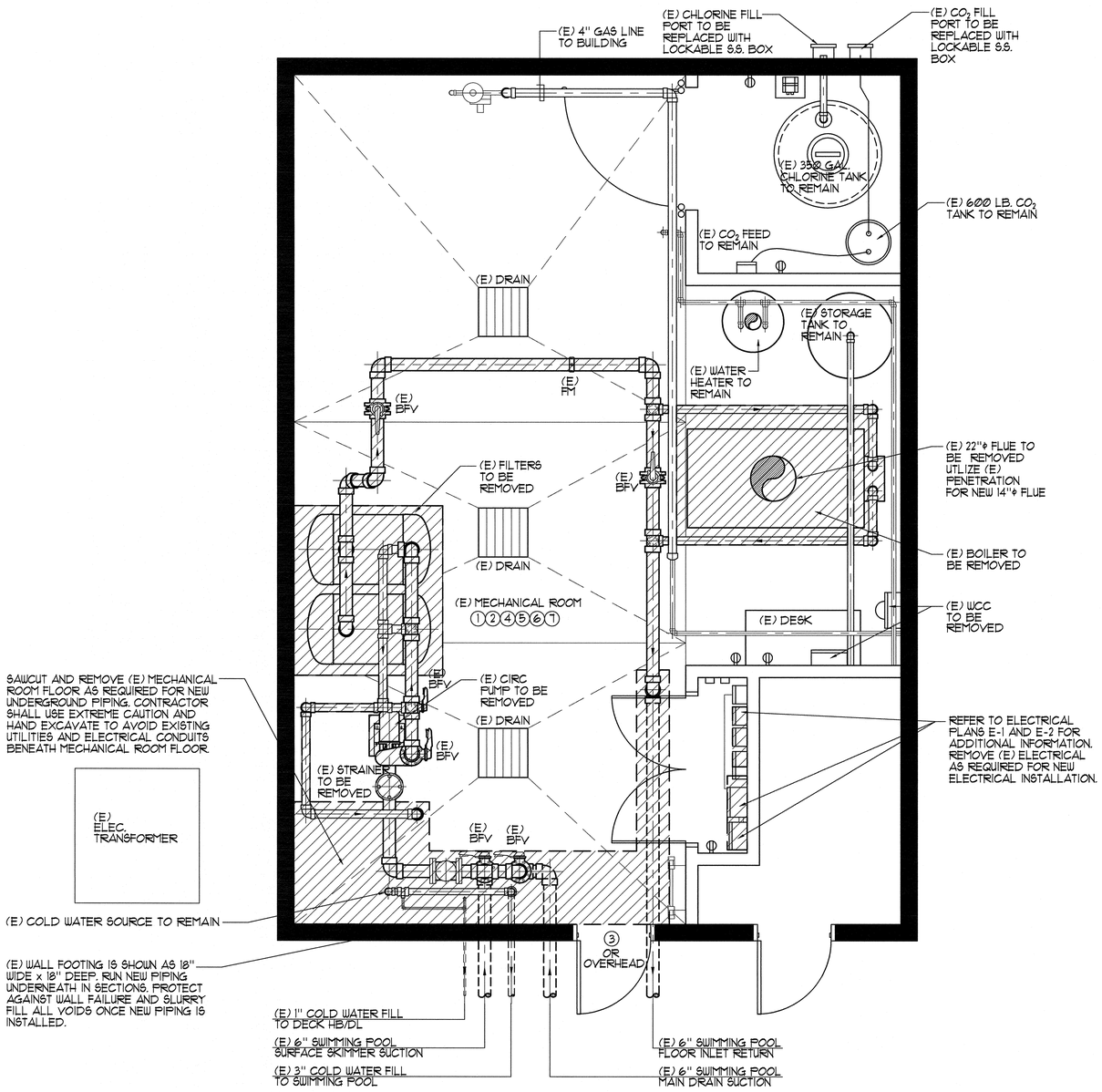
194-1725, CCS27 COORDINATE

6286404, 1834444, CCS83 COORDINATE

CONTRACTOR _____ DATE STARTED _____

INSPECTOR _____ DATE COMPLETED _____

36152-31-D



SCOPE OF WORK

1. COORDINATE DEMOLITION WORK WITH THE OWNER, PROTECT ALL EXISTING WORK, BUILDINGS, PIPING, EQUIPMENT, UTILITIES, ETC. TO REMAIN.
2. REPAIR OR REPLACE ANY DAMAGED ITEMS DUE TO DEMOLITION AND/OR CONSTRUCTION.
3. COORDINATE INGRESS/EGRESS AND HAUL ROUTES WITH THE CONTRACTOR PRIOR TO START OF WORK.
4. THIS PLAN VIEW IS SHOWN FOR INFORMATION AND ASSISTANCE. THE CONTRACTOR IS RESPONSIBLE FOR INDIVIDUAL DIMENSIONS, ELEVATIONS, TAKE-OFFS AND ESTIMATIONS WITH REGARD TO DEMOLITION, PREPARATION, AS WELL AS MEANS AND METHODS OF CONSTRUCTION AND SHALL VISIT THE SITE AS REQUIRED TO ACCOMPLISH THE WORK, AND TO BECOME FAMILAR WITH SCOPE AND SERVICES OF WORK REQUIRED.
5. PROVIDE SELECTED DEMOLITION OF EXISTING POOL CIRCULATION PUMP, FILTERS, PIPING, BOILER, VALVING, FLOOR SLAB, EQUIPMENT UTILITIES, ETC. AS REQUIRED. PROVIDE NEW SWIMMING POOL AND WET PLAY MECHANICAL SYSTEMS PER SHEET MR-2 FOR NEW SWIMMING POOL AND WET PLAY.
6. THE OWNER SHALL IDENTIFY, REMOVE, SALVAGE ANY ITEMS AS DESIRED PRIOR TO CONTRACTOR MOVE-IN.
7. COORDINATE DEMOLITION AND POINTS OF CONNECTION WITH EXISTING BOILERS, AND ELECTRICAL SYSTEMS WITH OTHER DISCIPLINES AND CONCURRENT CONTRACTS.

LEGEND

= LIMITS OF DEMOLITION AS NOTED ON PLANS.

(E)	=	EXISTING
BFV	=	BUTTERFLY VALVE
WCC	=	WATER CHEMISTRY CONTROLLER
⊖	=	EXISTING OUTLET TO REMAIN

1 EXISTING MECHANICAL ROOM DEMOLITION PLAN 3/8" = 1'-0"

MR-1

MEMORIAL POOL

PLANS FOR THE CONSTRUCTION OF
MEMORIAL POOL
MECHANICAL ROOM DEMOLITION PLAN

CONSTRUCTION CHANGE / ADDENDUM

CHANGE	DATE	AFFECTED OR ADDED SHEET NUMBERS	APPROVAL NO.

WARNING
0 1
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CITY OF SAN DIEGO
PUBLIC WORKS PROJECT

TEMPORARY BMP CONSTRUCTION SITE STORM WATER PRIORITY: HIGH ___ MEDIUM ___ LOW___

CONSULTANT

AQUATIC DESIGN GROUP
2226 FARADAY AVE., CARLSBAD, CA 92008
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SPEC. NO.

LICENSED ARCHITECT SCOTT J. FERRY C-25824 STATE OF CALIFORNIA

CITY OF SAN DIEGO, CALIFORNIA
ENGINEERING AND CAPITAL PROJECTS DEPARTMENT
SHEET 32 OF 39 SHEETS

WBS S-00970

APPROVED: Samir M. 7/13/12
FOR CITY ENGINEER DATE

SUBMITTED BY: SAMIR MAHMALJI
PROJECT OFFICER II

DESCRIPTION	BY	APPROVED	DATE	FILMED
ORIGINAL	ADG			

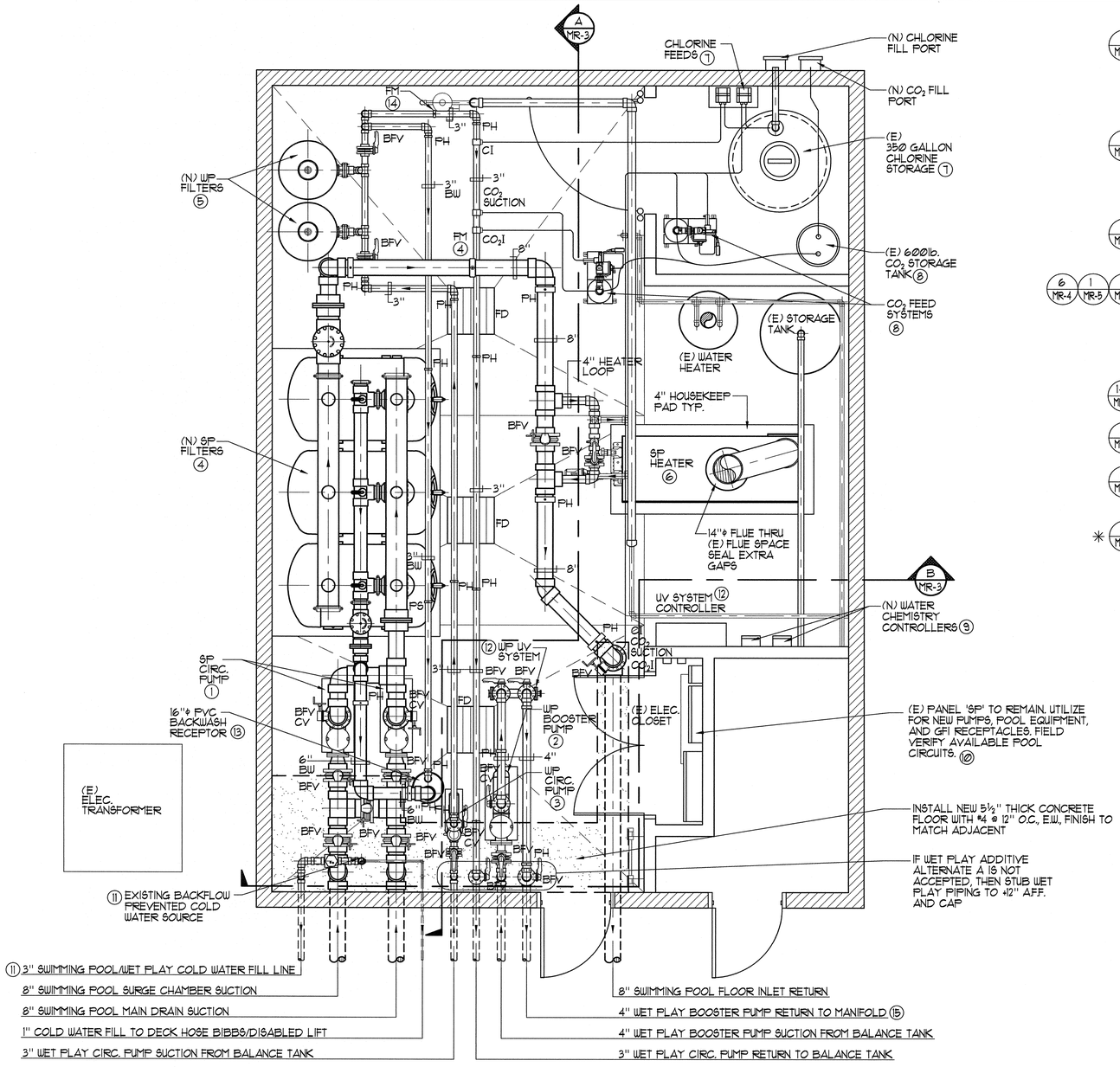
CLARK RITTER
PROJECT MANAGER

194-1725
CCS27 COORDINATE

6286404, 1834444
CCS83 COORDINATE

CONTRACTOR _____ DATE STARTED _____
INSPECTOR _____ DATE COMPLETED _____

36152-32-D



EQUIPMENT LIST (✳ WET PLAY EQUIPMENT ADDITIVE ALTERNATE A)

(4 MR-4)(2 MR-6) ① SWIMMING POOL CIRCULATION PUMP(S): 'PENTAIR' CHK-75, 7.5HP, 208V 3PH, RATED AT 380 GPM (760 GPM COMBINED) AT 60 FT. TDH, WITH INTEGRAL STRAINER. TWO (2) TOTAL.

✳ (4 MR-4) ② WET PLAY BOOSTER PUMP: 'PENTAIR' CMK-50, 5HP, 208V 3PH, RATED AT 230 GPM AT 60 FT. TDH, WITH INTEGRAL STRAINER. ONE (1) TOTAL. (360lbs.)

✳ (5 MR-4) ③ WET PLAY CIRCULATION PUMP: 'PENTAIR' WHISPERFLO, WFK-12, 3HP, 208/230V 3PH, RATED AT 143 GPM AT 60 FT. TDH, WITH INTEGRAL STRAINER. ONE (1) TOTAL.

(1 MR-4)(5 MR-4) ④ SWIMMING POOL FILTERS: 'EKO³ SYSTEMS' #42-200-3 AUTOMATIC FILTER CONTROL (AFC) FULLY AUTOMATIC HI-RATE PERMANENT MEDIA FILTER WITH 60 SQ. FT. OF FILTER AREA RATED AT 300 GPM AT 15 GPM/SQ. FT. COMPLETE WITH 8" FACE PIPING, 6" BACKWASH, SEISMIC ANCHORAGE. PROVIDE ALL UTILITES, PIPING, VALVING, ETC. (5,360lbs EACH TANK) 'EKO³', 'STARK', OR EQUAL. PROVIDE SIGNET MK-515 FLOSENSOR WITH DIGITAL READ-OUT.

✳ (2 MR-4) ⑤ WET PLAY FILTER(S): 'PENTAIR' TRITON 2-TR100C-3 HI-RATE PERMANENT MEDIAL FILTER WITH 3" FACE PIPING AND 3" BACKWASH COMPLETE WITH INFLUENT/EFFLUENT GAUGES, 9.82 SQ. FT. OF FILTER AREA RATED AT 147 GPM AT 15 GPM/SQ. FT. OF FILTER AREA.

(3 MR-4)(5 MR-4) ⑥ SWIMMING POOL HEATER: 'LOCHINVAR' #CPN2071, 2,070,000 BTU INPUT, 2" GAS CONNECTION, 2½" WATER INFLUENT/EFFLUENT CONNECTIONS COPPER FIN II HEATER AND 14"ø FLUE TO ATMOSPHERE. ONE (1) TOTAL (1,400lbs.). REPLACE IN KIND. 'LOCHINVAR', 'RAYPAK', 'LAARS' OR EQUAL. REFER TO MECHANICAL PLANS FOR HEATER FLUE DETAILS. INSTALL PER MANUFACTURER'S SPECIFICATIONS.

(6 MR-4)(1 MR-5)(4 MR-5)(5 MR-5) ⑦ CHLORINE STORAGE/FEED SYSTEM: EXISTING 'CHEM-TAINER' 350 GALLON #TC5256DC; DUAL STORAGE/CONTAINMENT TANK WITH LID SEISMICALLY RESTRAINED; (2,920lbs). COMPLIES WITH FED. REG #40CFR-264-193. NEW SWIMMING POOL FEED PUMP SHALL BE 'LMI' #SD43-88P-KSI; 288 GPD @ 150 PSI WITH FRP SHELF BRACKETS.✳ NEW WET PLAY FEED PUMP SHALL BE 'STENNER' 45M-5 50 GPD @ 25 PSI. HARD PIPE TO POINT OF INJECTION.

(2-4 MR-5) ⑧ CARBON DIOXIDE STORAGE FEED SYSTEM: EXISTING 600lb. CRYOGENIC STORAGE TANK WITH SEISMIC RESTRAINT AND REMOTE FILL PORT. PROVIDE EKO_3 PH-MTS CO_2 HIGH EFFICIENCY FEED SYSTEM WITH ALKALINITY CONTROL, 0 TO 160 SCFH FEED CAPACITY BOOSTER PUMP, PIPING INJECTOR, FLOWMETER, RELAYS AND ACID FEED ALKALINITY CONTROL. TWO (2) SYSTEM TOTAL.

(1-4 MR-4)(1-4 MR-7) ⑨ SWIMMING POOL WATER CHEMISTRY CONTROLLER: PROVIDE TWO (2) DEDICATED ANALOG TELEPHONE LINE FOR 'IMPACT' CS-IMPACT-FILTER(B)-APR WATER CHEMISTRY CONTROLLER. PROVIDE COMPLETE SYSTEM CONTROL PACKAGE. 'IMPACT', OR EQUAL. WET PLAY WATER CHEMISTRY CONTROLLER SHALL BE 'IMPACT' #CS31-APR WITH AUTO PROBE RINSE.

(2 MR-6)(1 MR-8) ⑩ ELECTRICAL: PROVIDE ALL ELECTRICAL WIRING, CONDUIT, PANEL(S), STARTER/DISCONNECT INTERCONNECT(S) ETC. AS REQUIRED FOR PROPER EQUIPMENT INSTALLATION PER MANUFACTURER'S RECOMMENDATIONS AND SHOP DRAWINGS. COORDINATE ALL WORK WITH OTHER TRADES AS REQUIRED. REFER TO ELEC. PLANS FOR ALL ADDITIONAL INFO.

(6 MR-5)(2 SP-10) ⑪ SWIMMING POOL FILL SYSTEM: 3" 'CLA-VAL' FILL SYSTEM FROM DOMESTIC SOURCE PROTECTED WITH REDUCED PRESSURE BACKFLOW PREVENTOR. PROVIDE 'HYTROL' # 124-01AKX-3" VALVE WITH NON-CORROSIVE #CFI-CIKX FLOAT CONTROL IN 8" PVC STILLING WELL IN SURGE CHAMBER. 3" LINE SIZE. WET PLAY FILL SYSTEM SHALL BE #124-01AKX-1" VALVE WITH NON-CORROSIVE #CFI-CIKX FLOAT CONTROL IN 8" PVC STILLING WELL IN BALANCE TANK. 1" LINE SIZE.

✳ (4 MR-8)(5 MR-8) ⑫ WET PLAY ULTRA VIOLET SYSTEM: 'WALLACE & TIERNAN' BARRIER M80, 172 GPM/CAPACITY/FLOW RATE, 5" FLANGED CONNECTIONS, 1-WTL1000 U.V. LAMP, U.V. UNIT, JUNCTION BOX AND CONTROL PANEL, SINGLE PHASE, 208V, 60HZ, 36A FUSING, 1.1 KVA ACTIVE POWER CONSUMPTION.

⑬ 16"ø BACKWASH PVC BELL RECEPTOR AT +36" A.F.F. WITH NEW 6" P-TRAP TO EXISTING SEWER. POC TO EXISTING LINE JUST DOWNSTREAM FROM EXISTING RISER.

✳ ⑭ WET PLAY FLOWMETER: 'BLUE/WHITE' F-300, 3" LINE SIZE. ONE (1) TOTAL.

✳ (1-2 WF-6) ⑮ WET PLAY AUTOMATION: 'VORTEX' COMMAND CENTER INCLUDING SYSTEM CONTROLLER, PIT WALL MOUNTED WATER DISTRIBUTION MANIFOLDS, WITH FIFTEEN (15) OUTLETS, SOLENOID VALVES, ISOLATION VALVES, BOLLARD OPERATED ACTIVATION, COMPLETE. CONTRACTOR SHALL PROVIDE COMPLETE SHOP DRAWINGS FOR APPROVAL. PROVIDE WINTER DRAIN POINTS ADJACENT TO EQUIPMENT AREA FOR ALL MANIFOLD LINES.

LEGEND

(E)	=	EXISTING	CO_2I	=	CO_2 INJECTION
BFV	=	BUTTERFLY VALVE	PH	=	PIPE SUPPORT
CV	=	CHECK VALVE	FD	=	FLOOR DRAIN
FM	=	FLOWMETER	BW	=	BACKWASH
CI	=	CHLORINE INJECTION	SP	=	SWIMMING POOL
UV	=	ULTRA VIOLET	WP	=	WET PLAY
AFF.	=	ABOVE FINISH FLOOR			

THREE PHASE MOTOR LOADS AT 208V

SWIMMING POOL CIRCULATION PUMP #1: 7½ HP @ 208V, 3PH.	=	24.2 AMPS
SWIMMING POOL CIRCULATION PUMP #2: 7½ HP @ 208V, 3PH.	=	24.2 AMPS
WET PLAY CIRCULATION PUMP: 3 HP @ 208V, 3PH.	=	10.6 AMPS
WET PLAY BOOSTER PUMP: 5 HP @ 208V, 3PH.	=	16.1 AMPS
TOTAL AMPS	=	75.1 AMPS

HEATER/GAS PIPING INSTALLATION NOTE

'LOCHINVAR' GAS FIRED POOL HEATER(S) INSTALLED ON A GAS SUPPLY SYSTEM UTILIZING A 2 PSI OR 5 PSI SUPPLY. GAS PRESSURE SHALL REQUIRE A REGULATOR TO REDUCE THE SUPPLY PRESSURE. A PROPERLY SIZED AND INSTALLED LOCK-UP-TYPE HIGH GAS PRESSURE REGULATOR (HGPR) SHALL BE USED TO REDUCE THE GAS PRESSURE AT THE UNIT INLET TO A MAXIMUM OF 10.5" AND NO LESS THAN 5" OF WATER COLUMN.

'LOCHINVAR' RECOMMENDS THAT ANY REQUIRED LINE LOCK-UP-TYPE HIGH GAS PRESSURE REGULATOR BE INSTALLED WITH A MINIMUM OF 8 FEET TO 10 FEET OF PIPE FROM ITS DISCHARGE TO THE UNIT'S GAS INLET. IF A STRAIGHT DISTANCE OF GAS PIPE IS NOT AVAILABLE THE ADDITION OF A VERTICAL 'U' IN THE GAS PIPING DOWN STREAM FROM THE 'HGPR' CAN BE USED TO ACHIEVE THE 8 FEET TO 10 FEET OF DISTANCE.

CROSS CONNECTION PROTECTION SHALL BE PROVIDED AT ALL POTABLE WATER SUPPLIED APPLIANCES AND EQUIPMENT

(1) NEW MECHANICAL ROOM LAYOUT PLAN

3/8" = 1'-0"

MR-2

MEMORIAL POOL

PLANS FOR THE CONSTRUCTION OF
MEMORIAL POOL
MECHANICAL ROOM LAYOUT PLAN

CONSTRUCTION CHANGE / ADDENDUM

CHANGE	DATE	AFFECTED OR ADDED SHEET NUMBERS	APPROVAL NO.

WARNING
0 1
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CITY OF SAN DIEGO
PUBLIC WORKS PROJECT

TEMPORARY BMP CONSTRUCTION SITE STORM WATER PRIORITY: HIGH ___ MEDIUM ___ LOW___

CONSULTANT

AQUATIC DESIGN GROUP
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Tel 760.438.8400 Fax 760.438.5251

SPEC. NO.

LICENSED ARCHITECT — SCOTT J. FERRY — C-35022 — STATE OF CALIFORNIA

CITY OF SAN DIEGO, CALIFORNIA
ENGINEERING AND CAPITAL PROJECTS DEPARTMENT
SHEET 33 OF 39 SHEETS

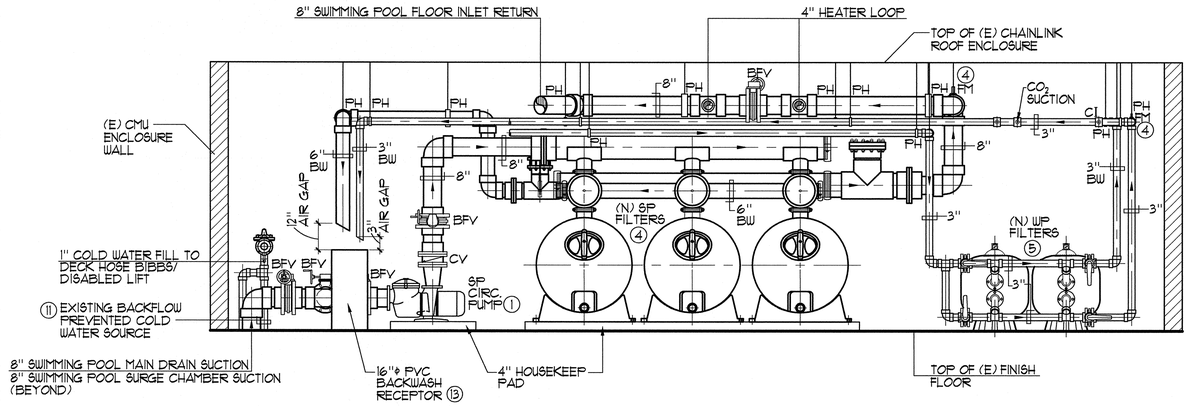
APPROVED: Samir M. FOR CITY ENGINEER — DATE 7/13/12

DESCRIPTION	BY	APPROVED	DATE	FILMED
ORIGINAL	ADG			

CONTRACTOR _____ DATE STARTED _____
INSPECTOR _____ DATE COMPLETED _____

WBS S-00970

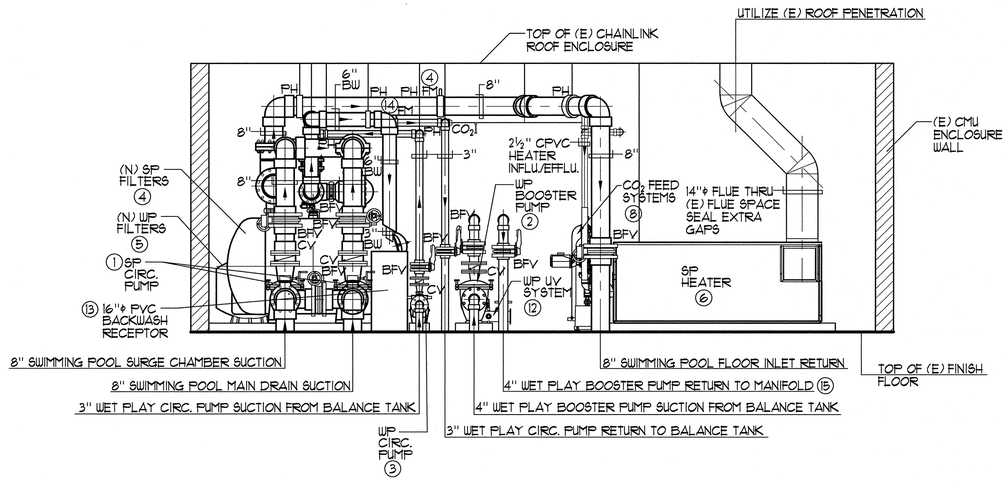
SUBMITTED BY: SAMIR MAHMALJI, PROJECT OFFICER II
CLARK RITTER, PROJECT MANAGER
194-1725 CCS27 COORDINATE
6286404, 1834444 CCS83 COORDINATE
36152-33-D



NOTE:
SEE SHEET MR-1 FOR EQUIPMENT LIST. Ⓐ

Ⓐ MECHANICAL ROOM SECTION

⅜" = 1'-0"



NOTE:
SEE SHEET MR-1 FOR EQUIPMENT LIST. Ⓐ

Ⓑ MECHANICAL ROOM SECTION

⅜" = 1'-0"

MR-3

MEMORIAL POOL

CONSTRUCTION CHANGE / ADDENDUM			
CHANGE	DATE	AFFECTED OR ADDED SHEET NUMBERS	APPROVAL NO.

WARNING
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CITY OF SAN DIEGO
PUBLIC WORKS PROJECT

TEMPORARY BMP CONSTRUCTION SITE STORM WATER PRIORITY: HIGH ___ MEDIUM ___ LOW ___

CONSULTANT

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Tel 760.438.8400 Fax 760.438.5251

SPEC. NO.

LICENSED ARCHITECT · JEFF J. FERRARA · C-25022 · STATE OF CALIFORNIA

PLANS FOR THE CONSTRUCTION OF
MEMORIAL POOL
MECHANICAL ROOM SECTIONS

CITY OF SAN DIEGO, CALIFORNIA
ENGINEERING AND CAPITAL PROJECTS DEPARTMENT
SHEET 34 OF 39 SHEETS

WBS S-00970

APPROVED: Samir M. 7/13/12
FOR CITY ENGINEER DATE

SUBMITTED BY
SAMIR MAHMALJI
PROJECT OFFICER II

CLARK RITTER
PROJECT MANAGER

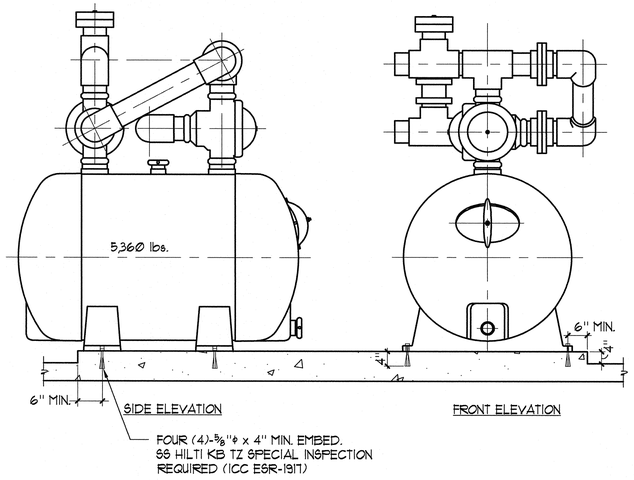
DESCRIPTION	BY	APPROVED	DATE	FILMED
ORIGINAL	ADG			

194-1725
CCS27 COORDINATE

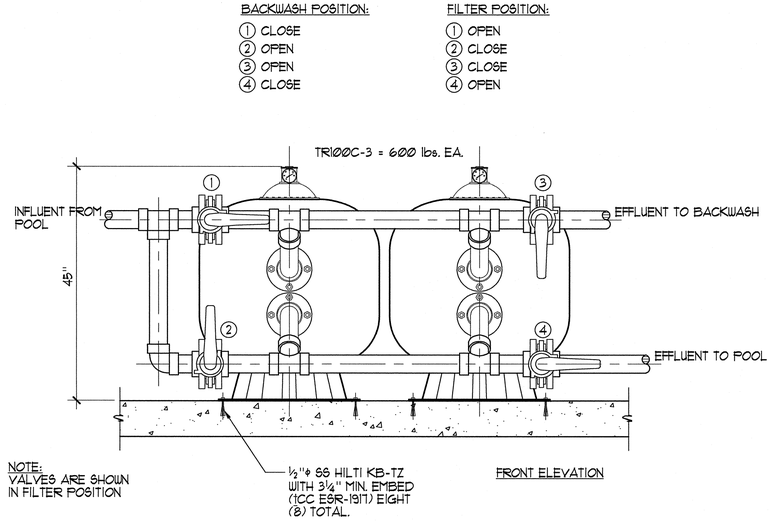
6286404, 1834444
CCS83 COORDINATE

CONTRACTOR _____ DATE STARTED _____
INSPECTOR _____ DATE COMPLETED _____

36152-34-D



1 FILTER ANCHORAGE NO SCALE



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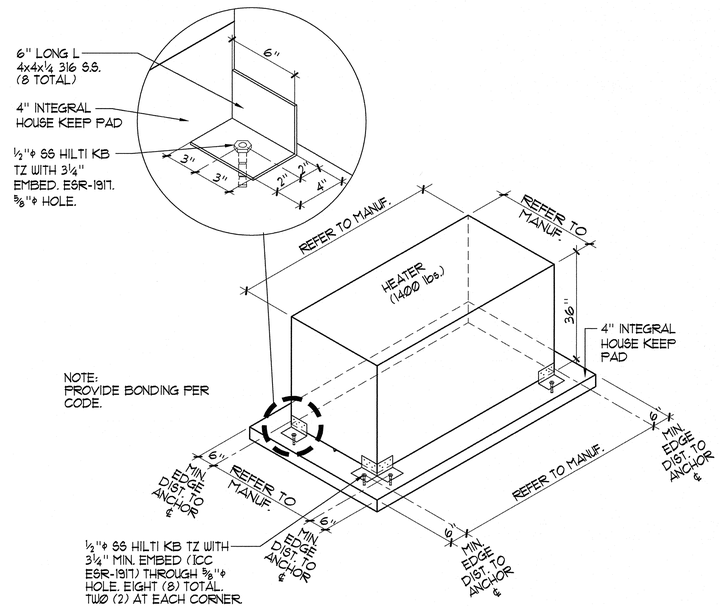
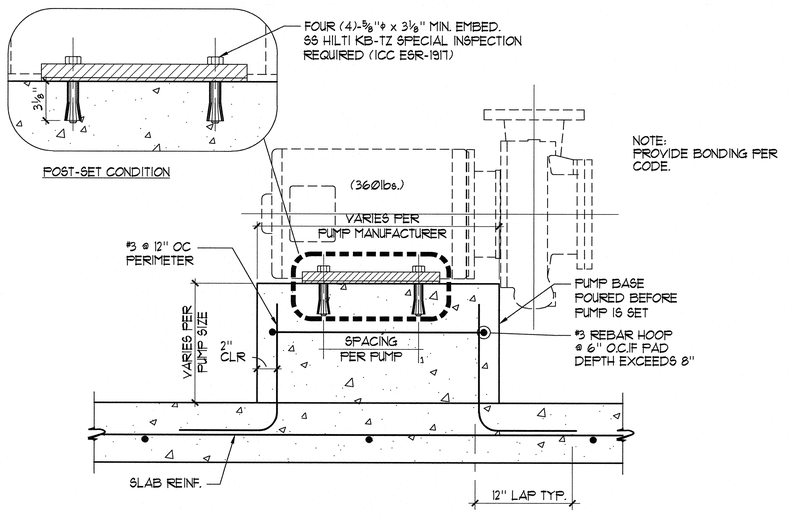
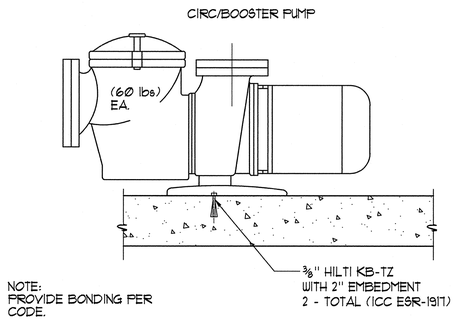


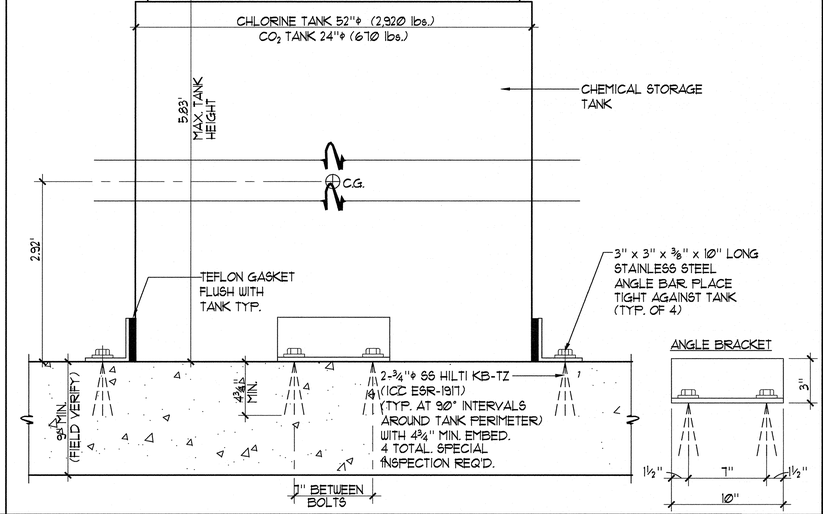
3 HEATER ANCHORAGE NO SCALE



4 PUMP ANCHORAGE NO SCALE



5 PUMP ANCHORAGE NO SCALE



6 CHEMICAL TANK ANCHOR NO SCALE

MR-4

MEMORIAL POOL

CONSTRUCTION CHANGE / ADDENDUM

CHANGE	DATE	AFFECTED OR ADDED SHEET NUMBERS	APPROVAL NO.

WARNING

0 1

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE.

CITY OF SAN DIEGO
PUBLIC WORKS PROJECT

TEMPORARY BMP CONSTRUCTION SITE STORM WATER PRIORITY: HIGH ____ MEDIUM ____ LOW____

SPEC. NO.

CONSULTANT

AQUATIC DESIGN GROUP
2226 FARADAY AVE., CARLSBAD, CA 92008
Tel 760.438.8400 Fax 760.438.5251

LICENSED ARCHITECT — BRENT J. FERRY — C-25924 — STATE OF CALIFORNIA

PLANS FOR THE CONSTRUCTION OF
MEMORIAL POOL
DETAILS

CITY OF SAN DIEGO, CALIFORNIA
ENGINEERING AND CAPITAL PROJECTS DEPARTMENT
SHEET 35 OF 39 SHEETS

WBS S-00970

APPROVED: _____ FOR CITY ENGINEER — DATE 7/13/12

SUBMITTED BY: SAMIR MAHMALJI, PROJECT OFFICER II

DESCRIPTION	BY	APPROVED	DATE	FILMED
ORIGINAL	ADG			

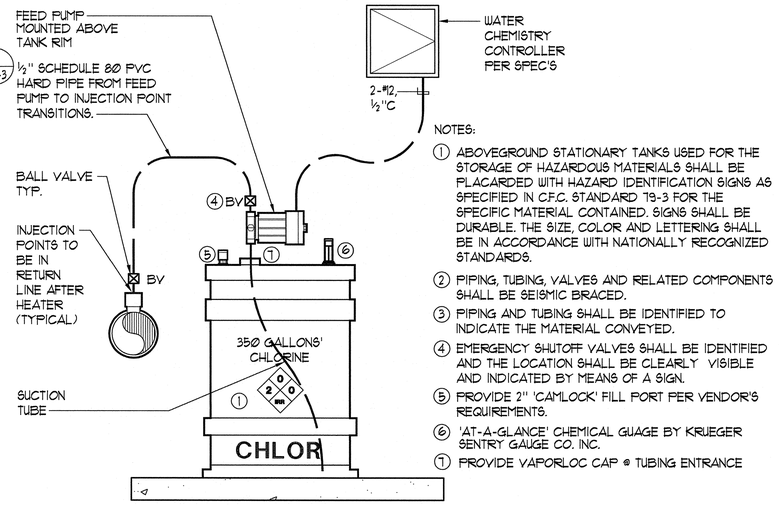
CLARK RITTER, PROJECT MANAGER

194-1725 CCS27 COORDINATE

6286404. 1834444 CCS83 COORDINATE

CONTRACTOR _____ DATE STARTED _____
INSPECTOR _____ DATE COMPLETED _____

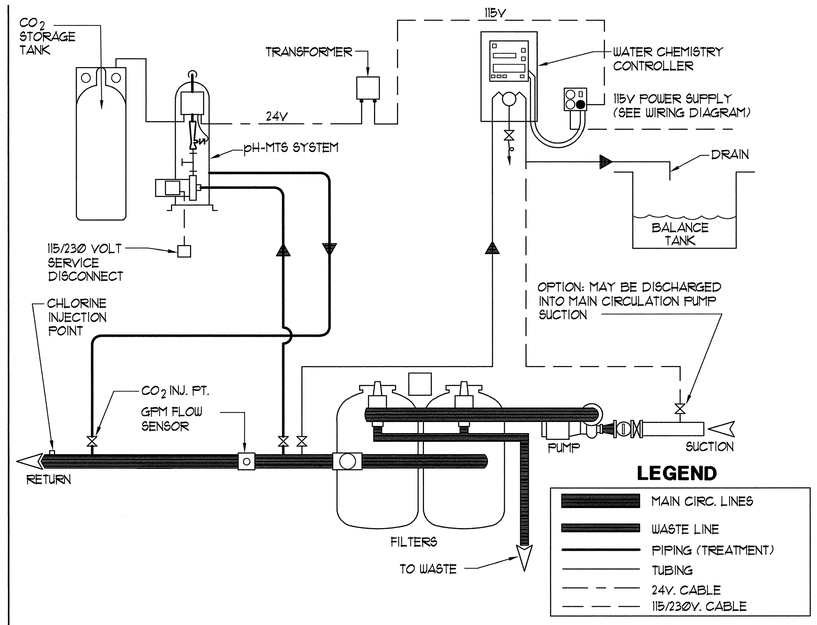
36152-35-D



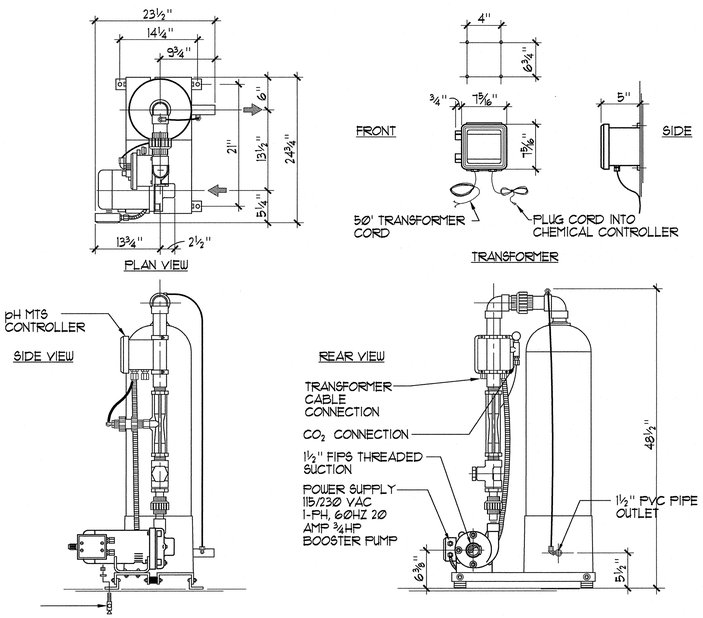
NOTES:

1. ABOVEGROUND STATIONARY TANKS USED FOR THE STORAGE OF HAZARDOUS MATERIALS SHALL BE PLACARDED WITH HAZARD IDENTIFICATION SIGNS AS SPECIFIED IN C.F.C. STANDARD 79-3 FOR THE SPECIFIC MATERIAL CONTAINED. SIGNS SHALL BE DURABLE. THE SIZE, COLOR AND LETTERING SHALL BE IN ACCORDANCE WITH NATIONALLY RECOGNIZED STANDARDS.
2. PIPING, TUBING, VALVES AND RELATED COMPONENTS SHALL BE SEISMIC BRACED.
3. PIPING AND TUBING SHALL BE IDENTIFIED TO INDICATE THE MATERIAL CONVEYED.
4. EMERGENCY SHUTOFF VALVES SHALL BE IDENTIFIED AND THE LOCATION SHALL BE CLEARLY VISIBLE AND INDICATED BY MEANS OF A SIGN.
5. PROVIDE 2" 'CAMLOCK' FILL PORT PER VENDOR'S REQUIREMENTS.
6. 'AT-A-GLANCE' CHEMICAL GUAGE BY KRUEGER SENTRY GAUGE CO. INC.
7. PROVIDE VAPORLOC CAP @ TUBING ENTRANCE

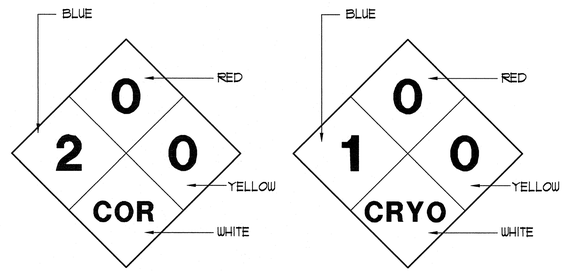
1 SODIUM HYPOCHLORITE FEED SCHEMATIC NO SCALE



2 TYPICAL CARBON DIOXIDE pH-MTS INSTALLATION NO SCALE



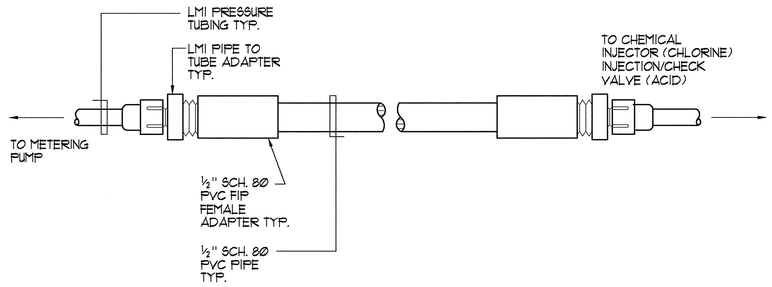
3 CARBON DIOXIDE pH MTS CONTROLLER NO SCALE



SODIUM HYPOCHLORITE **CARBON DIOXIDE**

NOTE:
SIGNS SHALL BE SIZES AND COLORS PER CODE MOUNTED AT 60" A.F.F. ON DOORS AT CHEMICAL ROOMS.

4 HAZARDOUS INFORMATION SIGNAGE NO SCALE



5 CHEMICAL FEED PIPING DETAIL NO SCALE

6 AUTOMATIC/MANUAL WATER MAKE-UP SCHEMATIC MR-5

MEMORIAL POOL

CONSTRUCTION CHANGE / ADDENDUM			
CHANGE	DATE	AFFECTED OR ADDED SHEET NUMBERS	APPROVAL NO.

WARNING
0 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE.

CITY OF SAN DIEGO
PUBLIC WORKS PROJECT

TEMPORARY BMP CONSTRUCTION SITE STORM WATER PRIORITY: HIGH ___ MEDIUM ___ LOW___

CONSULTANT

AQUATIC DESIGN GROUP
2226 FARADAY AVE., CARLSBAD, CA 92008
Tel 760.438.8400 Fax 760.438.5251

SPEC. NO.

LICENSED ARCHITECT ROBERT J. FERGUSON C-28922 STATE OF CALIFORNIA

PLANS FOR THE CONSTRUCTION OF
MEMORIAL POOL
DETAILS

CITY OF SAN DIEGO, CALIFORNIA
ENGINEERING AND CAPITAL PROJECTS DEPARTMENT
SHEET 36 OF 39 SHEETS

WBS S-00970

APPROVED: Samir M. FOR CITY ENGINEER — DATE 7/13/12

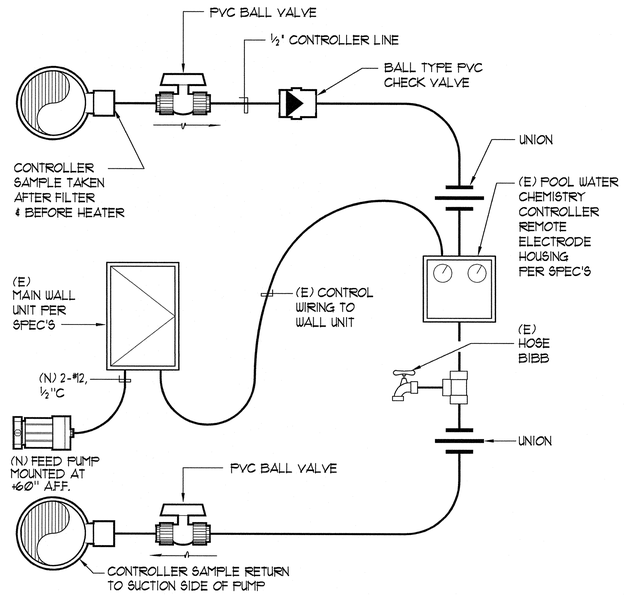
SUBMITTED BY: SAMIR MAHMALJI, PROJECT OFFICER II

DESCRIPTION	BY	APPROVED	DATE	FILMED
ORIGINAL	ADG			

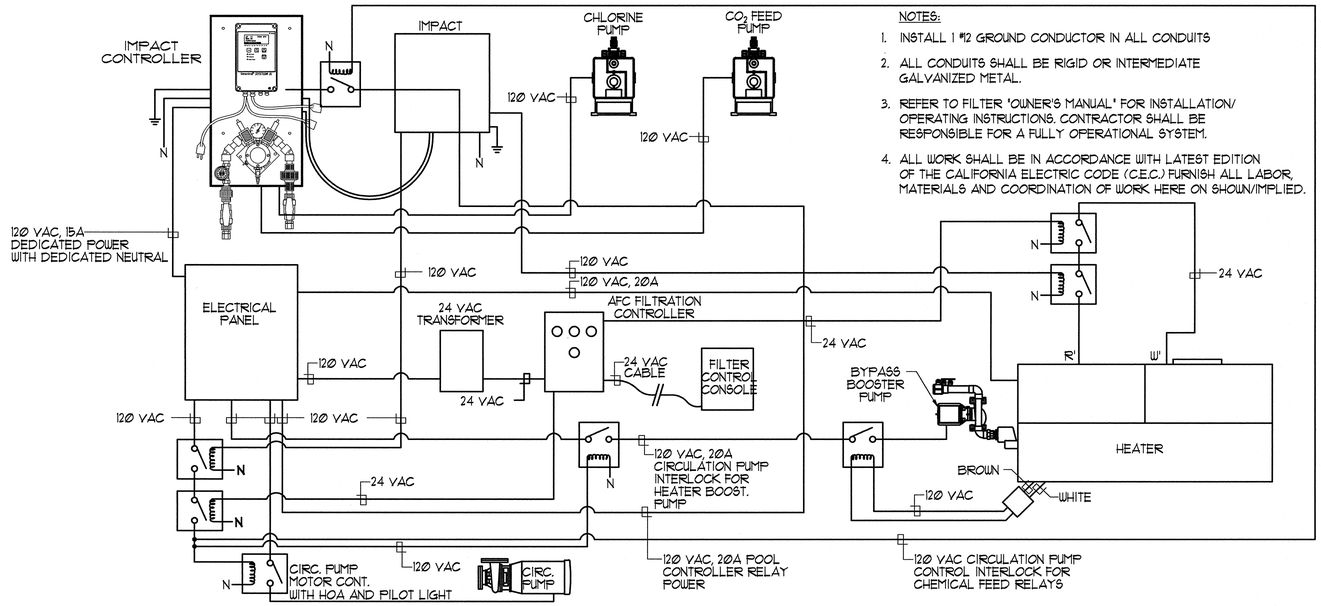
CLARK RITTER, PROJECT MANAGER
194-1725 CCS27 COORDINATE
6286404. 1834444 CCS83 COORDINATE

CONTRACTOR _____ DATE STARTED _____
INSPECTOR _____ DATE COMPLETED _____

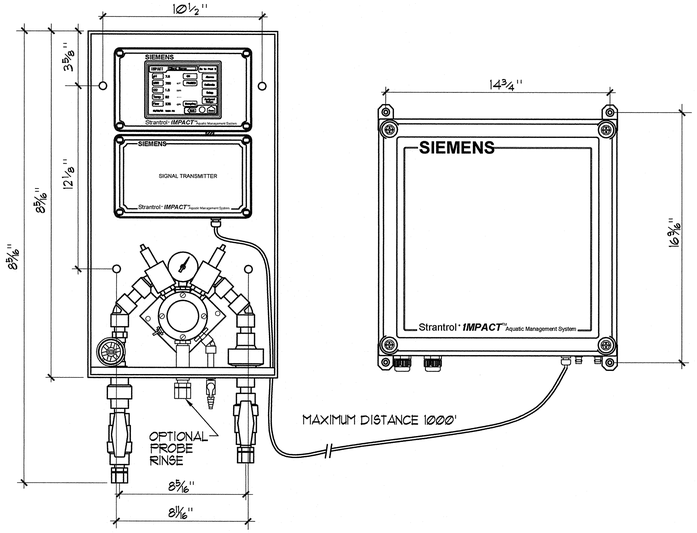
36152-36-D



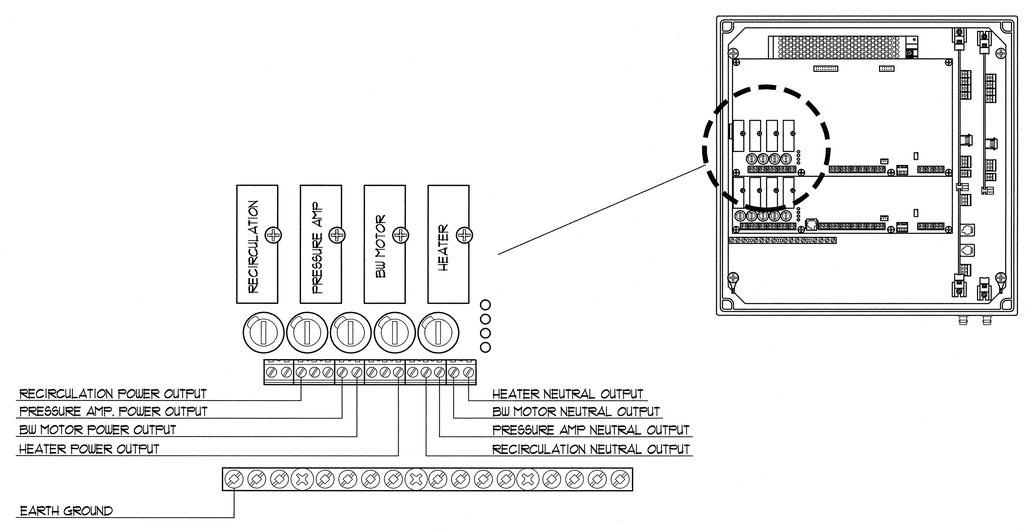
1 WATER CHEMISTRY CONTROLLER SCHEMATIC NO SCALE



2 POOL MECHANICAL ELECTRICAL INTERCONNECTION DIAGRAM NO SCALE



3 IMPACT DIMENSIONAL ENCLOSURE NO SCALE



4 IMPACT FILTER RELAY OUTPUTS NO SCALE

MR-6

MEMORIAL POOL

CONSTRUCTION CHANGE / ADDENDUM			
CHANGE	DATE	AFFECTED OR ADDED SHEET NUMBERS	APPROVAL NO.

WARNING
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CITY OF SAN DIEGO
PUBLIC WORKS PROJECT

TEMPORARY BMP CONSTRUCTION SITE STORM WATER PRIORITY: HIGH ___ MEDIUM ___ LOW___

SPEC. NO.

CONSULTANT

AQUATIC DESIGN GROUP
2226 FARADAY AVE., CARLSBAD, CA 92008
Tel 760.438.8400 Fax 760.438.5251

LICENSED ARCHITECT ROBERT J. FERGUSON C-25022 STATE OF CALIFORNIA

PLANS FOR THE CONSTRUCTION OF
MEMORIAL POOL
DETAILS

CITY OF SAN DIEGO, CALIFORNIA
ENGINEERING AND CAPITAL PROJECTS DEPARTMENT
SHEET 37 OF 39 SHEETS

WBS S-00970

APPROVED: Samir M FOR CITY ENGINEER DATE 7/13/12

SUBMITTED BY: SAMIR MAHMALJI PROJECT OFFICER II

DESCRIPTION	BY	APPROVED	DATE	FILMED
ORIGINAL	ADG			

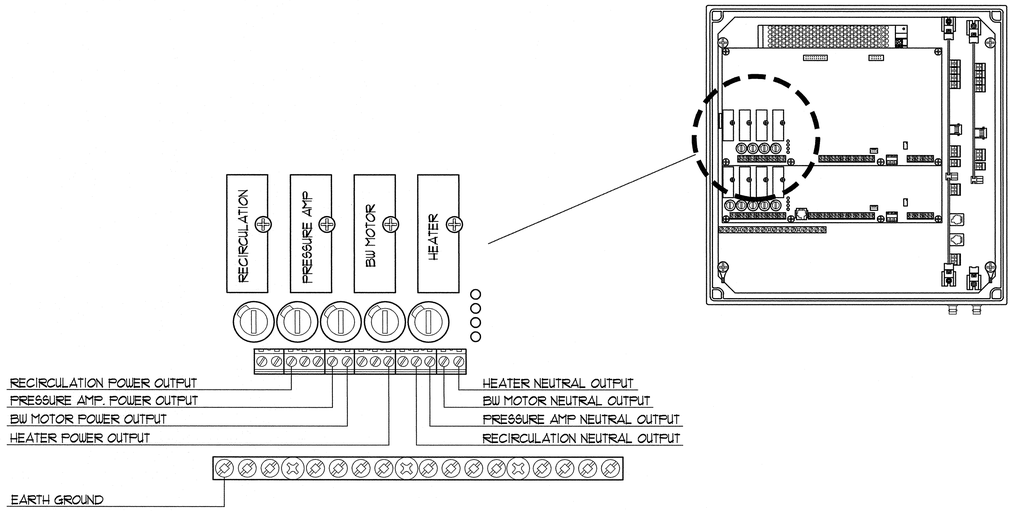
CLARK RITTER PROJECT MANAGER

194-1725 CCS27 COORDINATE

6286404, 1834444 CCS83 COORDINATE

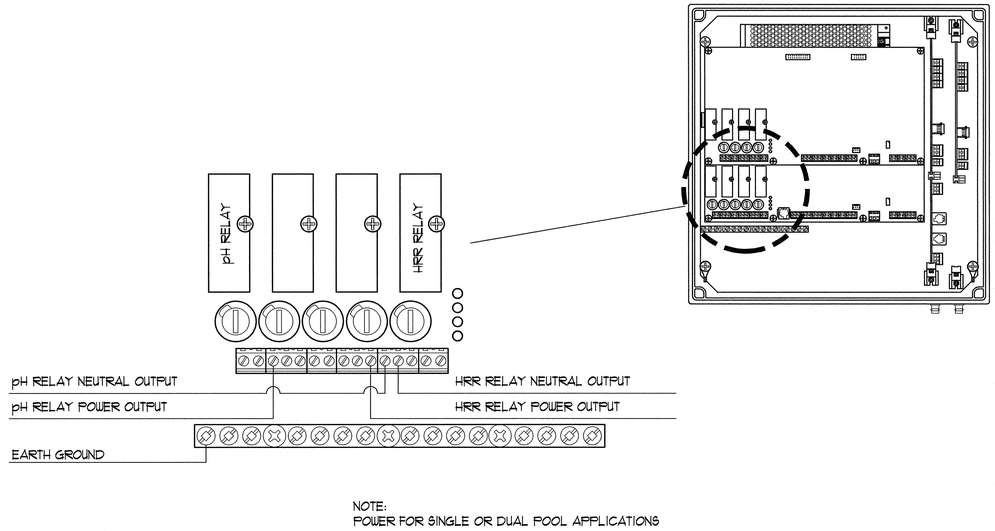
CONTRACTOR _____ DATE STARTED _____
INSPECTOR _____ DATE COMPLETED _____

36152-37-D



1 IMPACT FILTER RELAY OUTPUTS

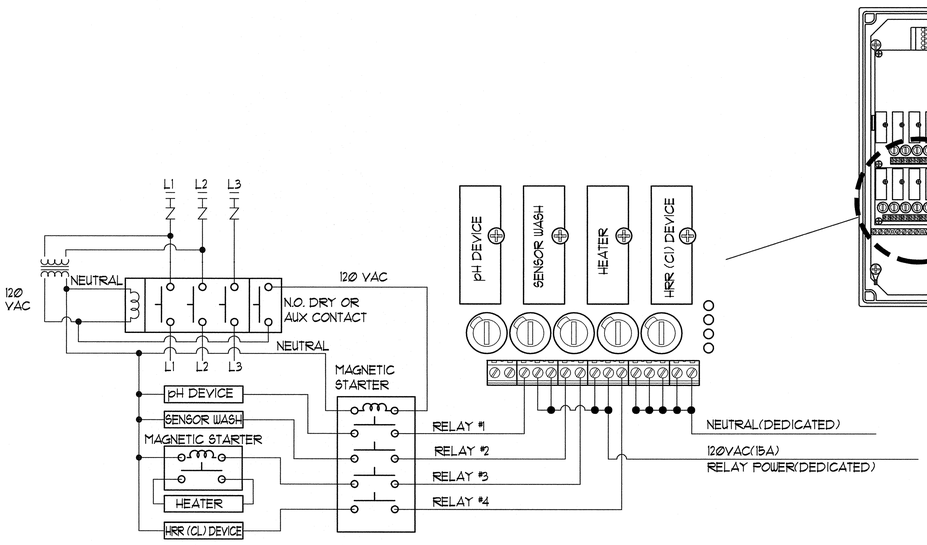
NO SCALE



NOTE:
POWER FOR SINGLE OR DUAL POOL APPLICATIONS

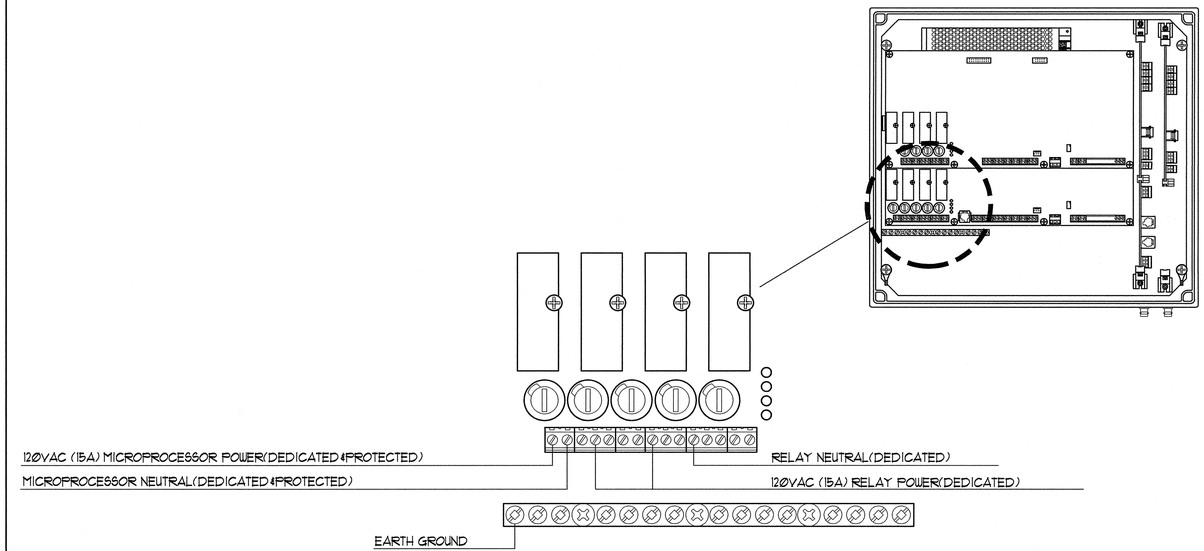
2 IMPACT RELAY OUTPUT

NO SCALE



3 IMPACT INTERLOCK

NO SCALE



4 IMPACT INPUT POWER

NO SCALE

MR-7

MEMORIAL POOL

PLANS FOR THE CONSTRUCTION OF
MEMORIAL POOL
DETAILS

CONSTRUCTION CHANGE / ADDENDUM			
CHANGE	DATE	AFFECTED OR ADDED SHEET NUMBERS	APPROVAL NO.

WARNING
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CITY OF SAN DIEGO
PUBLIC WORKS PROJECT

TEMPORARY BMP CONSTRUCTION SITE STORM WATER PRIORITY: HIGH ___ MEDIUM ___ LOW___

SPEC. NO.

CONSULTANT

AQUATIC DESIGN GROUP
2226 FARADAY AVE., CARLSBAD, CA 92008
Tel 760.438.8400 Fax 760.438.5251

LICENSED ARCHITECT SCOTT J. FERRY C-26522 STATE OF CALIFORNIA

CITY OF SAN DIEGO, CALIFORNIA
ENGINEERING AND CAPITAL PROJECTS DEPARTMENT
SHEET 38 OF 39 SHEETS

WBS S-00970

APPROVED: FOR CITY ENGINEER — DATE 7/13/12

SUBMITTED BY: SAMIR MAHMALJI, PROJECT OFFICER II

DESCRIPTION	BY	APPROVED	DATE	FILMED
ORIGINAL	ADG			

CLARK RITTER, PROJECT MANAGER
194-1725, CCS27 COORDINATE
6286404. 1834444, CCS83 COORDINATE

CONTRACTOR _____ DATE STARTED _____
INSPECTOR _____ DATE COMPLETED _____

36152-38-D

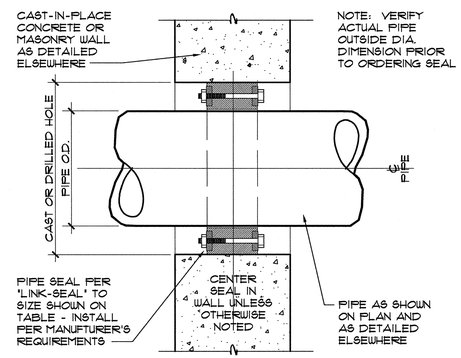
DESIGNATION: 'SP'	VOLTAGE: 120/208V 3PH 4W	LOCATION: MECHANICAL EQUIP. RM.
	100 AMP ☒MAIN BREAKER ☐MAIN LUG	MINIMUM DEVICE A.I.C. RATING ☒10,000 ☐14,000
	☐RECESSED ☒SURFACE	PANELBOARD KEY NOTES ① ○ ○ ○

DESCRIPTION:	C/B	CIR NO.	φ A	φ B	φ C	CIR NO.	C/B	DESCRIPTION:
SP UNDERWATER LIGHTS	20/1	1	140 1200			2	20/1	SP FILTER AFC ①
		3		140 1200		4	20/1	SP WATER CHEM CONTROL
		5			140 1176	6	20/2	SP PRESSURE AMP
		7	140 1176			8	2	1/2 HP
		9		140 360		10	20/1	SP CIRC PUMP INTERCONN.
		11			140 360	12		SP CIRC. PUMP MTR. CONT
		13	140 360			14		SP WATER CHEM RELAY
		15		140 1656		16	20/2	SP HEATER RE-CIRC. PUMP
WP TIME CLOCK		17			360 1656	18	2	1/2 HP
WP WATER PLAY CONTROL		19	1200 1440			20	20/1	SP HEATER IGNIT/FAN
WP WATER CHEM CONTROL		21		1200 960		22		SP/WP CHLORINE FEEDS
WP SPARE		23			1200	24		SP CO2 SYSTEM
WP CO2 SYSTEM		25	1200			26		SPACE
WP UV SYSTEM		27		1560		28		
SPACE		29				30		
		31				32		
		33				34		
		35				36		
		37				38		
		39				40		
		41				42		
TOTAL PER PHASE			6996	7356	8272	8451 ÷ 120V = 70 AMPS		
+ 25% L.C.L.			705	1095	160			
TOTAL			7701	8451	8432			

① GFI CIRCUIT SP = SWIMMING POOL
WP = WET PLAY

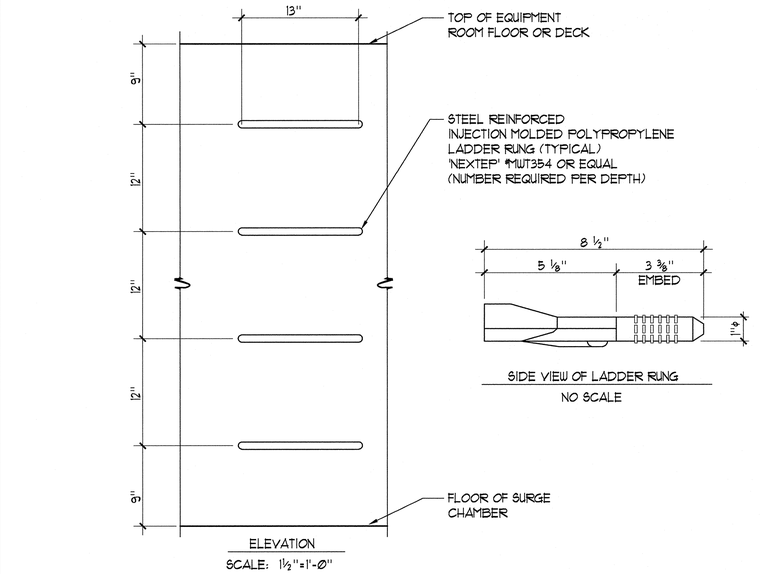
1 PANEL SCHEDULE

4 U.V. DISINFECTION UNIT INSTALLATION DETAIL NO SCALE



PIPE SIZE (NOMINAL)	OUTSIDE DIAMETER (PIPE O.D.)	CAST OR DRILLED CONCRETE HOLE NOMINAL DIA. (I.D.)	LINK SEAL SIZE NO.	NO. OF LINKS PER SEAL
1½"	0.840	2.0	LS-200	4
¾"	1.050	2.5	LS-275	5
1"	1.315	3.0	LS-300	4
1¼"	1.660	3.0	LS-275	7
1½"	1.900	3.5	LS-300	5
2"	2.375	4.0	LS-300	6
2½"	2.875	4.0	LS-200	9
3"	3.50	5.0	LS-300	8
3½"	4.00	6.0	LS-325	5
4"	4.50	6.0	LS-300	10
5"	5.563	8.0	LS-425	6
6"	6.625	10.0	LS-475	10
8"	8.625	12.0	LS-475	12
10"	10.75	14.0	LS-400	10
12"	12.75	16.0	LS-400	12
14"	14.00	16.0	LS-325	13
16"	16.00	18.0	LS-325	11
18"	18.00	23.0	LS-500	16
20"	20.00	25.0	LS-500	18
22"	22.00	27.0	LS-500	19
24"	24.00	29.0	LS-500	21
26"	26.00	31.0	LS-500	23
28"	28.00	33.0	LS-500	24
30"	30.00	35.0	LS-500	26
32"	32.00	37.0	LS-500	28
34"	34.00	39.0	LS-500	29
36"	36.00	41.0	LS-500	30

2 PIPE SEAL TO WALL / FLOOR NO SCALE



ELEVATION
SCALE: 1½"=1'-0"

3 SURGE CHAMBER ACCESS LADDER AS NOTED

5 VSD/PANEL MOUNTING DETAIL 1½"=1'-0"

MR-8

MEMORIAL POOL

PLANS FOR THE CONSTRUCTION OF
MEMORIAL POOL
DETAILS

CONSTRUCTION CHANGE / ADDENDUM

CHANGE	DATE	AFFECTED OR ADDED SHEET NUMBERS	APPROVAL NO.

WARNING
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CITY OF SAN DIEGO
PUBLIC WORKS PROJECT

TEMPORARY BMP CONSTRUCTION SITE STORM WATER PRIORITY: HIGH ____ MEDIUM ____ LOW____

CONSULTANT

AQUATIC DESIGN GROUP
2226 FARADAY AVE., CARLSBAD, CA 92008
Tel 760.438.8400 Fax 760.438.5251

SPEC. NO.

LICENSED ARCHITECT MATT J. FERRY C-26922 STATE OF CALIFORNIA

CITY OF SAN DIEGO, CALIFORNIA
ENGINEERING AND CAPITAL PROJECTS DEPARTMENT
SHEET 39 OF 39 SHEETS

WBS S-00970

APPROVED Samir M. FOR CITY ENGINEER — DATE 7/13/12

SUBMITTED BY: SAMIR MAHMALJI, PROJECT OFFICER II

DESCRIPTION	BY	APPROVED	DATE	FILMED
ORIGINAL	ADG			

CLARK RITTER
PROJECT MANAGER

194-1725
CCS27 COORDINATE

6286404, 1834444
CCS83 COORDINATE

CONTRACTOR _____ DATE STARTED _____
INSPECTOR _____ DATE COMPLETED _____

36152-39-D