3D Enterprises, Inc.
Mr. Shahrokh Elihu, Vice President
7964 Arjons Drive, Suite I
San Diego, CA 92126
P: (858) 530-2202 F: (858) 530-2208

City of San Diego

CONTRACTOR'S NAME: _____
ADDRESS: _____
TELEPHONE NO.: _____ **FAX NO.:** _____
CITY CONTACT: Eleida Felix Yackel, Contract Specialist, Email: efelixyackle@sandiego.gov
Phone No. (619) 533-3449, Fax No. (619) 533-3633
A Del Rincon / B Doringo / LJI

CONTRACT DOCUMENTS

FOR

ORIGINAL

ANGIER ELEMENTARY SCHOOL JOINT USE IMPROVEMENTS

VOLUME 1 OF 2

BID NO.: **K-15-5694-DBB-3-C**
SAP NO. (WBS/IO/CC): **S-00762**
CLIENT DEPARTMENT: **1714**
COUNCIL DISTRICT: **6**
PROJECT TYPE: **GF**

THIS CONTRACT IS SUBJECT TO THE FOLLOWING:

- PHASED-FUNDING
- THE CITY'S SUBCONTRACTING PARTICIPATION REQUIREMENTS FOR SLBE PROGRAM.
- PREVAILING WAGE RATES: STATE ☒ FEDERAL ☐
- APPRENTICESHIP

BID DUE DATE:

2:00 PM
FEBRUARY 18, 2015
CITY OF SAN DIEGO
PUBLIC WORKS CONTRACTS
1010 SECOND AVENUE, 14th FLOOR, 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 Landscape Architect and Registered Engineer:

1) Registered Landscape Architect — 6/10/2014 — Date — Seal:

2) Registered Structural Engineer — 6/10/2014 — Date — Seal:

3) Registered Civil Engineer — 6/10/2014 — Date — Seal:

4) Registered Electrical Engineer — 6/10/2014 — Date — Seal:

5) For City Engineer — 7/1/14 — Date — Seal:

SSS: F. ROBERTS
AGS: B. LATIMER

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
OFFICE OF REGULATION SERVICES
04 11316 2
ACT FLS SS
DATE JUN 24 2014

FLO: EFRONA

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DESCRIPTION **PAGE NUMBER**

CITY OF SAN DIEGO, CALIFORNIA

NOTICE INVITING BIDS

1. **RECEIPT AND OPENING OF BIDS:** Bids will be received at the Public Works Contracts at the location, time, and date shown on the cover of these specifications for performing work on **Angier Elementary School Joint Use Improvements**. (Project).

2. **SUMMARY 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 in ATTACHMENT A.

3. **BIDS ARE PUBLIC RECORDS:** Upon receipt by the City, Bids shall become public records subject to public disclosure. It is the responsibility of the respondent to clearly identify any confidential, proprietary, trade secret or otherwise legally privileged information contained within the Bid. General references to sections of the California Public Records Act (PRA) will not suffice. If the Contractor does not provide applicable case law that clearly establishes that the requested information is exempt from the disclosure requirements of the PRA, the City shall be free to release the information when required in accordance with the PRA, pursuant to any other applicable law, or by order of any court or government agency, and the Contractor will hold the City harmless for release of this information.

4. **SUBCONTRACTING PARTICIPATION PERCENTAGES:**

4.1. The City has incorporated **mandatory** SLBE-ELBE subcontractor participation percentages to enhance competition and maximize subcontracting opportunities. For the purpose of achieving the mandatory subcontractor participation percentages, a recommended breakdown of the SLBE and ELBE subcontractor participation percentages based upon certified SLBE and ELBE firms has also been provided to achieve the mandatory subcontractor participation percentages:

1.	SLBE participation	**16.5%**
2.	ELBE participation	**39.9%**
3.	Total mandatory participation	**56.4%**

4.2. The Bidders are strongly encouraged to attend the Pre-Bid Meeting to better understand the Good Faith Effort requirements of this contract. See the City's document titled "SLBE Program, Instructions For Bidders Completing The Good Faith Effort Submittal" available at: http://www.sandiego.gov/eoc/

4.3. The Bid will be declared **non-responsive** if the Bidder fails the following mandatory conditions:

4.3.1. Bidder's inclusion of SLBE-ELBE certified subcontractors at the overall mandatory participation percentage identified in this document; OR.

4.3.2. Bidder's submission of Good Faith Effort documentation, saved in searchable Portable Document Format (PDF) and stored on Compact Disc (CD) or Digital Video Disc (DVD), demonstrating the Bidder made a good faith effort to outreach to and include SLBE-ELBE Subcontractors required in this document within **3 Working Days** of the Bid opening if the overall mandatory participation percentage is not met.

4.4. For additional Funding Agency Equal Opportunity Contracting Program requirements and provisions, see Attachment D.

5. PRE-BID MEETING:

5.1. There will be a Pre-Bid Meeting to discuss the scope of the Project, bidding requirements, pre-qualification process, and Equal Opportunity Contracting Program requirements and reporting procedures in the Public Works Contracts, Conference Room at 1010 Second Avenue, 14th Floor, San Diego, CA 92101 at **10:00 A.M.**, on **January 21, 2015.**

5.2. All potential bidders are encouraged to attend.

5.3. 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 Contracts at (619) 533-3450 at least 5 Working Days prior to the Pre-Bid Meeting to ensure availability.

6. CONTRACTOR REGISTRATION AND ELECTRONIC REPORTING SYSTEM:

6.1. **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 vendor registration and bid management system, BidsOnlineTM hosted by PlanetBids System. For additional information go to:

http://www.sandiego.gov/purchasing/bids-contracts/vendorreg.shtml.

6.2. 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.

7. JOINT VENTURE CONTRACTORS: Provide a copy of the Joint Venture agreement and the Joint Venture license to the City within 10 Working Days after receiving the Contract forms. See 2-1.1.2, "Joint Venture Contractors" in The WHITEBOOK for details.

8. PREVAILING WAGE RATES: Pursuant to San Diego Municipal Code section 22.3019, construction, alteration, demolition, repair and maintenance work performed under this Contract is subject to State prevailing wage laws. For construction work performed under this Contract cumulatively exceeding $25,000 and for alteration, demolition, repair and maintenance work performed under this Contract cumulatively exceeding $15,000, the Contractor and its subcontractors shall comply with State prevailing wage laws including, but not limited to, the requirements listed below.

8.1. **Compliance with Prevailing Wage Requirements.** Pursuant to sections 1720 through 1861 of the California Labor Code, the Contractor and its subcontractors shall ensure that all workers who perform work under this Contract are paid not less than the prevailing rate of per diem wages as determined by the Director of the California Department of Industrial Relations (DIR). This includes work performed during the design and preconstruction phases of construction including, but not limited to, inspection and land surveying work.

8.2. Copies of such prevailing rate of per diem wages are on file at the City and are available for inspection to any interested party on request. Copies of the prevailing rate of per diem wages also may be found at http://www.dir.ca.gov/OPRL/DPreWageDetermination.htm. Contractor and its subcontractors shall post a copy of the prevailing rate of per diem wages determination at each job site and shall make them available to any interested party upon request.

8.3. The wage rates determined by the DIR refer to expiration dates. If the published wage rate does not refer to a predetermined wage rate to be paid after the expiration date, then the 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 DIR, 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.

8.4. **Penalties for Violations.** Contractor and its subcontractors shall comply with California Labor Code section 1775 in the event a worker is paid less than the prevailing wage rate for the work or craft in which the worker is employed.

8.5. **Payroll Records.** Contractor and its subcontractors shall comply with California Labor Code section 1776, which generally requires keeping accurate payroll records, verifying and certifying payroll records, and making them available for inspection. Contractor shall require its subcontractors to also comply with section 1776. Contractor and its subcontractors shall submit weekly certified payroll records online via the City's web-based Labor Compliance Program. Contractor is responsible for ensuring its subcontractors submit certified payroll records to the City.

8.6. **Apprentices.** Contractor and its subcontractors shall comply with California Labor Code sections 1777.5, 1777.6 and 1777.7 concerning the employment and wages of apprentices. Contractor shall be held responsible for the compliance of their subcontractors with sections 1777.5, 1777.6 and 1777.7.

8.7. **Working Hours.** Contractor and subcontractors shall comply with California Labor Code sections 1810 through 1815, including but not limited to: (i) restrict working hours on public works contracts to eight hours a day and forty hours a week, unless all hours worked in excess of 8 hours per day are compensated at not less than 1½ times the basic rate of pay; and (ii) specify penalties to be imposed on design professionals and subcontractors of $25 per worker per day for each day the worker works more than 8 hours per day and 40 hours per week in violation of California Labor Code sections1810 through 1815.

8.8. **Required Provisions for Subcontracts.** Contractor shall include at a minimum a copy of the following provisions in any contract they enter into with a subcontractor: California Labor Code sections 1771, 1775, 1776, 1777.5, 1810, 1813, 1815, 1860 and 1861.

8.9. **Labor Code Section 1861 Certification.** Contractor in accordance with California Labor Code section 3700 is required to secure the payment of compensation of its employees and by signing this Contract, Contractor certifies that "I am aware of the provisions of Section 3700 of the California Labor Code which require every employer to be insured against liability for workers' compensation or to undertake self-insurance in accordance with the provisions of that code, and I will comply with such provisions before commencing the performance of the work of this Contract."

8.10. **Labor Compliance Program.** The City has its own Labor Compliance Program as authorized by the DIR. The City will withhold contract payments when payroll records are delinquent or deemed inadequate by the City or other governmental entity, or it has been established after an investigation by the City or other governmental entity that underpayment(s) have occurred.

9. **BIDDERS MUST REGISTER WITH THE CALIFORNIA DEPARTMENT OF INDUSTRIAL RELATIONS (DIR):** Pursuant to Labor Code section 1725.5 (with limited exceptions under Labor Code section 1771.1(a)):

9.1. No contractor or subcontractor may be listed on a bid proposal for a public works project submitted on or after March 1, 2015 unless registered with the Department of Industrial Relations.

9.2. No contractor or subcontractor may be awarded a contract for public work on a public works project awarded on or after April 1, 2015 unless registered with the Department of Industrial

9.3. This project is subject to compliance monitoring and enforcement by the Department of Industrial Relations.

10. **INSURANCE REQUIREMENTS:**

10.1. All certificates of insurance and endorsements required by the contract are to be provided upon issuance of the City's Notice of Intent to Award letter.

10.2. Refer to sections 7-3, "LIABILITY INSURANCE", and 7-4, "WORKERS' COMPENSATION INSURANCE" of the Supplementary Special Provisions (SSP) for the insurance requirements which must be met.

11. **PREQUALIFICATION OF CONTRACTORS:**

11.1. Contractors submitting Bid must be pre-qualified for the total amount proposed, inclusive of all alternate items prior to the date of 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. Complete information and prequalification questionnaires are available at:

http://www.sandiego.gov/cip/bidopps/prequalification.shtml

11.2. 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 Contracts, Prequalification Program, 1010 Second Avenue, 14th Floor, San Diego, CA 92101. For additional information or the answer to questions about the prequalification program, contact David Stucky at 619-533-3474 or dstucky@sandiego.gov.

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

Title	Edition	Document Number
Standard Specifications for Public Works Construction ("The GREENBOOK")	2012	PITS070112-01
City of San Diego Standard Specifications for Public Works Construction ("The WHITEBOOK")*	2012	PITS070112-02
City of San Diego Standard Drawings*	2012	PITS070112-03
Caltrans Standard Specifications	2010	PITS070112-04
Caltrans Standard Plans	2010	PITS070112-05
California MUTCD	2012	PITS070112-06
City Standard Drawings - Updates Approved For Use (when specified)*	Varies	Varies
Standard Federal Equal Employment Opportunity Construction Contract Specifications and the Equal Opportunity Clause Dated 09-11-84	1984	769023
NOTE: *Available online under Engineering Documents and References at: http://www.sandiego.gov/publicworks/edocref/index.shtml		

13. 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.

14. CITY'S RIGHTS RESERVED: The City reserves the right to cancel the Notice Inviting 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 Notice Inviting Bids shall be the sole responsibility of each bidder. The Notice Inviting Bids creates or imposes no obligation upon the City to enter a contract.

15. 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.

16. **SUBMITTAL OF "OR EQUAL" ITEMS:** See Section 4-1.6, "Trade Names or Equals" in The WHITEBOOK and as amended in the SSP.

17. **AWARD PROCESS:**

17.1. The Award of this contract is contingent upon the Contractor's compliance with all conditions precedent to Award.

17.2. Upon acceptance of a Bid, the City will prepare contract documents for execution within approximately 21 days of the date of the Bid opening and award the Contract approximately within 7 days of receipt of properly executed Contract, bonds, and insurance documents.

17.3. This contract will be deemed executed, and effective, only upon the signing of the Contract by the Mayor or designee of the City.

18. **SUBCONTRACT LIMITATIONS**: The Bidder's attention is directed to Standard Specifications for Public Works Construction, Section 2-3, "SUBCONTRACTS" in The GREENBOOK and as amended in the SSP which requires the Contractor to self-perform not less than the specified amount. Failure to comply with this requirement shall render the bid **non-responsive** and ineligible for award.

19. **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 Contracts.

20. **SUBMISSION OF QUESTIONS:**

20.1. 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 solicitation shall be submitted to:

Public Works Contracts
1010 Second Avenue, 14th Floor
San Diego, California, 92101
Attention: [Contract Specialist listed on the front cover hereof]

OR:

Email address of the Contract Specialist listed on the front cover hereof.

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

20.3. Clarifications deemed by the City to be material shall be issued by Addenda and uploaded to the City's online bidding service.

20.4. 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.

21. **ELIGIBLE BIDDERS:** No person, firm, or corporation shall be allowed to make, file, or be interested in more than one (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. Any Bidder who submits more than one bid will result in the rejection of all bids submitted.

22. **SAN DIEGO BUSINESS TAX CERTIFICATE:** The Contractor and 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 and submit to the Contract Specialist upon request or as specified in the Contract Documents. Tax Identification numbers for both the Bidder and the listed Subcontractors must be submitted on the City provided forms with the Notice Inviting Bids and Contract forms.

23. **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.

23.1. Bidder shall complete and submit 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 entire specifications for the bid package do not need to be submitted with the bid.

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

23.3. Bids and certain other forms and documents as specified in the Volume 2 of 2 of the Contract 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.

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

24. **BIDDER'S GUARANTEE OF GOOD FAITH (BID SECURITY):**

24.1. With the exception of the contracts valued $5,000 or less, JOC 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.

24.2. 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.

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

25. AWARD OF CONTRACT OR REJECTION OF BIDS:

25.1. This contract may be awarded to the lowest responsible and reliable Bidder.

25.2. Bidders shall complete the entire Bid schedule (also referred to as "schedule of prices" or Proposal form). Incomplete price schedules will be rejected as being non-responsive.

25.3. 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.

25.4. 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.

25.5. 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 Contracts 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."

25.6. 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.

25.7. 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 Proposal.

25.8. The City reserves the right to evaluate all Bids and determine the lowest Bidder on the basis of any proposed alternates, additive items or options, at its discretion that will be disclosed in the Volume 2 of 2.

26. BID RESULTS:

26.1. The Bid opening by the City shall constitute the public announcement of the Apparent Low Bidder. In the event that the Apparent Low Bidder is subsequently deemed non-responsive or non-responsible, a public announcement will be posted in the City's web pagehttp://www.sandiego.gov/cip/index.shtml, with the name of the newly designated Apparent Low Bidder.

26.2. 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. Bid results cannot be given over the telephone.

27. THE CONTRACT:

27.1. 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 14 days after receipt by Bidder of a form of contract for execution unless an extension of time is granted to the Bidder in writing.

27.2. If the Bidder takes longer than 14 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.

27.3. 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.

27.4. 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 14 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.

27.5. 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.

28. **EXAMINATION OF PLANS, SPECIFICATIONS, AND SITE OF WORK:** The Bidder shall examine carefully the Project Site, the Plans and Specifications, other materials as described in the Special Provisions, Section 2-7, and the proposal forms (e.g., Bidding Documents). The submission of a Bid 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.

29. **CITY STANDARD PROVISIONS:** This contract is subject to the following standard provisions. See The WHITEBOOK for details.

29.1. The City of San Diego Resolution No. R-277952 adopted on May 20, 1991 for a Drug-Free Workplace.

29.2. The City of San Diego Resolution No. R-282153 adopted on June 14, 1993 related to the Americans with Disabilities Act.

29.3. The City of San Diego Municipal Code §22.3004 for Pledge of Compliance.

29.4. The City of San Diego's Labor Compliance Program and the State of California Labor Code §§1771.5(b) and 1776.

29.5. Sections 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.

29.6. The City's Equal Benefits Ordinance (EBO), Chapter 2, Article 2, Division 43 of The San Diego Municipal Code (SDMC).

29.7. The City's Information Security Policy (ISP) as defined in the City's Administrative Regulation 90.63.

30. **PRE-AWARD ACTIVITIES:**

30.1. The selected contractor by the City to execute a contract for this Work 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.**

30.2. If the Bid is rejected as non-responsive, the selected contractor by the City to execute a contract for this Work shall forfeit the required Bid. The decision that the selected contractor by the City to execute a contract for this Work is non-responsive for failure to provide the information required within the time specified shall be at the sole discretion of the City.

31. **PHASED FUNDING:**

For additional Phased Funding Provisions, see Attachment B.

32. ADDITIVE/DEDUCTIVE ALTERNATES:

32.1. The additive/deductive 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 Bid. The City reserves the right to award the Contract for the Base Bid only or the Base Bid plus any combination of Additive and Deductive Alternate(s).

32.2. For water pipeline projects, the Plans typically show all cut and plug and connection work to be performed by City Forces. However, Bidders shall refer to Bidding Documents to see if all or part of this work will be performed by the Contractor.

33. REQUIRED DOCUMENT SCHEDULE:

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

33.2. The specified Equal Opportunity Contracting Program (EOCP) forms are available for download from the City's web site at:

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

ITEM	WHEN DUE	FROM	DOCUMENT TO BE SUBMITTED
1.	BID SUBMITTAL DATE/TIME	ALL BIDDERS	Bid
2.	BID SUBMITTAL DATE/TIME	ALL BIDDERS	Bid Bond
3.	BID SUBMITTAL 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 SUBMITTAL DATE/TIME	ALL BIDDERS	Contractors Certification of Pending Actions
5.	BID SUBMITTAL DATE/TIME	ALL BIDDERS	Equal Benefits Ordinance Certification of Compliance
6.	BID SUBMITTAL DATE/TIME	ALL BIDDERS	Form AA35 - List of Subcontractors
7.	BID SUBMITTAL DATE/TIME	ALL BIDDERS	Form AA40 - Named Equipment/Material Supplier List
8.	BID SUBMITTAL DATE/TIME	ALL BIDDERS	Form AA45 - Subcontractors Additive/Deductive Alternate
9.	WITHIN 3 WORKING DAYS OF BID OPENING	ALL BIDDERS	SLBE Good Faith Efforts Documentation

ITEM	WHEN DUE	FROM	DOCUMENT TO BE SUBMITTED
10.	WITHIN 3 WORKING DAYS OF BID OPENING WITH GOOD FAITH EFFORT DOCUMENTATION	ALL BIDDERS	Form AA60 – List of Work Made Available
11.	WITHIN 3 WORKING DAYS OF BID OPENING WITH GOOD FAITH EFFORT DOCUMENTATION	ALL BIDDERS	Proof of Valid DBE-MBE-WBE-DVBE Certification Status e.g., Certs.
12.	WITHIN 10 WORKING DAYS AFTER RECEIPT BY BIDDER OF CONTRACT FORMS	APPARENT LOW BIDDER	Phased Funding Schedule Agreement (when required)
13.	WITHIN 10 WORKING DAYS AFTER RECEIPT BY BIDDER OF CONTRACT FORMS	APPARENT LOW BIDDER	Pre-Award Schedule (Phased Funded Contracts Only)
14.	WITHIN 10 WORKING DAYS AFTER RECEIPT BY BIDDER OF CONTRACT FORMS	APPARENT LOW BIDDER	Names of the principal individual owners of the Apparent Low Bidder
15.	WITHIN 10 WORKING DAYS AFTER RECEIPT BY BIDDER OF CONTRACT FORMS	APPARENT LOW BIDDER	If the Contractor is a Joint Venture: • Joint Venture Agreement • Joint Venture License
16.	WITHIN 10 WORKING DAYS AFTER RECEIPT BY BIDDER OF CONTRACT FORMS	APPARENT LOW BIDDER	Form BB05 - Work Force Report
17.	WITHIN 10 WORKING DAYS AFTER RECEIPT BY BIDDER OF CONTRACT FORMS	APPARENT LOW BIDDER	Contract Forms - Agreement
18.	WITHIN 10 WORKING DAYS AFTER RECEIPT BY BIDDER OF CONTRACT FORMS	APPARENT LOW BIDDER	Contract Forms - Payment and Performance Bond
19.	WITHIN 10 WORKING DAYS AFTER RECEIPT BY BIDDER OF CONTRACT FORMS	APPARENT LOW BIDDER	Certificates of Insurance and Endorsements
20.	WITHIN 10 WORKING DAYS AFTER RECEIPT BY BIDDER OF CONTRACT FORMS	APPARENT LOW BIDDER	Contractor Certification - Drug-Free Workplace

ITEM	WHEN DUE	FROM	DOCUMENT TO BE SUBMITTED
21.	WITHIN 10 WORKING DAYS AFTER RECEIPT BY BIDDER OF CONTRACT FORMS	APPARENT LOW BIDDER	Contractor Certification - American with Disabilities Act
22.	WITHIN 10 WORKING DAYS AFTER RECEIPT BY BIDDER OF CONTRACT FORMS	APPARENT LOW BIDDER	Contractors Standards - Pledge of Compliance

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 3D Enterprises, Inc., herein called "Contractor" for construction of **Angier Elementary School Joint Use Improvements**; Bid No. **K-15-5694-DBB-3-C**; in the amount of One Million Seven Hundred Fifty Seven Thousand One Hundred Twenty Six Dollars 00/100 ($1,757,126.00), which is comprised of the Base Bid plus Additive Alternate D.

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) Reference Standards listed in the Notice Inviting Bids and the Supplementary Special Provisions (SSP).

   (d) Phase Funding Schedule Agreement, Long Term Revegetation Maintenance Contract, Long-Term Warranty Contract.

   (e) That certain documents entitled **Angier Elementary School Joint Use Improvements**, on file in the office of the Public Works Contracts Group as Document No. **S-00762**, as well as all matters referenced therein.

2. The 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 **Angier Elementary School Joint Use Improvements**, Bid Number **K-15-5694-DBB-3-C**, 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 the 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.

IN WITNESS WHEREOF, this Agreement is signed by the City of San Diego, acting by and through its Mayor or designee, pursuant to Municipal Code **§22.3102** authorizing such execution.

THE CITY OF SAN DIEGO

By: 8-18-15
Stephen Samara
Principal Contract Specialist
Public Works Contracting Group

Mayor or designee

Date:

APPROVED AS TO FORM

Jan I. Goldsmith, City Attorney

By

Print Name: Mark M. Mercer
Deputy City Attorney

Date: 11/18/15

CONTRACTOR

By

Print Name: Shahrokh Elihu

Title: Vice President

Date: 06/09/15

City of San Diego License No.: B19940083 49

State Contractor's License No.: 621125

CONTRACT FORMS

ATTACHMENTS

Executed in Three (3) Identical Counterparts

Bond No: 1016694
Premium: $16,814.00
Premium is for contract term and is subject to adjustment based on final contract price

CONTRACT FORMS ATTACHMENTS
PERFORMANCE BOND AND LABOR AND MATERIALMEN'S BOND

FAITHFUL PERFORMANCE BOND AND LABOR AND MATERIALMEN'S BOND:

3-D Enterprises, Incorporated, 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 Seven Hundred Fifty Seven Thousand One Hundred Twenty Six Dollars 00/100 (1,757,126.00) for the faithful performance of the annexed contract, and in the sum of One Million Seven Hundred Fifty Seven Thousand One Hundred Twenty Six Dollars 00/100 (1,757,126.00) for the benefit of laborers and materialmen designated below.

Conditions:

If the Principal shall faithfully perform the annexed contract **Angier Elementary School Joint Use Improvements**, Bid Number **K-15-5694-DBB-3-C**, 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 June 8, 2015

Approved as to Form

Jan I. Goldsmith, City Attorney

By _____
Deputy City Attorney

Approved:

By: _____
Stephen Samara
Principal Contract Specialist
Public Works Contracting Group

3-D Enterprises, Incorporated
Principal

By _____
Shahrokh Elihu
Printed Name of Person Signing for Principal

The Hanover Insurance Company
Surety

By _____
Gladys Rogers, Attorney-in-fact

10509 Vista Sorrento Parkway, Ste #310,
Local Address of Surety

San Diego, CA 92121
Local Address (City, State) of Surety

858-200-4111
Local Telephone No. of Surety

Premium $ 16,814.00

Bond No. 1016694

ALL- PURPOSE
CERTIFICATE OF ACKNOWLEDGMENT

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

State of California }

County of San Diego }

On 08 June 2015 before me, B. Lafrenz, Notary Public
(Here insert name and title of the officer),

personally appeared Gladys Rogers,

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.

B. Lafrenz
Notary Public Signature

B. LAFRENZ
Commission # 2014382
Notary Public - California
San Diego County
My Comm. Expires Mar 24, 2017

(Notary Public Seal)

ADDITIONAL OPTIONAL INFORMATION

DESCRIPTION OF THE ATTACHED DOCUMENT

(Title or description of attached document)

(Title or description of attached document continued)

Number of Pages _____ Document Date_____

CAPACITY CLAIMED BY THE SIGNER

- ☐ Individual (s)
- ☐ Corporate Officer
  (Title)
- ☐ Partner(s)
- ☒ Attorney-in-Fact
- ☐ Trustee(s)
- ☐ Other _____

INSTRUCTIONS FOR COMPLETING THIS FORM

This form complies with current California statutes regarding notary wording and, if needed, should be completed and attached to the document. Acknolwedgents from other states may be completed for documents being sent to that state so long as the wording does not require the California notary to violate California notary law.

- State and County information must be the State and County where the document signer(s) personally appeared before the notary public for acknowledgment.
- Date of notarization must be the date that the signer(s) personally appeared which must also be the same date the acknowledgment is completed.
- The notary public must print his or her name as it appears within his or her commission followed by a comma and then your title (notary public).
- Print the name(s) of document signer(s) who personally appear at the time of notarization.
- Indicate the correct singular or plural forms by crossing off incorrect forms (i.e. ~~he~~/she/~~they,~~ is /~~are~~) or circling the correct forms. Failure to correctly indicate this information may lead to rejection of document recording.
- The notary seal impression must be clear and photographically reproducible. Impression must not cover text or lines. If seal impression smudges, re-seal if a sufficient area permits, otherwise complete a different acknowledgment form.
- Signature of the notary public must match the signature on file with the office of the county clerk.
  - ❖ Additional information is not required but could help to ensure this acknowledgment is not misused or attached to a different document.
  - ❖ Indicate title or type of attached document, number of pages and date.
  - ❖ Indicate the capacity claimed by the signer. If the claimed capacity is a corporate officer, indicate the title (i.e. CEO, CFO, Secretary).
- Securely attach this document to the signed document with a staple.

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

BROOKE LAFRENZ, LARRY D. COGDILL, MICHAEL THOMAS, GLADYS ROGERS, AUDREY RODRIGUEZ

Of **Del Mar, 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 HANOVER INSURANCE COMPANY
MASSACHUSETTS BAY INSURANCE COMPANY
CITIZENS INSURANCE COMPANY OF AMERICA

Mary Jeanne Anderson, Vice President

Robert K. Grenman, Assistant Vice President

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 ANN GARLICK
Notary Public
Commonwealth of Massachusetts
My Commission Expires Nov 3, 2011

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 **8th** day of **June** , 20 15 .

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

Stephen L. Brault, Assistant Vice President

CONTRACTOR CERTIFICATION

DRUG-FREE WORKPLACE

PROJECT TITLE: **Angier Elementary School Joint Use 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 the WHITEBOOK, Section 7-13.3, "Drug-Free Workplace", of the project specifications, and that;

3-D Enterprises, 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 Shahrokh Elihu

Title Vice President

CONTRACTOR CERTIFICATION

AMERICAN WITH DISABILITIES ACT (ADA) COMPLIANCE CERTIFICATION

PROJECT TITLE: **Angier Elementary School Joint Use 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 WHITEBOOK, Section 7-13.2, "American With Disabilities Act", of the project specifications, and that;

3-D Enterprises, 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 Shahrokh Elihu

Title Vice President

CONTRACTOR CERTIFICATION

CONTRACTOR STANDARDS – PLEDGE OF COMPLIANCE

PROJECT TITLE: **Angier Elementary School Joint Use Improvements**

I declare under penalty of perjury that I am authorized to make this certification on behalf of 3-D Enterprises, 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 the WHITEBOOK, Section 7-13.4, ("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 9th Day of June, 2015.

Signed _____

Printed Name Shahrokh Elihu

Title Vice President

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:

Angier Elementary School Joint Use Improvements
(Name of Project or Task)

as particularly described in said contract and identified as Bid No. **K-15-5694-DBB-3-C**; SAP No. (WBS/IO/CC) **S-00762** and **WHEREAS**, the specification 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 _____, _____.

_____ 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

ATTACHMENTS

ATTACHMENT A

SCOPE OF WORK

SCOPE OF WORK

1. **SCOPE OF WORK:** The Scope of Work provides for the design and construction of approximately 3.95 acres at Angier Elementary School for joint use facilities to meet population base requirements and to supplement existing park acreage in the Serra Mesa community. Proposed improvements include turfed multi-purpose sports field , half courts, walkways, landscaping, and accessibility upgrades.

   1.1. The Work shall be performed in accordance with:

      1.1.1. The Notice Inviting Bids and Plans numbered **36850-1-D** through **36850-49-D** and **S1.0** through **S9.0**, inclusive.

2. **CONSTRUCTION COST:** The City's estimated construction cost for this contract is **$1,580,000.00**.

3. **LOCATION OF WORK**: See Attachment E – Location Map.

4. **CONTRACT TIME:** The Contract Time for completion of the Work, including the Plant Establishment Period, shall be **286 Working Days**.

5. **CONTRACTOR'S LICENSE CLASSIFICATION:** In accordance with the provisions of California Law, the Contractor shall possess valid appropriate license at the time that the Bid is submitted. Failure to possess the specified license 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 at the time of Bid.

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

   - **CLASS A**

ATTACHMENT B

PHASED FUNDING PROVISIONS

PHASED FUNDING PROVISIONS

34. PHASED FUNDING:

34.1. For phased funded contracts, the City typically secures enough funds for the first 90 days of the contract prior to award. Within 10 Working Days after Bid opening date the Apparent Low Bidder must contact the Project Manager to discuss fund availability and the duration of the first phase and submit the Pre-Award Schedule to the City for approval and preparation of the first Phased Funding Schedule Agreement.

34.2. The Apparent Low Bidder will be required to provide a Pre-award Schedule in accordance with 6-1, "CONSTRUCTION SCHEDULE AND COMMENCEMENT OF THE WORK" and 9-3, "PAYMENT" prior to award of Contract.

34.3. If the Bid submitted by the Apparent Low Bidder is rejected by the City for any reason, then within 5 Working Days after receiving notice, the next Apparent Low Bidder must provide the Pre-Award Schedule. This process will continue until the City has selected the Apparent Low Bidder or have decided to reject all Bids.

34.4. The first Phased Funding Schedule Agreement must show the fund availability for the first phase. Within 22 Working Days from the date of the Bid Opening or notice to the next Apparent Low Bidder (whichever occurs last) and once a Pre-Award Schedule is accepted by the City, the City will present the first Phased Funding Schedule Agreement to you when you are selected as the Apparent Low Bidder as defined in the City's Municipal Code, §22.3003.

34.5. At the City's request, you must meet with the City's project manager before execution of the first Phased Funding Schedule Agreement to discuss his or her comments and requests for revision to the Pre-Award Schedule.

34.6. Your failure to perform the following may result in the Bid being rejected as **non-responsive:**

1. meet with the City's project manager, if requested to do so, to discuss and respond to the City's comments regarding the Pre-Award Schedule,
2. revise the Pre-Award Schedule as requested by the City within the specified 22 Working Days timeframe, or
3. execute the first Phased Funding Schedule Agreement within a day after receipt.

PHASED FUNDING SCHEDULE AGREEMENT

Check one:

☐ First Phased Funding Schedule Agreement

XX Final Phased Funding Schedule Agreement

NOTE: THIS IS A SAMPLE PHASED FUNDING SCHEDULE AGREEMENT FORM. Particulars left blank in this sample, the total number of phases, and the amounts assigned to each phase will be filled with funding specific information as the result of the Pre-Award Schedule, and subsequent Schedules, required by these Bid Documents and approved by the City.

BID NUMBER: K-15-5694-DBB-3-C

CONTRACT OR TASK TITLE: Angier Elementary School Joint Use Improvements

CONTRACTOR: 3-D Enterprises, Inc.

Funding Phase	Phase Description	Phase Start	Phase Finish	Not-to-Exceed Amount
1	Final Phased			$1,757,126.00
	Additional phases to be added			
	to this form as necessary.			
			Total	$1,757,126.00

Notes:

(1) City Supplement 9-3.6, "PHASED FUNDING COMPENSATION" applies.

(2) The total of all funding phases shall be equal to the TOTAL BID PRICE as shown on BID SCHEDULE 1 - PRICES.

(3) This PHASED FUNDING SCHEDULE AGREEMENT will be incorporated into the CONTRACT and shall only be revised by a written modification to the CONTRACT.

CITY OF SAN DIEGO

By: _____

Name: Ana Del Rincon
Project Manager

Department Name: Public Works

Date: 6/4/15

CONTRACTOR

By: _____

Name: Shahrokh Eliw

Title: Vice President

Date: 06/09/15

-END OF PHASED FUNDING SCHEDULE AGREEMENT

ATTACHMENT C

EQUAL OPPORTUNITY CONTRACTING PROGRAM

EQUAL OPPORTUNITY CONTRACTING PROGRAM

1. To The WHITEBOOK, Chapter 10, Sections D and E, DELETE each in its 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.

ATTACHMENT D

INTENTIONALLY LEFT BLANK

ATTACHMENT E

SUPPLEMENTARY SPECIAL PROVISIONS

SUPPLEMENTARY SPECIAL PROVISIONS

The following Supplementary Special Provisions (SSP) modifies the following documents:

1) Standard Specifications for Public Works Construction (The GREENBOOK) currently in effect.

2) The City of San Diego Standard Specifications for Public Works Construction (The WHITEBOOK).

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

1-2 TERMS AND DEFINITIONS.

Normal Working Hours. To the City Supplements, ADD the following:

The Normal Working Hours are **8:30 AM to 3:30 PM.**

SECTION 2 - SCOPE AND CONTROL OF WORK

2-3.2 Self Performance. DELETE in its entirety and SUBSTITUTE with the following:

1. You must perform, with your own organization, Contract work amounting to at least 50% 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 award.

2. The self performance percentage requirement will be waived for contracts when a "B" License is required or allowed.

2-5.3.2 Working Drawings. TABLE 2-5.3.2(A), ADD the following:

Item	Section No.	Title	Subject
17	306-1.6	Water Valve Bypass for Mainlines 16" and Larger	SDW-154*

*Note: The distance dimensions shown between the bypass pipes and between bypass pipes and the mainlines are subject to change to field conditions.

2-7 SUBSURFACE DATA. ADD the following:

4. 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. Report of Geotechnical Investigation dated February 6, 2009 by Southern California Soil & Testing, Inc.

2. Soils Report dated June, 22, 2011 by KZ Engineering, Inc.

SECTION 4 - CONTROL OF MATERIALS

4-1.3.4 **Inspection Paid For By the Contractor.** To the City Supplements, ADD the following:

ADD the following:

All DSA, Division of the State Architect, testing and inspections to be paid by the SDUSD, San Diego Unified School District.

4-1.3.6 **Preapproved Materials.** To the City Supplement, ADD the following:

3. You shall submit in writing a list of all products to be incorporated in the Work that are on the AML.

4-1.6 **Trade Names or Equals.** ADD the following:

You must submit your list of proposed substitutions for "an equal" ("or equal") item(s) **no later than 5 Working Days after the determination of the Apparent Low Bidder** and on the City's Product Submittal Form available at:

http://www.sandiego.gov/publicworks/edocref/index.shtml

SECTION 6 – PROSECUTION, PROGRESS, AND ACCEPTANCEOF THE WORK

6-1.1 **Construction Schedule.** To item 20, ADD the following:

The 120 calendar days for Plant Establishment Period is included in the stipulated Contract Time.

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 the Contract.

7-3.1 **Policies and Procedures.**

1. You must procure the insurance described below, at its 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.

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

3. 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 the Contract, e.g., your indemnity obligations, is not deemed limited to the insurance coverage required by this contract.

4. 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.

5. 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 the Contract. Your failure to maintain or renew coverage or to provide evidence of renewal during the term of the Contract may be treated by the City as a material breach of the Contract.

7-3.2 Types of Insurance.

7-3.2.1 Commercial General Liability Insurance.

1. 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.

2. 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).

3. 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.

4. 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.

1. 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").

2. All costs of defense must be outside the limits of the policy.

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 Approved Surplus Lines Insurers (LASLI 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.

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.

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.

c) 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.

d) 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 your 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.

7-3.6 Deductibles and Self-Insured Retentions. You must pay for all deductibles and self-insured retentions. You must disclose deductibles and self-insured retentions to the City at the time the evidence of insurance is provided.

7-3.7 Reservation of Rights. The City reserves 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. The City 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.

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.

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.

1. In accordance with the provisions of §3700 of the California Labor Code, you must provide at your 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.

2. 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

3. By signing and returning the 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 must 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, ADD the following:

The City will obtain, at no cost to the Contractor; the following permits:

1. DSA Approved Plans and Specifications.

7-15 **INDEMNIFICATION AND HOLD HARMLESS AGREEMENT.** To the City Supplements, fourth paragraph, last sentence, DELETE in its entirety and SUBSTITUTE with the following:

Your duty to indemnify and hold harmless does not include any claims or liability arising from the established active or sole negligence, or willful misconduct of the City, its officers, or employees.

7-16 **COMMUNITY LIAISON.** To the City Supplement, DELETE in its entirety and SUSBTITUTE with the following:

ADD:
7-16 **COMMUNITY OUTREACH.**

7-16.1 **General.**

1. To ensure consistency with the City's community outreach plan for the project, the City will work with the Contractor to inform the public (which includes, but is not limited to, property owners, renters, homeowners, business owners, recreational users, and other community members and stakeholders) of construction impacts. Efforts by the Contractor to mitigate construction impacts by communicating with the public require close coordination and cooperation with the City.

2. The Contractor will perform the community outreach activities required throughout the Contract Time.

3. The Contractor shall closely coordinate the Work with the businesses, institutions, residents and property owners impacted by the Project. Example duties of the Contractor include notification to the businesses, institutions and residents of the commencement of construction activities not less than 5 days in advance, coordination of access for vehicular and pedestrian traffic to businesses, institutions and residences impacted by the Project, reporting of Contractor activities at all Project progress meetings scheduled by the Engineer, attendance to the Project Pre-construction Meeting, attendance at 2 community meetings, response to community questions and complaints related to Contractor activities, and written documentation including logging in all inquiries and complaints received into the City's Public Contact Log located on the City's SDShare site:

   http://sdshare/forums/ecp/PITS/picr/Lists/Public%20Contact%20Log/AllItems.aspx

4. The Contractor shall execute the Information Security Policy Acknowledgement Form - For Non-City Employees within 15 days of the award of the Contract if:

   a) The contact information for the Contractor is made available on any outreach materials or;

   b) The Contractor will be the primary point of contact to resolve project related inquiries and complaints.

5. Electronic Communication.

   All inquiries and complaints will be logged in to the City's SDShare site within 24 hours of receipt of inquiries and complaints.

   Any updates or a resolution of inquiries, and complaints shall be documented in the City's SDShare site within 24 hours.

   Copies of email communications shall be saved on to the City's SDShare site as individually as an Outlook Message Format (*.msg).

   All graphics, photos, and other electronic files associated with the inquiries and or complaints shall be saved into the individual record.

6. **When specified**, present your Exclusive Community Liaison to the Engineer, in writing, within 15 days of the award of the Contract.

7-16.2 Submittals.

1. The Contractor shall submit to the Resident Engineer, for review and approval, all drafts of letters, notices, postcards, door hangers, signs, mailing lists, proposed addresses for hand-delivery, and any other notices and letters that are to be mailed and or distributed to the public.

   a. Prior to distributing or mailing, the Contractor shall submit final drafts of letters, notices, postcards, door hangers, signs, and any other notices and letters to the Resident Engineer for final review and approval.

b. After distributing or mailing, the Contractor shall submit verification of delivery and any copies of returned notices to the Resident Engineer.

2. The Contractor will use the City's SDShare site to identify and summarize communications (via phone, in person, and email) with the public the within 24 hours of receipt, even if the Contractor's response to the individual is still incomplete. The Contractor will upload to the City's SDShare site copies of all written, electronic, and verbal communications and conversations with the public.

7-16.3 Public Notice by Contractor.

1. Furnish and distribute public notices in the form of door hangers using the City's format to all occupants and/or property owners along streets where Work is to be performed at least 5 days before starting the Work as directed by the Resident Engineer.

2. For all Work on private property, contact each owner and occupant individually a minimum of 15 days prior to the Work. If the Work has been delayed, re-notify owners and occupants of the new Work schedule, as directed by the Resident Engineer.

7-16.4 Quality Assurance.

1. During the course of community outreach, the Contractor shall ensure the character of all persons that conduct community outreach (distributing door hangers, attending community meetings, interacting with the public, etc.), on behalf of the Contractor:

   a. Have the ability to speak and comprehend English and/or Spanish, as appropriate for the community or public they are informing,

   b. Possess and display easily verifiable and readable personal identification that identifies the person as an employee of the Contractor,

   c. Have the interpersonal skills to effectively, professionally, and tactfully represent the project, Contractor, and City to the public.

7-16.5 Communications with the Public.

1. The Contractor shall provide updates on construction impacts to the Resident Engineer. The Contractor shall notify the Resident Engineer in advance about time-sensitive construction impacts and may be required to distribute construction impact notices to the public on short notice.

2. The Contractor shall incorporate community outreach activities related to construction impacts in the baseline schedule and update the Resident Engineer with each week's submittal of the Three-Week Look Ahead Schedule.

3. At the request of the Resident Engineer, the Contractor shall attend and participate in project briefings at community meetings.

4. The Contractor shall coordinate with the Resident Engineer on all responses and actions taken to address public inquiries and complaints within 24-hours that they are received.

7-16.6 Communications with Media.

1. The City may allow members of the media access to its construction site(s) on a case-by-case basis only.

2. Occasionally, members of the media may show up at construction sites, uninvited. Members of the media (including, but not limited to newspaper, magazine, radio, television, bloggers, and videographers) do not have the legal right to be in the construction site without the City's permission.

3. In the event media representatives arrive near or on the construction site(s), the Contractor shall keep them off the site(s), in a courteous and professional manner, until a Public Information Officer is available to meet them at an approved location.

4. The Contractor shall report all members of the media visits to the Resident Engineer as quickly as possible, so that the City's Public Information Officer can meet with the members of the media at the construction site(s).

5. If the City allows members of the media to access a construction site, the Contractor shall allow the City to escort the media representatives while they are on the construction site and shall ensure their safety.

6. The Contractor shall require media representatives to sign in and out of the Site Visitor Log and to use Personal Protective Equipment.

7. The Contractor has a right to speak to members of the media about its company and its role on the project. All other questions shall be referred to the City.

7-16.7 Exclusive Community Liaison Services.

If directed to conduct Exclusive Community Liaison Services, the Contractor shall retain an Exclusive Community Liaison for the Project whose sole responsibilities will be as follows:

1. Develop a contact list of community, tenants, property owners, and agencies with a stake in the project.

2. Notify businesses, institutions, property owners, and residents of the commencement of construction activities and utility service interruptions not less than 5 days in advance.

3. Coordinate access for vehicular and pedestrian traffic to businesses, institutions and residences impacted by the Project.

4. Prepare and present of materials in coordination with the Resident Engineer (the City's standards and guidelines for the communication materials are available for review by Bidders by sending a request to the Contract Specialist).

5. Respond to community questions and complaints related to Contractor activities.

6. Write, edit, update, or produce brochures, pamphlets and news releases.

7. Provide standard telephone inquiries and e-mail responses:

   a) Respond to telephone calls and e-mails from the public.

   b) Record calls and e-mails on the City's SDShare site.

8. Report Exclusive Community Liaison activities at all progress meetings scheduled by the Resident Engineer.

9. Attendance at pre-construction, community and stakeholders meetings.

7-16.7.1 **Exclusive Community Liaison Work Plan.** The Work plan for the Exclusive Community Liaison shall address the items of Work specified in these specifications. Present your Exclusive Community Liaison and submit your exclusive community outreach plan (in writing) **as specified** within 15 days of the Award of the Contract.

7-16.8 **Payment.** The Payment for the community outreach and public notices is included in the various Bid items. The payment for exclusive community liaison is in the bid item for "Exclusive Community Liaison Services".

7-20 **ELECTRONIC COMMUNICATION.** ADD the following:

Virtual Project Manager will be used on this contract.

SECTION 9 - MEASUREMENT AND PAYMENT

9-3.2.5 **Withholding of Payment.** To the City Supplements, item i), DELETE in its entirety and SUBSTITUTE with the following:

i) Your failure to comply with 7-2.3, "PAYROLL RECORDS" and 2-16, "CONTRACTOR REGISTRATION AND ELECTRONIC REPORTING SYSTEM."

ADD:

9-3.7 **Compensation Adjustments for Price Index Fluctuations.** This Contract is not subject to the provisions of The WHITEBOOK for Compensation Adjustments for Price Index Fluctuations for the paving asphalt.

SECTION 200- ROCK MATERIALS

200-2.7.2 **Grading.** Replace Table 200-2.7.2(A) with the following:

Sieve Size	Percent Passing (by weight)
1/2"	95-100
3/8"	95-100
No. 4	65-80
No. 8	48-63
No. 16	40-49
No. 30	30-40
No. 50	20-27
No. 100	10-18
No. 200	10-12

200-2.7.3 **Quality Requirements.** Replace Table 200-2.7.3(A) with the following:

Test	Test Method No.	Requirements
R-Value	Cal 301	71 Min
Sand Equivalent	Cal 217	35-55

ADD:

200-2.7.4 **Stabilizer .** Aggregate binder shall be a natural non-toxic, non-staining, odorless, environmentally safe powder. The powder shall be "Stabilizer" by Stabilizer Solutions or approved equal.

SECTION 212-LANDSCAPE AND IRRIGATION MATERIALS

212-1.1.2 **Class "A" Topsoil.** Third paragraph, at the end of the test results list, ADD the following:

m) Measurement of sodicity (Sodium Adsorption Ratio).

n) Recommendations for soil leaching.

o) Pounds of pre-plant fertilizer per 1,000 sq. ft. and recommended NPK analysis of fertilizer.

p) Pounds of maintenance fertilizer per 1,000 sq. ft. and recommended NPK analysis of fertilizer.

Each soil analysis shall include written recommendations for soils treatments and soils amendments to be added based upon test results. These recommendations shall include:

- Volume of soil amendment per 1,000 sq. ft. or cu. yd. of backfill mix.

- Pounds of gypsum per 1,000 sq. ft. of cu. yd. or backfill mix.
- Pounds of soil sulfur per 1,000 sq. ft. of cu. yd. or backfill mix.
- Pounds of iron sulfate per 1,000 sq. ft. or cu. yd. of backfill mix.
- Pounds of pre-plant fertilizer per 1,000 sq. ft. or cu. yd. of backfill mix and recommended NPK analysis of fertilizer.
- Pounds of soil polymers per 1,000 sq. ft or cu. Yd. of backfill mix.
- Recommendations for soil leaching
- Recommendation for tree drain installation
- Pounds of maintenance fertilizer per 1,000 sq. ft. and recommended NPK analysis of fertilizer.
- Recommendation for soil wetting agent and application rate.
- Percent of site soil-to-soil amendment in backfill mix.
- Whether or not soil polymers need to be added to soil.

If any of the above listed items are not recommended, the recommendation shall call for zero volume or zero poundage per 1,000 square feet. All soil test costs will be the responsibility of the Contractor.

212-1.2.5 **Mulch.** To the City Supplement, Item j), ADD the following

"Mulch" shall be 'Landscape Blend Mulch' available from Agriservice (El Corazon) or approved equal. Phone: 760-643-4071.

All Planting areas shall receive minimum two-inch (2") depth.

212-1.2.6 **Inorganic Soil Amendments.** To the City Supplement, ADD the following:

Soil Sulfur. Soil sulfur shall be 98% elemental sulfur.

ADD:

212-1.2.7 **Mulch for Hydroseeding.** Mulch for hydroseeding: Each package of cellulose shall show air-dry weight. Fiber weight shall be equivalent to ten- percent moisture as based on the Technical Association of Pulp and Paper Industry standards for air-dry cellulose.

Mulch material shall be clean, natural wood cellulose fiber. Natural wood cellulose fiber shall be processed in such a manner that it will contain no growth or germination inhibiting factors and shall be dyed green to facilitate metering of materials. It shall be manufactured in such a manner that after each addition and agitation in slurry tanks with fertilizer, seed, water, and other approved additives, the fibers in the material will become uniformly suspended to form a homogeneous slurry; and that when hydraulically sprayed, will uniformly cover the ground with seed and mulch, and which after application, will allow the absorption of moisture and will allow rainfall to percolate to the underlying soil.

ADD:

212-1.10 **Herbicide.** Pre-emergent herbicide shall be as determined by Contractor. Contractor shall submit a sample label and Material Safety Data Sheet (MSDS) to the Resident Engineer for approval prior to purchase and applications.

Post-emergent herbicide shall be non-selective type for total control of undesirable vegetation, available as Roundup or approved substitution as determined by the Contractor. Contractor shall submit a sample label and Material Safety Data Sheet (MSDS) to the Resident Engineer for approval prior to purchase and applications. Application shall be in accordance with precautions and rates suggested by the manufacturer.

212-2.2.7 **Valve Boxes.** To the City Supplement, ADD the following to the end of paragraph 1:

The Contractor shall rework the locking toggles of the concrete valve boxes by replacing the existing clevis pin and sheet metal clip with a marine-type stainless steel machine bolt and self-locking unit. Apply oil to lubricate and to prevent rust.

ADD:

212-2.5 **Equipment to be Furnished.** Contractor shall provide the following to the City prior to final acceptance:

(a) Five irrigation heads with nozzles (of each type used) for every 100 irrigation heads, or portions thereof, used.

(b) 2 sets of special tools required for removing, disassembling and adjusting each type of sprinkler and valve supplied on this project.

(c) 2 five ft. valve keys for operation of gate valves.

(d) 2 keys for each automatic controller, locking valve boxes and locking quick couplers.

(e) 2 keys for pump.

(f) 2 valve keys for potable quick couplers.

212-3 **ELECTRICAL MATERIALS.**

ADD:

212-3.2.2.4 **Wires in Pull Boxes.** Wires in Pull Boxes shall be loose and shall not come within 3" from lid. Boxes shall be sized accordingly to accommodate this requirement.

ADD:

212-3.2.2.5 **Wire Testing.** Wire shall be tested for continuity, open circuits, and unintentional grounds prior to connecting to equipment. Any wiring that is defective shall be replaced, at the Contractor's expense.

ADD:

212-3.3.1 **Controller Assembly.** Controller Assembly shall be a pre-packaged assembly, consisting of a *UL LISTED* stainless steel; vandal resistant enclosure, *UL LISTED* stainless steel pre-drilled removable backboard, the irrigation controller specified with these plans, and a terminal interface board. The assembly shall also include an on/off switch and duplex 120V receptacle, equipped with a ground fault interrupt circuit. All power within the housing shall be properly phased.

The pre-labeled, pre-wired terminal interface board shall clearly indicate the proper points of connection for all appropriate wiring.

The assembly shall also include a rain switch enclosure mounted assembly and a high flow shutoff assembly (including flow sensor). The enclosure shall be 18" wide x 36" high x 12" deep. The assembly shall be as manufactured, by United Green Tech, 800-427-0779, or approved equal.

ADD:

212-4 BIORETENTION SOIL MEDIA (BSM).

212-4.1 **General.** Bioretention Soil Media (BSM) is a formulated planting soil which consists of 60% to 70% washed sand and 30% to 40% compost on a volume basis, and shall be mixed at the plant site prior to delivery.

212-4.1.1 **Sand for Bioretention Soil Media.** The sand shall conform to ASTM C33 and a sieve analysis shall be performed in accordance with ASTM C 136 to demonstrate compliance with the gradation limits shown in Table 212-4.1.1 (A). The sand shall be thoroughly washed to remove fines, dust, and deleterious materials prior to delivery.

Table 212-4.1.1 (A) Sand Gradation Limits

Sieve Size	Percent Passing
3/8 inch	100
No. 4	60 - 100
No.10	40 - 100
No. 40	15 - 50
No. 200	0 - 5

Note: Coefficient of Uniformity (Cu = D60/D10) equal to or greater than 4

212-4.1.2 **Compost.** Compost shall be certified by the U.S. Composting Council's Seal of Testing Assurance Program or an approved equal. Compost shall comply with the following requirements:

1. Organic Material Content shall be 35% to 75% by dry weight.
2. Physical contaminants (manmade inert materials) shall not exceed 1% by dry weight
3. pH shall be between 6.0 and 8.0
4. Soluble Salt Concentration less than 10 dS/m (Method TMECC 4.10-A, USDA and U.S. Composting Council)
5. Maturity (seed emergence and seedling vigor): greater than 80% relative to positive control (Method TMECC 5.05-A, USDA and U.S. Composting Council)
6. Stability (Carbon Dioxide evolution rate): less than 8 mg CO_2-C per g OM per day (Method TMECC 5.08-B, USDA and U.S. Composting Council)
7. Moisture: 40%-50% wet weight basis.
8. Select Pathogens: Pass US EPA Class A standard, 40 CFR Section 503.32(a).

9. Trace Metals: Pass US EPA Class A standard, 40 CFR Section 503.13, Tables 1 and 3.

10. Within gradation limits in Table 212-4.1.2 (ASTM D 422 sieve analysis or approved equivalent)

Table 212-4.1.2 (A) Compost Gradation Limits

Sieve Size	Percent Passing (by weight)
1 inch	99 to 100
½ inch	90 to 100
¼ inch	40 to 90
No. 200	2 to 10

212-4.2 **Agricultural Suitability.** The Contractor shall submit the source and location of BSM, a physical sample, and accompanying and current test results by a third party independent agronomic laboratory reflecting compliance with Contract Documents to the Engineer at least 30 Days prior to ordering materials.

No planting shall begin until test results confirm the agricultural suitability of the BSM. The Contractor shall submit a written request for approval which shall be accompanied by written analysis results from a written report of a testing agency registered by the State for agricultural soil evaluation which indicates compliance which states that the tested material proposed source complies with these specifications. Third party independent laboratory tests shall be paid for by the Contractor.

The BSM shall be suitable to sustain the growth of the plants specified and shall conform to the following requirements:

a) pH range: 6.0-7.8
b) Salinity less than 3.0 millimho/cm (electrical conductivity)
c) Sodium adsorption ration (SAR) less than 3.0
d) Chloride less than 150 ppm

The test results shall show the following information:

a) Date of Testing
b) Project Name
c) The Contractor's Name
d) Source of Materials and Supplier's Name
e) Estimate of Quantity Needed
f) pH
g) EC
h) Elements: phosphorus, potassium, iron, manganese, zinc, copper, boron, calcium, magnesium, sodium, sulfur, molybdenum, nickel, aluminum, arsenic, barium, cadmium, chromium, cobalt, lead, lithium, mercury, selenium, silver, strontium, tin, and vanadium
i) Soil adsorption ratio

j) Carbon/nitrogen ratio

k) Moisture content

l) Organic Content

m) An assessment of agricultural suitability based on test results

n) Recommendations for adding amendments, chemical corrections, or both.

BSM which requires amending to comply with these specifications shall be uniformly blended prior to importation. Third party independent laboratory test results reflecting compliance with above requirements shall be provided to the Engineer prior to the delivery of the BSM.

212-4.3 **Delivery, Storage and Handling.** The Contractor shall not deliver or place soils in frozen, wet, or muddy conditions.

The Contractor shall protect soils and mixes from absorbing excess water and from erosion at all times. The Contractor shall not store materials unprotected from large rainfall events. The Contractor shall not allow excess water to enter site prior to compaction. If water is introduced into the material after grading, the Contractor shall allow material to drain or aerate to optimum compaction moisture content.

212-4.4 **Quality Control and Acceptance.** Close adherence to the material quality controls herein are necessary in order to assure sufficient permeability to infiltrate runoff at a minimum rate of 5 inches per hour during the life of the facility, and to support healthy vegetation. Amendments may be included to adjust agronomic properties. Acceptance of the material will be based on test results conducted no more than 120 days prior to delivery of the blended BSM to the project site and certified to be representative. For projects installing more than 100 cubic yards of BSM, batch-specific tests of components and blended mix are required and locations of material batches shall be provided to the Engineer.

SECTION - 300-EARTHWORK

ADD:

300-2.1.1 **Miscellaneous Grading Conditions.** Site Grading: Slope grades to prevent ponding. Finish subgrades to required elevations within the following tolerances:

1. Lawn or Unpaved Areas: Plus or minus 1 inch.
2. Walks: Plus or minus 1 inch.
3. Pavements: Plus or minus 1/2 inch.

Moisture Control: Uniformly moisten or aerate subgrade and each subsequent fill or backfill layer before compaction to within 2 percent of optimum moisture content.

1. Do not place backfill or fill material on surfaces that are muddy.
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.

Compaction of Backfill and Fills:

1. Place backfill and fill materials in layers not more than 8 inches in loose depth for material compacted by heavy compaction equipment, and not more than 4 inches in loose depth for material compacted by hand-operated tampers.

2. Place backfill and fill materials evenly on all sides of structures to required elevations, and uniformly along the full length of each structure.

3. Compact soil to not less than the following percentages of maximum density according to ASTM D 1557: Under structures, building slabs, steps, and pavements, scarify and recompact top 12 inches of existing subgrade and each layer of backfill or fill material at 95 percent.

SECTION 302-ROADWAY SURFACING

ADD:

302-14 DISINTIGRATED GRANITE PAVEMENT.

302-14.1 General. Disintigrated Granite Pavements shall conform to 200-2.7.

302-14.2 Samples and Submittals

1. Sieve analysis of aggregates
2. Aggregate color

302-14.3 Preparation of subase.

1. Base shall be a compacted layer of Class II base as defined on the plans or existing over excavated and recompacted engineered fill.
2. Pre-soak base material and compact to 95% prior to installing stabilized aggregate material.

302-14.4 Blending. Stabilizer shall be thoroughly pre-mixed with crushed stone/sand (DG) mixed at the rate of 15lbs of stabilizer per 1 ton of aggregate. Stabilizer shall be mechanically pre-mixed per the manufacturers recommendations usig an approved mechanical blending unit that will adequately mix and blend the stabizer with the aggregate. Always blend the materials dry. (Bucket blending and drop spreading over in-place aggregate or mixing by rototilling are not acceptable methods of blending).

302-14.5 Placement. Place the aggregate and stabilizer mixture on a prepared base and rake smooth to a desred grade and cross section. Place material in lifts of no more than 2.5" thick to achieve desired thickness.

302-14.6 Watering. Water heavily for full depth moisture penetration of the stabilized profile at the rate of 25-45 gallons of water per ton of aggregate. During wter application test moisture using a probing device reaching full depth.

302-14.7 Compaction.

1. Compact with a roller within 6-48 hours. Compaction should not occur if separation, plowing or other physical compromise of aggregate is encountered.

2. Lightly sprinkle surface to prevent from drying out.
3. Compact material with a compactor/roller making 3 to 4 passes (do not use a vibratory unit). Upon thorough moisture penetration, compact aggregate to 85% relative compaction using a 1-5 ton double drum roller or a 1,000 lb single drum roller.
4. Water the surface area with a light spray following compaction. Contractor shall take care as to not disturb the aggregate surface with the spay action.

SECTION 308-LANDSCAPE AND IRRIGATION INSTALLATION

308-2 EARTHWORK AND TOPSOIL PLACEMENT

308-2.1 **General.** After the third paragraph, ADD the following:

Do not perform soil preparation and earthwork when the soil is wet to avoid excessive soil compaction. .

When the soil is dry, apply water to control dust, break up soil clods, and provide suitable conditions for tilling and planting.

ADD:

308-2.1.1 **Equipment.** Equipment necessary for soil preparation, finish grading, and handling and placing of materials shall be available and in good working condition before starting work.

308-2.2 **Trench Excavation and Backfill.** DELETE the last paragraph, and REPLACE with the following:

Trenches shall not be backfilled, except to anchor pipe, until required tests are completed and accepted by the City. Pipe joints shall remain exposed until satisfactory completion of testing. Lateral trenches, and mainline trenches after initial sand backfill, shall be carefully backfilled with approved fine select material, consisting of loam, sandy clay, sand, and other approved materials-free from large clods of earth and stones. Backfill shall be mechanically compacted in landscaped areas to dry density equal to adjacent undisturbed soil in planting areas. Backfill shall conform to adjacent grades without settlement, sunken areas, humps, and other surface irregularities.

Flooding of trenches will be permitted only with approval of the City, in accordance with subsection 306-1.3.3.

If trench settlement occurs and subsequent adjustments in pipe, valves, sprinkler heads, drip emitters, planting, and other installations are necessary, then Contractor shall make required adjustments at no extra cost to the City.

ADD:

308-2.2.1 **Trenching and Backfilling Under Paving.** PVC Schedule 40 sleeves shall be placed for irrigation pipe installed below paving.

Trenches located below paving (asphaltic concrete and concrete) shall be backfilled with sand (six inches above and below the pipe). Compact backfill in layers to 95% relative density (minimum) with manual or mechanical tamping devices.

Trenches shall be flush with adjoining subgrade. Contractor shall set in place, cap and pressure test piping under pavement prior to start of paving work.

Install piping under existing walks by jacking or boring. If cutting or breaking of sidewalks is necessary, then Contractor shall replace concrete walks at no extra cost to the City. Permission to cut or break sidewalks shall be obtained from the Resident Engineer. No hydraulic boring shall be permitted under concrete paving.

308-2.3.1 **General.** To the second paragraph, ADD the following:

Grading and soil preparation work shall be performed only during periods when beneficial and optimum results may be obtained. If soil moisture content, as defined by the Geotechnical Engineer, reaches a level so that working it would destroy soil structure, then soil preparation and grading operations shall be suspended. Contractor shall resume work when soil moisture content is increased or reduced to acceptable levels as determined by the Geotechnical Engineer, and desired results of soil conditioning are likely to be obtained.

REMOVE fourth paragraph.

ADD the following:

Soil preparation for plant pits for trees shall be imported amended class 'A' topsoil per the planting notes.

Soil preparation for shrub areas and slopes shall be class 'A' topsoil. Remove all cobble from the site.

Finish grading shall include removal and disposal of all cobble and rocks over 1/2" from the surface.

308-2.3.2 **Fertilizing and Conditioning Procedures.** To the second paragraph, ADD the following:

Prior to initiation of work, the Contractor shall submit an Agricultural Suitability test in accordance with section 212-1.1.2.

Amendments are provided on plans for bidding purposes only. Actual types and quantities shall be based upon Agricultural Suitability test.

ADD after the last paragraph:

Weed Control: Upon completion of the irrigation system and after existing weeds and growth have been removed from planting areas, weed abatement program shall begin. The weed abatement period may be waived or reduced with Engineer's written approval.

ADD:

308-2.5 **Bioretention Soil Media.** Bioretention Soil Media shall be thorough mixed prior to delivery using mechanical mixing. BSM shall be lightly tamped by hand and placed in loose lifts no greater than 6" to ensure proper compaction. Compaction within the BSM area will not exceed 75% standard proctor within the designed depth of the BSM.

Machinery shall not be used in the bioretention facility to place the BSM. A conveyor or spray system shall be used for media placement in large facilities.

308-4 PLANTING.

308-4.1 General. DELETE the section and REPLACE with the following:

1) Irrigation work shall be inspected and accepted prior to start of work of this Section.

2) Plant material quantities, species, and sizes shall be provided as shown on Plans. Plants shall be inspected and accepted by the City before removal from containers and excavating soil for planting holes.

3) Planting areas shall be irrigated to a minimum depth of six inches prior to planting installation. Planting pits shall be filled and water allowed to percolate a minimum of three times prior to planting installation. If water is not completely absorbed within 24 hours during any of the three percolation tests, contact the Resident Engineer for further instruction prior to planting.

4) Plant quantities on Plans are for Contractor's convenience only. Symbols shall take precedence over written numeric quantities.

5) Scarify sides of plant root balls with sharp tool to depth of one inch to girdle circular root growth prior to planting.

6) Planting shall be performed with materials, equipment, and procedures most favorable to establishment and growth of plants.

7) Containers shall be opened and removed so that plant root balls are not injured.

308-4.3 Layout and Plant Location. ADD the following:

If underground construction work and obstructions are encountered during the planting operations, alternate locations for plant material will be selected by the City. Plant relocation shall be performed at no extra cost to the City.

308-4.4 Specimen Planting. Before first paragraph, ADD the following:

Planting pits for trees 24-inch box size and larger shall be excavated at least 12 inches larger than the original plant container. Scarify soil at sides and bottom of planting pit.

308-4.6.1 Method A Tree Staking. DELETE the section in its entirety and ADD the following:

24-inch box size trees, shall be staked in accordance with planting details.

308-4.6.3 Guying. ADD the following:

36-inch box size trees and larger shall be guyed.

308-4.8.1 General: ADD the following:

All fine grading shall be completed and approved in a manner satisfactory to the Engineer.

In addition to any other certificates specified, the Contractor shall furnish a certificate with delivery of seed material stating the source; quantity; type of material; and that the material conforms to the specification requirement. A copy of this certificate shall be submitted to the Engineer prior to the start of the maintenance period.

Provide notification of the delivery schedule in advance so material may be inspected upon arrival at the job site. Remove unacceptable material from the job site immediately. Protect seed during delivery to prevent damage.

Hydroseeding shall not be done when the ground is muddy or in an unsatisfactory condition for planting.

308-4.8.2.b **"SEED - METHOD B".** ADD the following:

STEP ONE:

1. Apply stolons at a rate of 80 bushels/acre with wood pulp.
2. "Wood pulp" shall be per materials section or approved equal, at a rate of 500 lbs./acre. Include granular fertilizer at a rate specified by the soils report.
3. Equipment and Application: Hydraulic equipment used for the application of slurry shall have a built in agitation system with an operating capacity sufficient to agitate, suspend and homogeneously mix the above slurry. Distribution lines shall be large enough to prevent stoppage and to provide even distribution of the slurry over the ground. The pump shall be capable of exerting at least 150 psi at the nozzle or sufficient additional pressure for proper coverage. The slurry tank shall have a minimum capacity of 1,500 gallons and shall be mounted on a traveling unit which will place the slurry tank and spray nozzles within sufficient proximity to the areas to be seeded so as to provide uniform distribution without waste and shall be thoroughly clean and free of seed species that are not specified.
4. Application: The operator shall spray the surfaces with a uniform, visible coat by using the green color of the wood pulp as a guide. The slurry shall be applied in a sweeping motion, in an arched stream allowing the wood fibers to build on each other until a good coat is achieved and the material is spread.
5. Time Limit: All slurry mixture which has not been applied to the surfaces within two hours after mixing will be rejected and removed from the project at the Contractor's expense.

STEP TWO:

1. Wood pulp and tackifier shall be applied together at the following rates: wood pulp at a rate of 1500 lbs./acre, tackifier at a rate of 120 lbs./acre.
2. Equipment and application: repeat processes "3 and 4" above.

"Tackifier" shall be m-binder from Stover Seed or approved equal, at a rate of 120 lbs./acre.

Note that the above mixture is to be used as the basis for bids - the final mixture to be used shall conform to recommendations made by the Engineer based upon the soils report furnished by the Contractor.

Special care is to be exercised by the Contractor to prevent the slurry from being sprayed onto any adjacent property, or onto drainage ditches and cobble boiswales. Any slurry sprayed onto these areas should be cleaned off by the Contractor.

All hydroseeding is subject to approval by the Engineer or his representative, and they shall, if necessary, be adjusted or relocated as directed, as part of the contract.

The Engineer may make inspections during seeding. Seed that has not been handled or applied properly shall be subject to re-application, if required by the Engineer.

ADD:

308-4.11 **Mulching.** Spread mulch uniformly in planting areas as indicated on Plans, to a minimum depth of two inches.

308-5 IRRIGATION SYSTEM INSTALLATION.

308-5.1 **General.** Between the second and third paragraph, ADD the following:

Existing Trees: If excavating adjacent to existing trees, Contractor shall exercise caution to avoid injury to trees and tree roots. Excavation near roots 1-1/2 inches and larger shall be done by hand. Tunnel under roots 1-1/2 inches and larger in diameter, except directly in the path of pipe and conduit. Roots shall be heavily wrapped with burlap to prevent scarring and excessive drying. If a trenching machine is run close to trees with roots smaller than 1-1/2 inches in diameter, wall of the trench adjacent to tree shall be hand trimmed, making clean cuts through roots. Trenches adjacent to trees should be closed within twenty-four hours; if not possible, side of the trench adjacent to the tree shall be kept shaded with burlap or canvas.

SECTION 707 – RESOURCE DISCOVERIES

ADD:

707-1.1 **Environmental Document.** The City of San Diego Environmental Analysis Section (EAS) of the Development services Department has prepared a **Notice of Exemption** for **Angier Elementary Joint Use Park Improvements,** as referenced in the Contract Appendix. You must comply with all requirements of the **Notice of Exemption** as set forth in the Contract Appendix A.

Compliance with the City's environmental document is included in the various Bid items, unless a bid item has been provided.

END OF SUPPLEMENTARY SPECIAL PROVISIONS (SSP)

SUPPLEMENTAL CSI SPECIFICATIONS

SUPPLEMENTAL CSI SPECIFICATIONS

SECTION 26 05 11
REQUIREMENTS FOR ELECTRICAL INSTALLATIONS

PART 1 - GENERAL

1.1 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, 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.

1.2 MINIMUM REQUIREMENTS.

A. References to the California Building Standards Code (CBSC), California Electrical Code (CEC), 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.

1.3 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.

1.4 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 Government 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.

1.5 APPLICABLE PUBLICATIONS.

Applicable publications listed in all Sections of Division are the latest issue, unless otherwise noted.

1.6 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 Government 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 Government.

1.7 EQUIPMENT REQUIREMENTS.

Where variations from the contract requirements are requested, 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.

1.8 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, panel boards, transformers, 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.

1.9 WORK PERFORMANCE

A. All electrical work must comply with the requirements of CBSC (CEC), 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. 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. For work existing stations, arrange, phase and perform work to assure electrical service for the other buildings at all times.

E. New work shall be installed and connected to existing work neatly, safely and professionally. Disturbed or damaged work shall be replace or repaired to its prior condition.

F. 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 CEC for all voltages specified.

C. Inaccessible Equipment:

1. Where the Government 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 Government.

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 CEC, 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.

1.12 SUBMITTALS

A. Submit in accordance with Section 2-5.3, "SUBMITTALS", Green Book Standard.

B. The Government's 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 Government 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 (insert appropriate number)".

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. Parts list which shall include those replacement parts recommended by the equipment manufacturer.

1.13 SINGULAR NUMBER.

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.

The contractor shall furnish the instruments, materials and labor for field tests.

END OF SECTION 26 05 11

SECTION 26 05 21
LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES (600 VOLTS AND BELOW)

PART 1 - GENERAL

1.1 DESCRIPTION

This section specifies the furnishing, installation, and connection of the low voltage power and lighting wiring.

1.2 RELATED WORK

A. General electrical requirements that are common to more than one section in Division 26: Section 26 05 11, REQUIREMENTS FOR ELECTRICAL INSTALLATIONS.

B. Conduits for cables and wiring: Section 26 05 33, RACEWAY AND BOXES FOR ELECTRICAL SYSTEMS.

C. 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.

1.3 SUBMITTALS

A. In accordance with Section 2-5.3, "SUBMITTALS", Green Book Standard. Furnish the following:

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.

1.4 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. California Building Standards Code (CBSC):

California Code of Regulations Title 24, Part 3

..... California Electrical Code (CEC)

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

2.1 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 CEC. 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 3/4 inch wide tape. Apply tape in half overlapping turns for a minimum of 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.

2.2 SPLICES AND JOINTS.

A. In accordance with UL 486A, C, D, E and CEC.

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. 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.

3. Plastic electrical insulating tape: ASTM D2304 shall apply, flame retardant, cold and weather resistant.

2.3 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.

2.4 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.

2.5 WARNING TAPE.

A. The tape shall be standard, 3 inch wide, 4-Mil polyethylene type.

B. The tape shall be red with black letters indicating "CAUTION BURIED ELECTRIC LINE BELOW".

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL.

A. Install in accordance with the CEC, 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 CEC. 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 CEC Article 310. Neutral wires, under conditions defined by the CEC, shall be considered current-carrying conductors.

3.2 SPLICE INSTALLATION.

A. Splices and terminations shall be mechanically and electrically secure.

B. Where the Government determines that unsatisfactory splices or terminations have been installed, remove the devices and install approved devices at no additional cost to the Government.

3.3 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 CEC.

3.4 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 26 05 21

SECTION 26 05 26
GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 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 CEC, 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.

1.2 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.

1.3 SUBMITTALS.

A. Submit in accordance with Section 2-5.3, "SUBMITTALS", Green Book Standard.

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.

1.4 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.

A. 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

B. 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

C. California Building Standards Code (CBSC):

California Code of Regulations, Title 24, Part 3

..... California Electrical Code (CEC)

D. 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

2.1 GROUNDING AND BONDING CONDUCTORS.

A. Equipment grounding conductors shall be UL 83 insulated stranded copper, except that sizes 10 AWG and smaller shall be solid copper. Insulation color shall be continuous green for all equipment grounding conductors, except that wire sizes 4 AWG and larger shall be permitted to be identified per CEC.

B. Bonding conductors shall be ASTM B8 bare stranded copper, except that sizes 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 CEC, whichever is greater.

2.2 GROUND RODS.

A. Copper clad steel, 3/4-inch diameter by 10 feet long, conforming to UL 467.

B. Quantity of rods shall be as required to obtain the specified ground resistance.

2.3 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).

2.4 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.

PART 3 - EXECUTION

3.1 GENERAL.

A. Ground in accordance with the CEC, as shown on drawings, and as hereinafter specified.

B. 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.

3.2 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.

3.3 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 CEC 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. 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.

D. Feeders and Branch Circuits: Install equipment grounding conductors with all feeders and power and lighting branch circuits.

E. 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.

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.

F. 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.

G. Fixed electrical appliances and equipment shall be provided with a ground lug for termination of the equipment grounding conductor.

3.4 CORROSION INHIBITORS.

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.

3.5 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 Government. 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. 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.

3.9 GROUND ROD INSTALLATION.

A. Drive each rod vertically in the earth, not less than 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 26 05 26

SECTION 26 05 33
RACEWAY AND BOXES FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 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.

1.2 RELATED WORK.

A. General electrical requirements and items that is common to more than one section of Division 26: Section 26 05 11, REQUIREMENTS FOR ELECTRICAL INSTALLATIONS.

B. 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.

1.3 SUBMITTALS.

In accordance with Section 2-5.3, "SUBMITTALS", Green Book Standard, furnish the following:

A. Shop Drawings:

1. Size and location of panels and pull boxes

2. Layout of required conduit penetrations through structural elements.

3. 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.

1.4 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. California Building Standards Code (CBSC):

California Code of Regulations, Title 24, Part 3

..... California Electrical Code (CEC)

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

2.1 MATERIAL.

A. Conduit Size: In accordance with the CEC, but not less than 1/2 inch unless otherwise shown. Where permitted by the NEC, 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 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.

a. Standard threaded couplings, locknuts, bushings, and elbows: Only steel or malleable iron materials are acceptable. Integral retractable type IMC couplings are also acceptable.

b. Locknuts: Bonding type with sharp edges for digging into the metal wall of an enclosure.

c. 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.

d. 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.

e. 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 2 inches and smaller. Use set screw type couplings with four set screws each for conduit sizes over 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, 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 1-1/2 by 1-1/2 inch, 12 gage steel, cold formed, lipped channels; with not less than 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 CEC 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 3 inch wide tape non-detectable type, red with black letters, and imprinted with "CAUTION BURIED ELECTRIC LINE BELOW".

PART 3 - EXECUTION

3.1 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.

3.2 INSTALLATION, GENERAL.

A. In accordance with UL, CEC, 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. Mechanically and electrically continuous.

4. Close ends of empty conduit with plugs or caps at the rough-in stage to prevent entry of debris, until wires are pulled in.

5. 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.

6. 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.

3.3 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 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 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.

3.4 EXPOSED WORK INSTALLATION.

A. Unless otherwise indicated on the drawings, exposed conduit is only permitted in mechanical and electrical rooms.

B. 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.

C. Align and run conduit parallel or perpendicular to the building lines.

3.5 DIRECT BURIAL INSTALLATION.

A. Exterior routing of Lighting Systems and Other Branch circuits (600 Volt and Less, and 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 24 inches below finished grade.

        b. Not less than 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. Where metal conduit is shown, install threaded heavy wall rigid steel galvanized conduit or type A20 rigid steel galvanized conduit coated with 20 mil bonded PVC, or rigid steel or IMC, PVC coated or standard coated with bituminous asphaltic compound.

8. Warning tape shall be continuously placed 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 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.

3.6 HAZARDOUS LOCATIONS.

A. Use rigid steel conduit only, notwithstanding requirements otherwise specified in this or other sections of these specifications.

B. Install UL approved sealing fittings, that prevent passage of explosive vapors, in hazardous areas equipped with explosive proof lighting fixtures, switches, and receptacles, as required by the CEC.

3.7 WET OR DAMP LOCATIONS.

A. Unless otherwise shown, use conduits of rigid steel or IMC.

B. Provide sealing fittings, to prevent passage of water vapor, where conduits pass from warm to cold locations, i.e., (refrigerated spaces, constant temperature rooms, air conditioned spaces building exterior walls, roofs) or similar spaces.

C. 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.

3.8 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.

3.9 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 CEC 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 26 05 33

SECTION 26 05 41
UNDERGROUND ELECTRICAL CONSTRUCTION

PART 1 - GENERAL

1.1 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.

1.2 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 26, GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS: Requirements for personnel safety and to provide a low impedance path for possible ground fault currents.

1.3 SUBMITTALS.

A. Submit in accordance with Section 2-5.3, "SUBMITTALS", Green Book Standard.

B. Shop Drawings:

1. Sufficient information, clearly presented, shall be included to determine compliance with drawings and specifications.

2. Include handholes, duct materials, and hardware. Proposed deviations from details on the drawings shall be clearly marked on the submittals.

If necessary to locate handholes at locations other than shown on the drawings, show the proposed locations accurately on scaled site drawings, and submit four copies to the Resident Engineer for approval prior to construction.

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.

1.4 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. California Building Standards Code (CBSC):

California Code of Regulations, Title 24, Part 3

..... California Electrical Code (CEC)

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

2.1 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.

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 0.040 inch thick.

2.2 GROUNDING.

A. Rods: Per Section 26 05 26, GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS and UL 467

B. Ground Wire: Stranded bare copper 6 AWG minimum.

2.3 WARNING TAPE.

Standard 4-mil polyethylene 3 inch wide tape, non-detectable type, red with black letters, imprinted with "CAUTION BURIED ELECTRIC CABLE BELOW".

PART 3 - EXECUTION

3.1 HANDHOLE CONSTRUCTION AND INSTALLATION.

A. General Requirements:

1. Locate handholes at the approximate locations shown on the drawings with due consideration given to the location of other utilities, grades, and paving.

2. Steel reinforcing concrete cover, not less than 2 inches thick for exterior surfaces, 1 1/2 inches thick for interior surfaces, and 1 inch thick for the bottom surfaces of the top slabs.

3.2 TRENCHING.

A. Work with extreme care near existing ducts, conduits, cables, and other utilities to avoid damaging them.

B. Cut the trenches neatly and uniformly.

3.3 DUCT INSTALLATION.

A. General Requirements:

1. Ducts shall be in accordance with the CEC and IEEE C2, as shown on the drawings, and as specified.

2. Slope ducts to drain towards handholes, and away from building and equipment entrances. Pitch not less than 4 inches in 100 feet.

3. 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 5 feet away from edge of slab.

4. PVC-coated rigid steel conduits shall be coupled to the ducts with suitable adapters, and the whole encased with 3 inches of concrete.

5. PVC coated rigid steel conduit turns of direction for all duct lines shall have minimum 4 feet radius in the horizontal and vertical directions. PVC conduit sweeps for all duct lines shall have a minimum 40 feet radius in the horizontal and 4 feet in the vertical directions. Where a 40 feet radius is not possible, horizontal turns of direction shall be rigid steel.

6. All multiple conduit runs shall have conduit spacers. Spacers shall securely support and maintain uniform spacing of the duct assembly a minimum of 3 inches above bottom of trench during the concrete pour. Spacer spacing shall not exceed 5 feet.

7. Duct lines shall be installed no less than 12 inches from other utility systems, such as water, sewer, and chilled water.

8. Clearances between individual ducts:

   a. For like services, not less than 3 inches.

b. For power and signal services, not less than 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.

9. Couple the ducts with proper couplings. Stagger couplings in rows and layers to insure maximum strength and rigidity of the duct bank.

10. 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. Tops of ducts and conduits shall be:

a. Not less than 24 inches and not less than shown on the drawings, below finished grade.

b. Not less than 30 inches and not less than shown on the drawings, below roads and other paved surfaces.

4. Do not kink the ducts or conduits.

C. Direct Burial Duct and Conduit Identification: Place continuous strip of warning tape approximately 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 12 inches long, and shall have a diameter not less than 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. Partially Completed Duct Banks: During construction wherever a construction joint is necessary in a duct bank, prevent debris such as mud and dirt from entering ducts by providing suitable conduit plugs. Fit concrete envelope of a partially completed duct bank with reinforcing steel extending a minimum of 2 feet back into the envelope and a minimum of 2 feet beyond the end of the envelope. Provide one No. 4 bar in each corner, 3 inches from the edge of the envelope. Secure corner bars with two No. 3 ties, spaced approximately 1 foot apart. Restrain reinforcing assembly from moving during pouring of concrete.

END OF SECTION 26 05 41

SECTION 26 09 23
LIGHTING CONTROLS

PART 1 - GENERAL

1.1 DESCRIPTION.

This section specifies the furnishing, installation and connection of the lighting controls.

1.2 RELATED WORK.

A. Section 26 05 11, REQUIREMENTS FOR ELECTRICAL INSTALLATIONS: General requirements 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 to ground for possible ground fault currents.

D. Section 24 26 16, PANELBOARDS: panelboard enclosure and interior bussing used for lighting control panels.

1.3 QUALITY ASSURANCE.

Refer to Paragraph, QUALIFICATIONS, in Section 26 05 11, REQUIREMENTS FOR ELECTRICAL INSTALLATIONS.

1.4 SUBMITTALS.

A. In accordance with Section 2-5.3, "SUBMITTALS", Green Book Standard.

B. Product Data: For each type of lighting control, submit the following information.

1. Manufacturer's catalog data.

2. Wiring schematic and connection diagram.

3. Installation details.

C. Manuals:

1. Submit, simultaneously with the shop drawings companion copies of complete maintenance and operating manuals including technical data sheets, and information for ordering replacement parts.

2. Two weeks prior to the final inspection, submit four copies of the final updated maintenance and operating manuals, including any changes, to the Resident Engineer.

D. Certifications:

1. Two weeks prior to final inspection, submit four copies of the following certifications to the Resident Engineer:

a. Certification by the Contractor that the equipment has been properly installed, adjusted, and tested.

1.5 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 designation only.

B. National Electrical Manufacturer's Association (NEMA)

ICS-2..... ..... Standard for Industrial Control and Systems: Controllers, Contractors, and Overload Relays Rated Not More than 2000 Volts AC or 750 Volts DC: Part 8 - Disconnect Devices for Use in Industrial Control Equipment

ICS-6 ..... Standard for Industrial Controls and Systems Enclosures

C. Underwriters Laboratories, Inc. (UL):

917.....Clock Operated Switches

PART 2 - PRODUCTS

2.1 ELECTRONIC TIME SWITCHES.

A. Electronic, solid-state programmable units with alphanumeric display; complying with UL 917.

1. Contact Configuration: DPST.

2. Contact Rating: 30-A inductive or resistive, 240-V ac.

3. Astronomical Clock: Capable of switching a load on at sunset and off at sunrise, and automatically changing the settings each day in accordance with seasonal changes of sunset and sunrise. Additionally, it shall be programmable to a fixed on/off weekly schedule.

4. Battery Backup: For schedules and time clock.

2.2 ELECTROMECHANICAL-DIAL TIME SWITCHES.

A. Electromechanical-dial time switches; complying with UL 917.

1. Contact Configuration: DPST.

2. Contact Rating: 30-A inductive or resistive, 240-V ac.

3. Wound-spring reserve carryover mechanism to keep time during power failures.

2.3 LIGHTING CONTACTORS.

A. Product Description: NEMA ICS 2, magnetic lighting contactor.

B. Configuration: Electrically held, wire control.

C. Coil operating voltage: 120 volts, 60 Hertz.

D. Poles: To match circuit configuration and control function.

E. Contact Rating: Match branch circuit overcurrent protection, considering derating for continuous loads.

F. Enclosure: NEMA ICS 6, to meet conditions. Fabricate enclosure from steel finished with manufacturer's standard gray enamel.

PART 3 - EXECUTION

3.1 INSTALLATION.

A. Installation shall be in accordance with the CEC, manufacturer's instructions and as shown on the drawings or specified.

B. Label time switches and contactors with a unique designation.

3.2 ACCEPTANCE CHECKS AND TESTS.

A. Perform in accordance with the manufacturer's recommendations.

B. Upon completion of installation, conduct an operating test to show that equipment operates in accordance with requirements of this section.

3.3 FOLLOW-UP VERIFICATION.

Upon completion of acceptance checks and tests, the Contractor shall show by demonstration in service that the lighting control devices are in good operating condition and properly performing the intended function.

END OF SECTION 26 09 23

SECTION 26 24 16
PANELBOARDS

PART 1 - GENERAL

1.1 DESCRIPTION.

This section specifies the furnishing, installation and connection of panelboards.

1.2 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 and outlet boxes.

C. Section 26 05 21, LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES (600 VOLTS AND BELOW): Cables and wiring.

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.

1.3 SUBMITTALS.

A. Submit in accordance with Section 2-5.3, "SUBMITTALS", Green Book Standard.

B. Shop Drawings:

1. Sufficient information, clearly presented, shall be included to determine compliance with drawings and specifications.

2. Include electrical ratings, materials and wiring diagrams accessories.

C. Certification: Two weeks prior to final inspection, submit four copies of the following to the Resident Engineer:

1. Certification that the material is in accordance with the drawings and specifications has been properly installed, and that the loads are balanced.

1.4 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):

AB-1-2002 ..... Molded Case Circuit Breakers, Molded Case Switches and Circuit Breaker Enclosures

B. California Building Standards Code (CBSC):

California Code of Regulations Title 24, Part 3

..... California Electrical Code (CEC)

70E-2004 Standard for Electrical Life Safety in the Workplace

C. Underwriters Laboratories, Inc. (UL):

50-2003..... Enclosures for Electrical Equipment

489-2006..... Molded Case Circuit Breakers and Circuit Breaker Enclosures

PART 2 - PRODUCTS

2.1 MOLDED CASE CIRCUIT BREAKERS FOR PANELBOARDS.

A. Breakers shall be UL 489 listed and labeled, in accordance with the CEC, 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.

C. 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.

D. 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

PART 3 - EXECUTION

3.1 INSTALLATION.

A. Installation shall be in accordance with the Manufacturer's instructions, the CEC, as shown on the drawings, and as specified.

B. Directory-card information shall be typewritten to indicate lights, devices, and equipment controlled served by each circuit and shall be mounted in holders behind protective covering.

END OF SECTION 26 24 16

SECTION 26 56 00
EXTERIOR LIGHTING

PART 1 - GENERAL

1.1 DESCRIPTION.

This section specifies the furnishing, installation, and connection of exterior luminaries, controls, poles and supports.

1.2 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.

E. Section 26 05 21, LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES (600 VOLTS AND BELOW): Low voltage power and lighting wiring.

F. Section 26 05 41, UNDERGROUND ELECTRICAL CONSTRUCTION: Underground handholes and conduits.

G. 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.

1.3 SUBMITTALS.

A. Submit in accordance with Section 2-5.3 "SUBMITTALS", Green Book Standard.

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.

1.4 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 National Standards Institute (ANSI):

C81.61-2005 ..... Electrical Lamp Bases

B. Illuminating Engineering Society of North America (IESNA)

HB-9-2000..... Lighting Handbook

RP-8-2000 (R-2005)..... Roadway Lighting

C. National Electrical Manufacturers Association (NEMA):

C78.42-2004 ..... Electric Lamps – Guidelines for High-Pressure Sodium 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

D. California Building Standards Code (CBSC):

California Code of Regulations Title 24, Part 3

..... California Electrical Code (CEC)

E. Underwriters Laboratories, Inc. (UL):

496-2004 ..... Edison-Base Lamp holders

773A-2006 ..... Non-industrial Photoelectric Switches for Lighting Control

1029-1994..... High-Intensity-Discharge Lamp Ballasts

1598-2004 ..... Luminaries

PART 2 - PRODUCTS

2.1 MATERIALS AND EQUIPMENT.

Materials and equipment shall be in accordance with CEC, UL, ANSI, and as shown on the drawings and specified.

2.2 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 re-fractors. 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

2.3 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.

2.4 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.

2.5 CONTROLS.

A. Lighting System:

1. Shall be controlled by the following method as shown for the system on the drawings:

a. The pilot devices shall control the power circuit through the contactor or relay as shown on the drawings.

2. 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.

3. The arrangement and method of control and the control devices shall be as shown on the drawings.

PART 3 - EXECUTION

3.1 INSTALLATION.

A. Install lighting in accordance with the CEC, as shown on the drawings, and in accordance with manufacturer's recommendations.

3.2 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 26 56 00

SUPPLEMENTARY SPECIAL PROVISIONS APPENDICES

APPENDIX A

NOTICE OF EXEMPTION

DETERMINATION OF

ENVIRONMENTAL EXEMPTION

Pursuant to the California Environmental Quality Act (CEQA) and State CEQA Guidelines

Agency: CITY OF SAN DIEGO **Project No.:** N/A **Date:** 7/27/09

Action/Permit(s): Council Action

Description of Activity: **ANGIER ELEMENTARY JOINT USE PARK IMPROVEMENTS** : Allocation of funds for the design and construction of approximately 3.95 acres of joint use facilities at an existing elementary school facility. Park improvements include open turf area for active recreation, multi-purpose courts, walkways, landscaping and accessibility upgrades. The project is not within areas identified on any government hazardous materials list and no archaeological or biological resources would be impacted with implementation of this project.

Location of Activity: 8450 Hurlbut St., Serra Mesa Planning Area, City and County of San Diego

1. [ ] This activity is **EXEMPT FROM CEQA** pursuant to:

   [ ] Section 15060(b) (3) of the State CEQA Guidelines (the activity is not a project as defined in Section 15378).

2. [X] This project is EXEMPT FROM CEQA pursuant to State CEQA Guidelines Section checked below:

ARTICLE 19 of GUIDELINES CATEGORICAL EXEMPTIONS (Incomplete list)

Section	Short Name
[X] 15301	Existing Facilities
[X] 15302	Replacement or Reconstruction
[X] 15303	New Construction or Conversion of Small Structures
[ ] 15304	Minor Alterations to Land
[ ] 15305	Minor Alteration in Land Use
[ ] 15306	Information Collection
[ ] 15311	Accessory Structures
[ ] 15312	Surplus Government Property Sales
[ ] 15315	Minor Land Divisions
[ ] 15317	Open Space Contracts or Easements
[ ] 15319	Annexation of Existing Facilities and Lots for Exempt Facilities
[ ] 15325	Transfer of Ownership of Interest in Land to Preserve Open Space
[ ] Other	_____

ARTICLE 18 of GUIDELINES STATUTORY EXEMPTIONS (Incomplete list)

Section	Short Name
[ ] 15261	Ongoing Project
[ ] 15262	Feasibility and Planning Studies
[ ] 15265	Adoption of Coastal Plans and Programs
[ ] 15268	Ministerial Projects
[ ] 15269	Emergency Projects
[ ] Other	

It is hereby certified that the City of San Diego has determined the above activity to be exempt:

MYRA HERRMANN, SENIOR PLANNER
Environmental Analysis Section

Distribution:

Exemption or Project file

Responsible Departments: Engineering & Capital Projects
Development Services

Analyst: HERRMANN

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).

Larry Gardner
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

Application for Fire Hydrant Meter (EXHIBIT A)

City of San Diego PUBLIC UTILITIES Water & Wastewater

(For Office Use Only)

NS REQ	FAC#
DATE	BY

METER SHOP (619) 527-7449

Application Date	Requested Install Date:

Meter Information

Fire Hydrant Location: (Attach Detailed Map//Thomas Bros. Map Location or Construction drawing.) Zip:	T.B.	G.B. (CITY USE)
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:	Phone: ( )
*Business license#	*Contractor license#		
A Copy of the Contractor's license OR Business License is required at the time of meter issuance.			
Name and Title of Billing Agent: (PERSON IN ACCOUNTS PAYABLE)			Phone: ( )
Site Contact Name and Title:			Phone: ( )
Responsible Party Name:			Title:
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	Requested Removal Date:	
Provide Current Meter Location if Different from Above:		
Signature:	Title:	Date:
Phone: ( )	Pager: ( )	

☐ City Meter	☐ Private Meter	
Contract Acct #:	Deposit Amount: $ 936.00	Fees Amount: $ 62.00
Meter Serial #	Meter Size: 05	Meter Make and Style: 6-7
Backflow #	Backflow Size:	Backflow Make and Style:
Name:	Signature:	Date:

WATER USES WITHOUT ANTICIPATED CHARGES FOR 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 Seeing
Irrigation (for establishing irrigation only; not continuing irrigation)
Mixing Concrete
Mobile Car Washing
Special Events
Street Sweeping
Water Tanks
Water Trucks
Window Washing

Note:

1. If there is any return to sewer or storm drain, then sewer and/or storm drain fees will be charges.

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 contact the Water Department, or mail your request for an extension to:

City of San Diego
Water Department
Attention: Meter Services
2797 Caminito Chollas
San Diego, CA 92105-5097

Should you have any questions regarding this matter, please call the Fire Hydrant Hotline at (619)_____-_____.

Sincerely,

Water Department

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

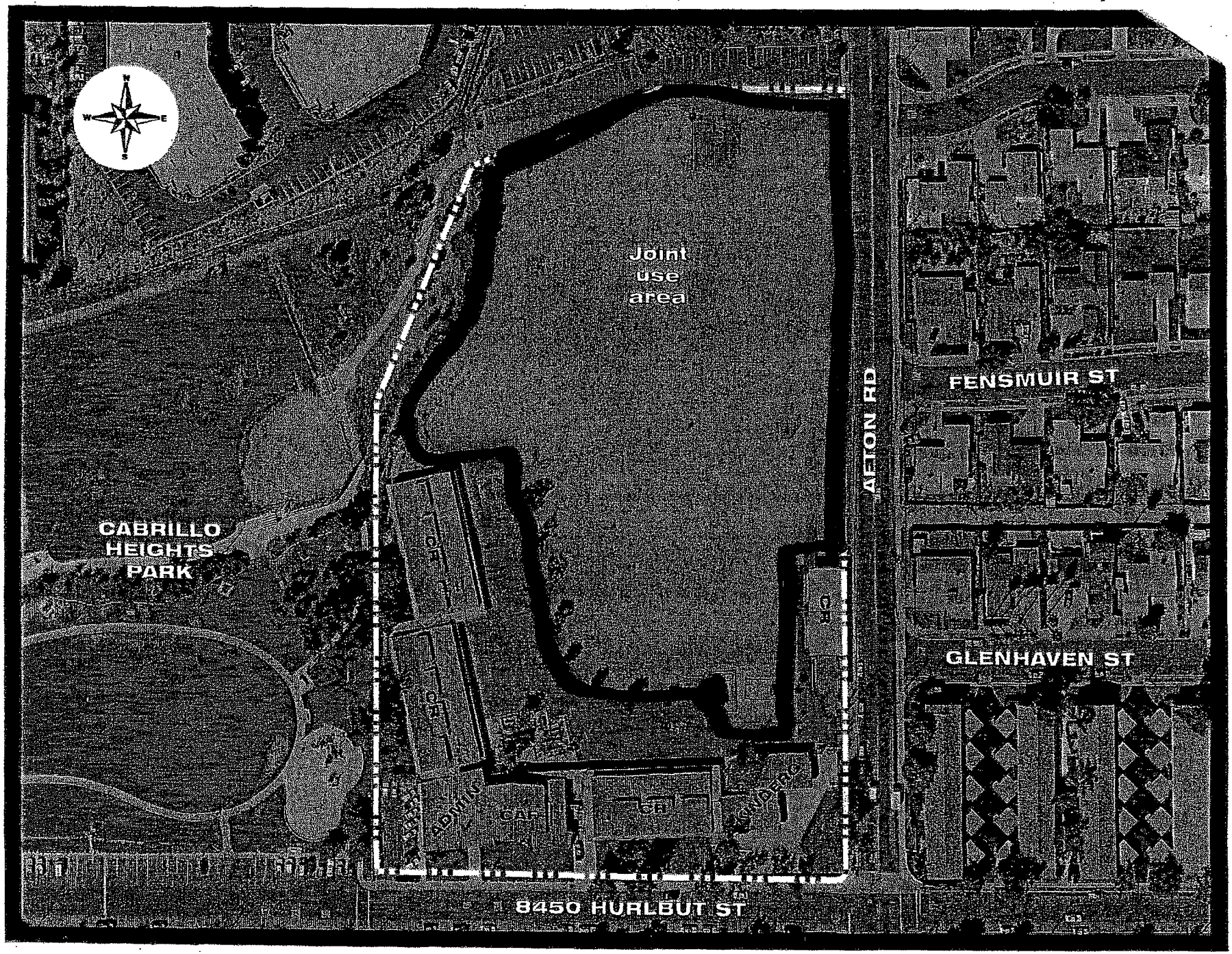
APPENDIX D

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

LOCATION MAP

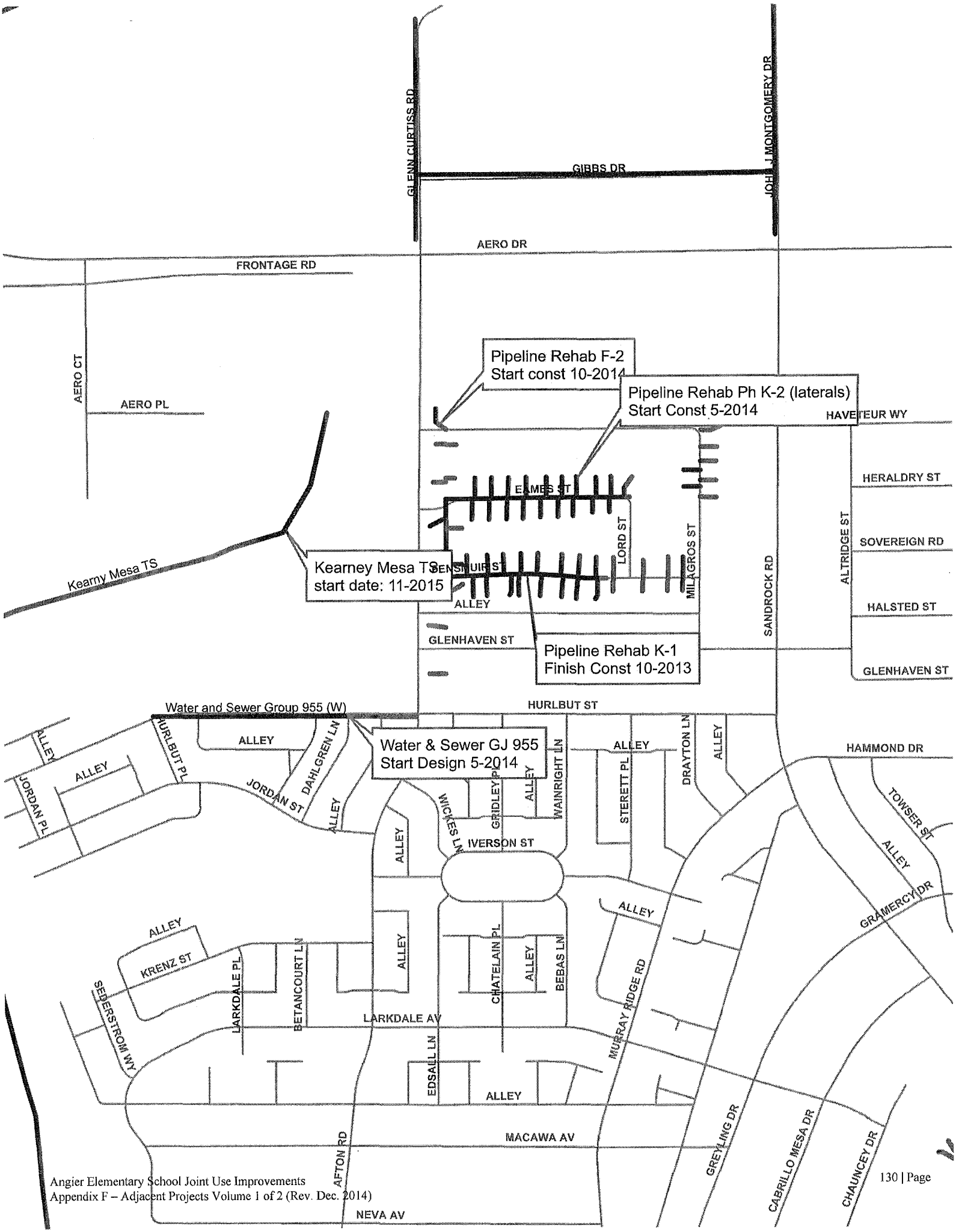


Loc. 007

ANGIER ELEMENTARY

APPENDIX F

ADJACENT PROJECTS


GLENN CURTISS RD
GIBBS DR
JOHN J MONTGOMERY DR
AERO DR
FRONTAGE RD
AERO CT
AERO PL
Pipeline Rehab F-2
Start const 10-2014
Pipeline Rehab Ph K-2 (laterals)
Start Const 5-2014
HAVEREUR WY
HERALDRY ST
SOVEREIGN RD
HALSTED ST
GLENHAVEN ST
EAMES ST
LORD ST
MILAGROS ST
SANDROCK RD
ALTRIDGE ST
Kearny Mesa TS
Kearney Mesa TS
start date: 11-2015
BENSHUIR ST
ALLEY
GLENHAVEN ST
Pipeline Rehab K-1
Finish Const 10-2013
Water and Sewer Group 955 (W)
HURLBUT ST
Water & Sewer GJ 955
Start Design 5-2014
HAMMOND DR
HURLBUT PL
JORDAN PL
JORDAN ST
DAHLGREN LN
GRIDLEY PL
WAINRIGHT LN
STERETT PL
DRAYTON LN
TOWSER ST
WICKES LN
IVERSON ST
GRAMERCY DR
KRENZ ST
LARKDALE PL
BETANCOURT LN
CHATELAIN PL
BEBAS LN
MURRAY RIDGE RD
SEBERSTROM WY
LARKDALE AV
EDSALL LN
MACAWA AV
AFTON RD
GREYLING DR
CABRILLO MESA DR
CHAUNCEY DR
NEVA AV

APPENDIX G

ANGIER SOILS REPORT AND GEOTECHNICAL INVESTIGATION

SOILS REPORT

PROPOSED

ANGIER ELEMENTARY SCHOOL

JOINT USE FACILITY

8450 HURLBUT STREET

SAN DIEGO, CALIFORNIA

(K2 Engineering Job No. G2011003-1)

Prepared for:

Schmidt Design Group

June 22, 2011

ENGINEERING, INC.
GEOTECHNICAL CONSULTANTS

K2 ENGINEERING, INC.

June 22, 2011

Mr. Jeff Jusuts
Schmidt Design Group
2655 Fourth Avenue
San Diego, California 92103

(K2 Engineering Job No. G2011003-1)

Dear Mr. Justus:

We are pleased to submit our "Soils Report, Proposed Joint Use Facility, Angier Elementary School, San Diego, California."

As requested, our investigation consisted of the review of a prior investigation performed by others at the site of the proposed park. Field explorations and laboratory tests were not performed. Our conclusions along with recommendations for earthwork and for design of foundations are presented in this report.

Please call us if you have any questions or if we can be of further service to you on this or future projects. It has been a pleasure working with you.

Respectfully submitted,

K2 ENGINEERING, INC.

Susana Kemmerrer, RGE 2287
President

(3 copies submitted)

K2/Reports/SCHMIDT DESIGN/Angier Park G2011003-1 Final.doc

12595 RAGWEED STREET, SAN DIEGO, CALIFORNIA 92129 • PHONE: (858) 484-2347 • FAX: (858) 484-8682

K2 ENGINEERING, INC.

SOILS REPORT

PROPOSED

ANGIER ELEMENTARY SCHOOL

JOINT USE FACILITY

8450 HURLBUT STREET

SAN DIEGO, CALIFORNIA

(K2 Engineering Job No. G2011003-1)

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TABLE OF CONTENTS

1.0 SCOPE

The purpose of this investigation was to provide recommendations for foundation design, grading, excavation and backfill for the proposed facilities. Our conclusions and recommendations were based on the results of a prior geotechnical investigation performed by others. More specifically, the scope of the investigation included the following:

- Review report "Geotechnical Investigation, Angier Elementary School, Joint Use Improvements, San Diego, California", dated February 6, 2009, by Southern California Soils and Testing, Inc., (SCST).
- To provide recommendations for earthwork.
- To recommend foundation systems together with the associated design parameters.
- To present general recommendations concerning construction procedures and quality control measures relating to earthwork.

Our recommendations are based on the results of the field explorations and laboratory tests performed by others. A partial copy of that report is attached in Appendix A. This investigation did not include studies to assess the geologic and/or environmental hazards that may affect the site however, this does not imply that such hazards affect the site. The conclusions and recommendations presented herein should be verified at the time of construction.

Our professional services have been performed using that degree of care and skill ordinarily exercised, under similar circumstances, by reputable geotechnical consultants practicing in this or similar localities. No other warranty, express or implied, is made as to the professional advice included in this report. This report has been prepared for Schmidt Design Group and their design consultants to be used solely in the evaluation of the subject project. The report has not been prepared for use by other parties, and may not contain sufficient information for purposes of other parties or other uses.

2.0 PROJECT DESCRIPTION

The proposed Angier Elementary School Joint Use Facilities will be located on the southeast corner of the intersection of Eames Street and Afton Street in San Diego, California.

According to available information, the proposed facilities will include a soccer/softball turf field, concrete basketball courts, bleachers, landscaped areas and a handicapped access ramp. A backstop and protective netting about 30 feet in height are also planned. We understand that areas subject to vehicle traffic are not planned at this time.

Based on the information provided, the proposed facilities will be established at about the existing grade. No significant cuts and/or fills are anticipated.

3.0 EXISTING CONDITIONS

Angier Elementary School bounds the site to the south and the existing Cabrillo Heights Community Park to the west. Paved parking and the Pacific Hope Church are located to the north. The south side of the site is bound by the school's hard courts. Classroom buildings are located on the southeast and southwest ends of the site.

The site is relatively flat and currently used as playfields for Angier Elementary School. Four baseball backstops and tether-ball courts are located within the field.

4.0 SUBSURFACE CONDITIONS

Based on the results of the prior field explorations, the site is underlain fill soils up to 1 foot in thickness. The fill soils consist of loose silty sand. Deeper and/or poorer quality fill may be encountered at locations not explored.

The natural materials beneath the site reportedly consist of medium dense to very dense silty sandstone with gravel and cobbles associated with the Lindavista Formation.

Groundwater was not encountered within the depths explored.

5.0 CONCLUSIONS AND RECOMMENDATIONS

5.1 FOUNDATIONS

5.1.1 General

The fill soils are loose. No documentation regarding fill placement was available. At the locations explored, the natural materials consist of medium dense to very dense sandstone with gravel and cobbles.

We understand that the proposed improvements will be established at about the existing grade. No significant cuts and/ or fills are planned. The fill soils are loose and are not considered suitable for support of foundations or floor slabs. To provide more uniform support, we recommend that the foundations for the proposed improvement be supported on the firm and dense undisturbed formational materials. Deepened footings may be required.

At least the upper 12 inches of subgrade beneath paving and/or hardscaped areas should consist of compacted non-expansive fill soils or undisturbed formational materials.

5.1.2 Bearing Value

To provide more uniform support and to reduce the potential for damage due to differential movement, we recommend that footings for the proposed facilities extend at least 1½ feet below the lowest adjacent final grade or at least ½-foot into the undisturbed formational materials, whichever is greater. A bearing value of 2,000 pounds per square foot may be used for footings at least 12 inches in width.

A one-third increase in the bearing value may be used for wind or seismic loads. Since the recommended bearing value is a net value, the weight of the concrete in the footings may be taken as equal to 50 pounds per cubic foot, and the weight of the soil backfill may be neglected.

5.1.3 Settlement

It is anticipated that the loads for the proposed improvements will be light. If the footings are supported on undisturbed formational materials in accordance with this report, the total settlement is estimated to be within acceptable limits for the proposed improvements.

5.1.4 Lateral Loads

Lateral loads may be resisted by friction and by the passive resistance of the undisturbed formational materials beneath the footings. A coefficient of friction of 0.40 may be used between the foundations and the supporting materials. The passive resistance of the compacted fill and the undisturbed formational material soils may be assumed to be equal to the pressure developed by fluid with a density of 350 pounds per cubic foot. The frictional resistance and the passive resistance of the materials may be combined without reduction in determining the total lateral resistance.

5.1.5 Footing Observation

To verify that footings are supported in accordance with our recommendations, all foundation excavations should be observed by a qualified geotechnical firm. Foundations should be deepened if necessary to reach satisfactory bearing materials. Any unsuitable materials including, undocumented fill, organic, loose or disturbed natural materials should be removed prior to placement of any steel or concrete.

All applicable requirements of the local governing bodies, the Occupational Safety and Health Act of 1970, and the Construction Safety Act should be met. Inspection of footing excavations may be required by the appropriate reviewing governmental agencies. The contractor should familiarize himself with the inspection requirements of the reviewing agencies.

5.1.6 Backfill

All required fill around the foundations and all utility trench backfill should be mechanically compacted in layers, not more than 8 inches in loose thickness; flooding should not be permitted. Utility trench backfill should be compacted to at least 90% of the maximum density obtainable by ASTM Designation D1557-09 method of compaction. The exterior grades should be graded to drain away from the structures in order to reduce ponding of water adjacent to structures.

Compaction of the backfill as recommended in this report will be necessary to reduce settlement of the backfill and consequent settlement of the overlying improvements and buried utilities. Even at 90% compaction (ASTM D1557-09), some settlement of the backfill may be anticipated. Accordingly, any utilities supported therein should be designed to accept differential settlement, particularly at connection points to the structure.

In order to reduce the amount of backfill required, the foundations may be cut neat and poured against the excavated fill soils.

5.2 EXCAVATION

Temporary unsurcharged vertical excavations less than 5 feet in height may be excavated without shoring. Where the necessary space is available, temporary unsurcharged excavations may be sloped back in lieu of using shoring. Temporary unsurcharged excavations may be sloped back at 1:1 (horizontal to vertical). The exposed excavations should be observed by a competent geotechnical firm so that modifications of the excavation criteria may be made if necessary. All applicable requirements of the local governments, the Occupational Safety and Health Act of 1970, and the Construction Safety Act should be met. Conventional earth moving/excavation equipment may be used to excavate the on-site materials.

5.3 GRADING

5.3.1 General

Fill soils of up to 1 foot in thickness were encountered at the exploratory excavations. The fill soils consist of loose, silty sand.

To provide more uniform support, we recommend that the on-site fill soils be overexcavated and recompacted. Eventhough expansive soils were not encountered during the investigation performed at the site they may be encountered at other locations not explored. If encountered beneath the proposed hardscaped areas, these soils should be removed and replaced with non-expansive compacted fill soils.

5.3.2 Site Preparation and Compaction

Prior to placement of any new fills, the existing fill soils, debris or disturbed natural soils should be removed and replaced as compacted fill. Prior to fill placement, the exposed materials should be proof-rolled to disclose any soft and/or yielding areas. Any soft and/or yielding areas or expansive soils should be removed and replaced with non-expansive compacted fill. After removal of unsuitable materials, the exposed soils should be scarified to a depth of 6 inches, moisture conditioned and compacted to at least 90% of the maximum dry density. Scarification and

recompaction may be omitted if undisturbed formational materials are exposed at the excavated depth. If the risk of some settlement within areas where no hardscape or other permanent structures are planned, over excavation may be omitted. A qualified geotechnical firm should observe the exposed materials to verify the complete removal of unsuitable deposits.

After removal of unsuitable materials, all required fill should be placed in loose lifts not more than 8 inches thick. Any new fill should be compacted to at least 90% of the maximum dry density (ASTM D1557-09). The moisture content of the non-expansive soils should be maintained within 2% of optimum moisture content during compaction.

5.3.3 Material for Fill

Expansive soils (Expansion Index greater than 21) should not be used as fill beneath hardscaped areas. The on-site materials, less any debris, organic matter, contaminated soils, and rocks greater than 6 inches in maximum dimension may be used as fill.

Fill soils should consist of the on-site materials or imported non-expansive soils with an Expansion Index of less than 21, an angle of internal friction of at least 33°, and a minimum R-value of 40. The material should contain sufficient fines (binder material) to result in a stable subgrade.

Expansive soils were not encountered during the investigation performed by others, but may be encountered at other locations not explored. If encountered, these soils may be placed within the field areas.

5.3.4 Grading Observation

The reworking of the upper soils and the compaction of all required fill should be observed and tested by a qualified geotechnical engineering firm. Imported fill material should be approved prior to use as fill.

5.4 DRAINAGE

Adequate site drainage is critical to future performance of the project. Positive site drainage should be provided and directed into controlled drainage devices. The site should be fine-graded such that water is not allowed to pond.

Site irrigation should be monitored for a sufficient period of time after the installation of irrigation facilities to determine the appropriate amount of irrigation necessary to maintain the landscaping without over watering.

5.5 RETAINING WALLS

5.5.1 Lateral Pressures

For design of cantilevered retaining walls with heights of 15 feet or less, where the backfill consists of non-expansive, cohesionless, free draining compacted fill soils and the surface of the backfill is level and well drained, it may be assumed that the soils will exert lateral pressures equal to 35 pounds per cubic foot. Where wall rotation or movement is not acceptable, we recommend that the walls below grade be designed for "at rest" pressures. When considering "at rest" pressures where the surface of the retained earth is level it may be assumed that the soils will exert an equivalent fluid pressure of 50 pounds per cubic foot.

A higher backfill pressure should be considered for a sloping backfill. Additional surcharge pressures of 100 pounds per square foot should be considered if the retaining walls are located within 10 feet of a street.

5.5.2 Backfill

All required backfill should be mechanically compacted in layers not more than 8 inches in loose thickness; flooding should not be permitted. Compaction of the backfill as recommended will be necessary to reduce settlement of the backfill and of overlying slabs, walks, and paving and to reduce infiltration of surface water into the backfill. The backfill should be compacted to at least 90% of the maximum density obtainable by the ASTM Designation D1557-09 method of compaction.

5.5.3 Drainage

If the backfill is placed and compacted as recommended and good surface drainage is provided, infiltration of water into the backfill adjacent to the proposed retaining walls should be small. To reduce the potential for water entrapment behind the retaining walls, surface and subsurface drains behind all retaining walls are recommended.

Backdrains should be provided behind all retaining walls. Adequate drainage of adjacent planters should be provided to prevent water infiltration into backfills. For retaining walls backfilled with free draining on-site or imported granular materials, such drainage could consist of vertical gravel drains about 12 inches wide connected to a 4-inch-diameter perforated pipe. The perforated pipe should be surrounded by at least 1 foot of filter gravel (or uniformly graded gravel or Class II permeable material) wrapped in a geosynthetic filter fabric, such as Mirafi 140 N.S. The drain pipe should be located near the base of the wall and should discharge into the storm drain. As an alternative to the vertical gravel drains, a drainage geocomposite such as Miradrain may be used. The filter used should be compatible with the backfill materials to reduce the potential for soil migration through the gravel drain. The filter requirement may be evaluated when the source for backfill materials is determined.

5.6 FLOOR SLAB SUPPORT

If the soils are prepared as recommended, concrete slabs-on-grade may be supported entirely on the undisturbed formational materials or non-expansive compacted fill as recommended.

To reduce the potential for water entrapment and to provide protection against vapor or water transmission through the slabs, we recommend that, at a minimum, the slabs-on-grade be underlain by a layer of Caltrans Class 2 permeable material or crushed rock at least 6 inches thick. A suggested gradation for the gravel layer is as follows:

Suggested Gravel Gradation

Percent Passing	Sieve Size
¾"	90 – 100
No. 4	0- 10
No. 100	0-3

As an alternative to the gravel layer, a 4-inch layer of clean concrete sand may be used. To provide additional protection against water vapor transmission through the slab in areas where vinyl or other moisture-sensitive floor covering is planned, we recommend that the impermeable layer be placed over the sand layer.

Care should be taken during concrete placement to prevent displacement of the sand. A low-slump concrete (4-inch maximum slump) should be used to further minimize possible curling of the slabs.

Concrete slab thickness should be provided in accordance with the anticipated use and loadings on the slab and as recommended by the Structural Engineer. As a minimum, slabs-on-grade should be 4 inches in thickness and shall contain No. 3 reinforcing bars placed at mid-height in the slab at 18 inches on center both horizontal directions. These recommendations are minimums only and should be verified by the Structural Engineer. The required thickness and reinforcing of the concrete slabs

will depend on the imposed loadings as well as the structural characteristics of the concrete. Construction joint spacing and placement should be provided by the Structural Engineer.

Concrete Flatwork

A minimum thickness of 4 inches is recommended for all concrete walks and slabs. Flatwork reinforcement should consist of a minimum No. 3 bars with an18-inch spacing in both directions and placed at slab mid-height. Final reinforcement configuration should be provided by the structural engineer. All concrete slabs should be underlain by at least 1 foot of non-expansive compacted fill soils or the formational materials. A minimum 28-day concrete compressive strength of 2,500 pounds per square inch is recommended for pedestrian sidewalks and other non-traffic hardscaped areas.

Weakened plane joints should be placed in sidewalks at intervals that are no greater than 15 feet on center. Weakened plane joints should be at least 1-inch deep. Full depth construction joints should be placed at 45 feet intervals. Rectangular patio areas should have weakened plane joints at 10 feet on center in both directions. Expansion joint material should be placed adjacent to any vertical surfaces (walls, buildings or columns).

6.0 SOIL CORROSIVITY

Based on the laboratory test results obtained during the SCST investigation, the on-site soils have low concentrations of sulfate and chloride ions. The on-site soils are not considered to be reactive with concrete. Therefore, either Type I or Type II cement may be used. Concrete should be thoroughly vibrated. Laboratory tests show a low resistivity value of 1,500 to 3,000 ohm-cm, indicating a moderate to severe potential for metal loss due to electrochemical corrosion processes. Therefore a minimum concrete cover of 3 inches should be provided over all re-bar, anchor bolts or metallic embeds placed within the foundations and to 18 inches above the ground surface. Reinforcing steel should be protected with a concrete cover of at least 1½ inches for formed surfaces not exposed to weather or not in contact with the ground. If the minimum cover is not achieved corrosion protection of steel members such as epoxy or asphalt coatings may be used. **We recommend that a corrosion engineer be consulted for final corrosion protection recommendations.**

7.0 BASIS FOR RECOMMENDATIONS

The recommendations provided in this report are based on our understanding of the described project information and on our interpretation of the data presented in the SCST report. We have made our recommendations based on experience with similar subsurface conditions under similar loading conditions. The recommendations apply to the specific project discussed in this report; therefore, any change in the facility loads, expected traffic conditions, facility location, or site grades shall be provided to us so we may review our conclusions and recommendations and make any necessary modifications.

We request an opportunity to review the final construction documents and specifications for the proposed facility to verify that the recommendations presented are incorporated into the final design. The recommendations provided in this report are also based on the assumption that the necessary geotechnical observations and testing during construction will be performed by representatives of our firm. The field observation services are considered a continuation of the geotechnical investigation and essential to verify that the actual soil conditions are as anticipated. This also provides for the procedure whereby the Client can be advised of unanticipated or changed conditions that would require modifications of our original recommendations. In addition, the presence of our representatives at the site provides the Client with an independent professional opinion regarding the geotechnical related construction procedures. If another firm is retained for the geotechnical observation services, our professional responsibility and liability would be reduced to the extent that we are no longer the engineer of record.

APPENDIX A

GEOTECHNICAL INVESTIGATION REPORT

by

SOUTHERN CALIFORNIA SOIL AND TESTING

Dated February 6, 2009

APPENDIX A

SOUTHERN CALIFORNIA SOIL & TESTING, INC.

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GEOTECHNICAL INVESTIGATION
ANGIER ELEMENTARY SCHOOL
JOINT USE IMPROVEMENTS
SAN DIEGO, CALIFORNIA

PREPARED FOR:

MS. ANA DEL RINCON
THE CITY OF SAN DIEGO
ENGINEERING AND CAPITAL
PROJECTS DEPARTMENT
600 B STREET, SUITE 800, MS 908A
SAN DIEGO, CALIFORNIA 92101

PREPARED BY:

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Providing Professional Engineering Services Since 1959

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February 6, 2009

SCS&T No. 0811209
Report No. 1

Ms. Ana Del Rincon
The City of San Diego
Engineering and Capital Projects Department
600 B Street, Suite 800, MS 908A
San Diego, California 92101

Subject: GEOTECHNICAL INVESTIGATION
ANGIER ELEMENTARY SCHOOL
JOINT USE IMPROVEMENTS
SAN DIEGO, CALIFORNIA

Dear Ms. Del Rincon:

This letter transmits Southern California Soil & Testing Inc.'s (SCS&T) report describing the geotechnical investigation performed for the subject site. We understand the improvements on the site will consist of typical park and elementary school improvements. If you have any questions concerning this report, or need additional information, please call us at (619) 280-4321.

Respectfully Submitted,
SOUTHERN CALIFORNIA SOIL AND TESTING, INC.

Eddie Liang
Staff Engineer

REGISTERED PROFESSIONAL ENGINEER
GARRETT B. FOUNTAIN
No. 2752
Exp. 9-30-2010
GEOTECHNICAL
OF CALIFORNIA

Garrett B. Fountain, GE 2752
Senior Engineer

GBF:EL:aw

(2) Addressee
(1) Addressee via e-mail [AdelRincon@sandiego.gov]

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APPENDICES

EXECUTIVE SUMMARY

This report presents the results of the geotechnical investigation Southern California Soil and Testing performed for the proposed Angier Elementary School joint use improvements. The school is located at 8450 Hurlburt Street in the city of San Diego, California. We understood that the project consists of the design and construction of typical park and elementary school playground improvements.

Five exploratory borings were drilled to depths of between 2 and 19 feet with a truck mounted drill rig equipped with a hollow stem auger. Selected samples from the borings were tested to evaluate pertinent classification and engineering properties and enable development of geotechnical conclusions and recommendations.

Materials encountered in the borings consisted of about one foot of fill over very old surficial deposits commonly identified as the Lindavista Formation. The Lindavista Formation consists of very dense silty sandstone. The fill is comprised of loose to medium dense silty sand.

The main geotechnical consideration affecting the site is the presence of about one foot of undocumented fill that is potentially compressible.

No specific grading or foundation plans are available at this time. The undocumented fill should be excavated. It can be replaced as compacted fill if needed. Shallow foundations can be used to support the planned structures and concrete slab-on-grade floors can be used. The grading and foundation recommendations in this report may need to be updated once grading and foundation plans are developed.

1. INTRODUCTION

1.1 GENERAL

This report presents the conclusions and recommendations from the geotechnical investigation performed by SCS&T for the proposed Angier Elementary School joint use improvements located at 8450 Hurlburt Street in the city of San Diego, California. A site location map is shown on Figure 1.

We understood that the project consists of the design and construction of a typical park and elementary school playground improvements. We anticipate grading will consist of minor cuts and fills to create level pads.

1.2 SCOPE OF WORK

1.2.1 Field Exploration

Subsurface conditions were explored by drilling 5 test borings to depths of between 2 and 19 feet with a truck mounted drill rig equipped with a hollow stem auger at the locations shown on Figure 2. A SCS&T geologist logged the test borings and obtained samples for examination and laboratory testing. The logs of the test borings are in Appendix I. Soils are classified according to the Unified Soil Classification System illustrated on Figure I-1.

1.2.2 Laboratory Testing

The laboratory program consisted of tests for:

- Grain Size Distribution
- Maximum Density and Optimum Moisture Content
- Direct Shear
- Corrosivity
- Agricultural Suitability

The results of the laboratory tests, and brief explanations of test procedures, are in Appendix II.

SC
ST

1.2.3 Agricultural Suitability Tests

A total of 5 samples were tested for agricultural suitability. The results of these tests are presented in Appendix III.

1.2.4 Analysis and Report

The results of the field and laboratory tests were evaluated to develop conclusions and recommendations regarding:

1. Subsurface conditions beneath the site.
2. Site preparation and grading.
3. Criteria for seismic design in accordance with military standard and California Building Code procedures.
4. Alternative types of foundation support for the structure along with geotechnical engineering criteria for design of the type of foundation considered most appropriate.
5. Resistance to lateral loads.
6. Estimated foundation settlements.
7. Support for slab-on-grade floors.
8. The corrosion potential of on-site soils with respect to ferrous metals and reinforced concrete.
9. Agricultural suitability of the soil for turf and trees.

2. FINDINGS

2.1 SITE DESCRIPTION

The site is bounded by existing commercial property on the north, Hurlbut Street on the south, Afton Road on the east and Cabrillo Heights Park on the west. Topographically, the project area is relatively flat with a total elevation difference of about 5 feet over a span of 100 feet. The site is devoid of vegetation.

2.2 SUBSURFACE CONDITIONS

Fill and very old surficial deposits underlie the subject site.

Fill: Approximately 1 foot of fill, comprised of loose to medium dense silty sand was encountered in all of test borings. Surficial deposits underlie the fill.

Very Old Surficial Deposits: Very old surficial deposits commonly identified as the Lindavista Formation was encountered below the fill in all of the test borings. This material consists of very dense silty sandstone.

2.3 GROUNDWATER

Groundwater was not encountered in the test borings. However, groundwater levels can fluctuate seasonally, and can rise significantly following periods of precipitation.

2.4 GROUNDSHAKING

A geologic hazard likely to affect the project is groundshaking as a result of movement along an active fault zone in the vicinity of the subject site. The site coefficients and adjusted maximum considered earthquake spectral response acceleration parameters in accordance with the 2007 California Building Code based on the 2006 International Building Code are presented below:

Site Coordinates: Latitude 33.806°
Longitude 117.145°
Site Class: D
Site Coefficient F_a = 1.0
Site Coefficient F_v = 1.5
Spectral Response Acceleration at Short Periods S_s = 1.362
Spectral Response Acceleration at 1-Second Period S_1 = 0.499
$S_{MS}=F_aS_s$
$S_{M1}=F_vS_1$
$S_{DS}=2/3^* S_{MS}$
$S_{D1}=2/3^* S_{M1}$

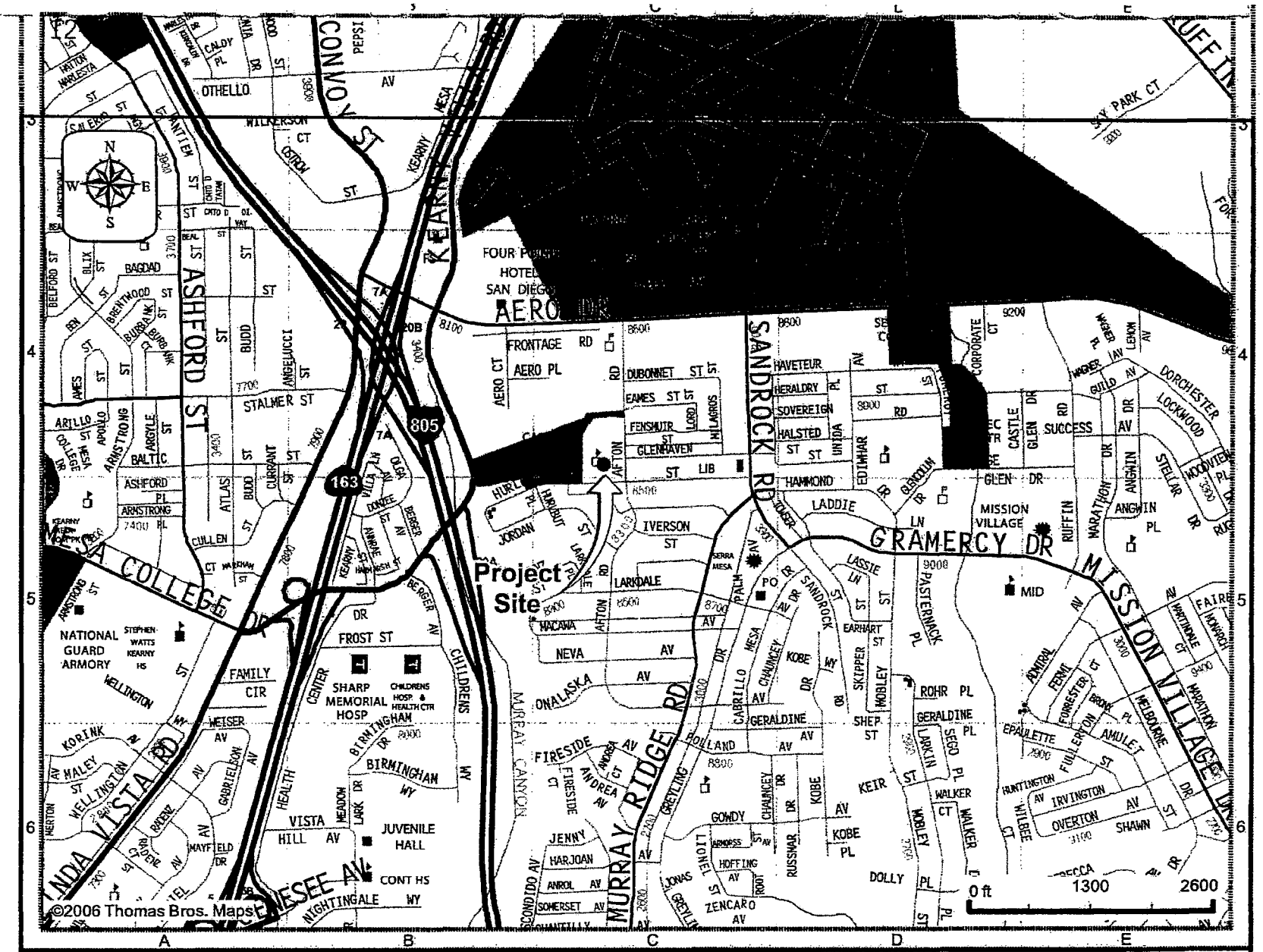
3. CONCLUSIONS

3.1 GENERAL

Earthwork for the project is expected to consist of cuts and fills of less than 5 feet in depth. The new buildings can be supported on shallow foundations founded in compacted fill following subgrade preparation in accordance with the following recommendations.

3.2 SITE EXCAVATION CHARACTERISTICS

Conventional heavy equipment in good working order is expected to be able to excavate the fill and very old surficial deposits to the anticipated excavation depth. However, cemented zones in the very old surficial deposits should be expected below a depth of about 2 feet. Contract documents should specify that the contractor mobilize equipment capable of excavating and breaking the rock.



SOUTHERN CALIFORNIA SOIL & TESTING, INC.	**SITE LOCATION MAP** **ANGIER ELEMENTARY - TASK 5** **City of San Diego, California**	**Job No. 0811209-1** **Figure: 1**

SCS&T LEGEND
B-5
Approximate Test Boring Location
Alton Rd
SOUTHERN CALIFORNIA
SOIL & TESTING, INC.
ANGIER ELEMENTARY - TASK 5
By: GF/EL
Date: 1/29/09
Job No.: 08111209-1
Figure: 2

APPENDIX I
FIELD INVESTIGATION

Five exploratory test borings were drilled at the locations indicated on Figure 2 on January 20, 2009. The fieldwork was performed under the observation of our geologist, who also logged the borings and obtained samples of the materials encountered. Relatively undisturbed samples were obtained with a 2.5-inch inner diameter sampler driven with a 140-pound weight falling 30 inches. The number of blows required to drive the sampler the final 12 inches of an 18-inch drive are noted on the borings logs as "Penetration (blows/ft. of drive)." Disturbed samples were obtained from drill cuttings.

SUBSURFACE EXPLORATION LEGEND

UNIFIED SOIL CLASSIFICATION CHART

SOIL DESCRIPTION		GROUP SYMBOL	TYPICAL NAMES
I. COARSE GRAINED, more than 50% of material is larger than No. 200 sieve size.			
GRAVELS More than half of coarse fraction is larger than No. 4 sieve size but smaller than 3".	CLEAN GRAVELS	GW	Well graded gravels, gravel-sand mixtures, little or no fines.
		GP	Poorly graded gravels, gravel sand mixtures, little or no fines.
	GRAVELS WITH FINES (Appreciable amount of fines)	GM	Silty gravels, poorly graded gravel-sand-silt mixtures.
		GC	Clayey gravels, poorly graded gravel-sand, clay mixtures.
SANDS More than half of coarse fraction is smaller than No. 4 sieve size.	CLEAN SANDS	SW	Well graded sand, gravelly sands, little or no fines.
		SP	Poorly graded sands, gravelly sands, little or no fines.
	SANDS WITH FINES (Appreciable amount of fines)	SM	Silty sands, poorly graded sand and silty mixtures.
		SC	Clayey sands, poorly graded sand and clay mixtures.
II. FINE GRAINED, more than 50% of material is smaller than No. 200 sieve size.			
	SILTS AND CLAYS (Liquid Limit less than 50)	ML	Inorganic silts and very fine sands, rock flour, sandy silt or clayey-silt-sand mixtures with slight plasticity.
		CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays.
		OL	Organic silts and organic silty clays or low plasticity.
	SILTS AND CLAYS (Liquid Limit greater than 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.
III. HIGHLY ORGANIC SOILS		PT	Peat and other highly organic soils.

▽ - Water level at time of excavation or as indicated
⊠ - Bulk Sample
AL - Atterberg Limits
CAL - Modified California pentration test sampler
CK - Undisturbed chunk sample
CL - Chloride
CON - Consolidation
COR - Corrosivity Test
- Sulfate
- Chloride
- pH and Resistivity

DS - Direct Shear
EI - Expansion Index
MS - Maximum Size of Particle
MAX - Maximum Density
pH - pH & Resistivity
RC - Relative Compaction
RV - R Value
SA - Sieve Analysis
SC - Sand Cone
SF - Sulfate & Chloride
SPT - Standard penetration test sampler
ST - Shelby Tube
TX - Triaxial Compression
UC - Unconfined Compression

SOUTHERN CALIFORNIA SOIL & TESTING, INC.	ANGIER ELEMENTARY			
	BY:	GF/EL	DATE:	2/5/2009
	JOB NUMBER:	0811209-1	FIGURE I -	1

LOG OF EXPLORATORY BORING NUMBER B-1

Date Excavated: 1/20/2009 — Logged by: RB
Equipment: 8-inch Hollow Stem Auger — Project Manager: GF
Surface Elevation (ft): N/A — Depth to Water (ft): N/A

DEPTH (ft)	USCS	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES: SAMPLER	SAMPLES: BULK	PENETRATION (blows/ ft. of drive)	MOISTURE (%)	DRY UNIT WT. (pcf)	LABORATORY TESTS
	SM	**FILL (Qaf)** - Gray, humid, loose, SILTY SAND		X				SA
2		**VERY OLD SURFICIAL DEPOSITS (Qvop)** - Reddish brown, humid, medium dense to dense, SILTY SANDSTONE						
		observed gravel and cobbles						
4								
		very dense below 5 feet						
6		gravel encountered	CAL	X	50/3"			
8								
			CAL		50/2"			
10				X				
12								
		cobbles encountered						
14								
			CAL		50/5"			
16								
18			CAL		50/4"			
		BOTTOM OF BORING AT 19 FEET						
20								

SOUTHERN CALIFORNIA SOIL & TESTING, INC.	ANGIER ELEMENTARY - TASK 5	
	BY: GF/EL	DATE: 2/5/2009
	JOB NUMBER: 0811209-1	FIGURE I - 2

LOG OF EXPLORATORY BORING NUMBER B-2

Date Excavated: 1/20/2009 — Logged by: RB
Equipment: 8-inch Hollow Stem Auger — Project Manager: GF
Surface Elevation (ft): N/A — Depth to Water (ft): N/A

DEPTH (ft)	USCS	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES: SAMPLER	SAMPLES: BULK	PENETRATION (blows/ ft. of drive)	MOISTURE (%)	DRY UNIT WT. (pcf)	LABORATORY TESTS
	SM	**FILL (Qaf)** - Gray, moist, loose, SILTY SAND						
2		**VERY OLD SURFICIAL DEPOSITS (Qvop)** - Reddish brown, humid, medium dense to dense, SILTY SANDSTONE						COR
4		gravel and cobbles encountered						
6		very dense below 5 feet gravel encountered	CAL		50/2"			
8								
10			CAL		50/2"			
12		gravel encountered						
14		cobbles encountered						
16			CAL		50/3"			
18			CAL		50/6"			
20		**BOTTOM OF BORING AT 19 FEET**						

SOUTHERN CALIFORNIA SOIL & TESTING, INC.	ANGIER ELEMENTARY - TASK 5	
	BY: GF/EL	DATE: 2/5/2009
	JOB NUMBER: 0811209-1	FIGURE I - 3

LOG OF EXPLORATORY BORING NUMBER B-3

Date Excavated: 1/20/2009 — Logged by: RB
Equipment: 8-inch Hollow Stem Auger — Project Manager: GF
Surface Elevation (ft): N/A — Depth to Water (ft): N/A

DEPTH (ft)	USCS	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES: SAMPLER	SAMPLES: BULK	PENETRATION (blows/ ft. of drive)	MOISTURE (%)	DRY UNIT WT. (pcf)	LABORATORY TESTS
	SM	**FILL (Qaf)** - Gray, moist, loose, SILTY SAND		X				
2		**VERY OLD SURFICIAL DEPOSITS (Qvop)** - Reddish brown, humid, medium dense to dense, SILTY SANDSTONE		X				SA/ MAX / DS
4		gravel encountered		X				
6		very dense below 5 feet	CAL		50/2"			
8		gravel encountered		X				
10			CAL		50/5"			
12								
14		gravel and cobbles encountered						
16			CAL	X	50/1"			
18			CAL	X	50/5"			
20		**BOTTOM OF BORING AT 19 FEET**						

SOUTHERN CALIFORNIA SOIL & TESTING, INC.	ANGIER ELEMENTARY - TASK 5	
	BY: GF/EL	DATE: 2/5/2009
	JOB NUMBER: 0811209-1	FIGURE I - 4

LOG OF EXPLORATORY BORING NUMBER B-4

Date Excavated: 1/20/2009 — Logged by: RB
Equipment: 8-inch Hollow Stem Auger — Project Manager: GF
Surface Elevation (ft): N/A — Depth to Water (ft): N/A

DEPTH (ft)	USCS	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES: SAMPLER	SAMPLES: BULK	PENETRATION (blows/ ft. of drive)	MOISTURE (%)	DRY UNIT WT. (pcf)	LABORATORY TESTS
0	SM	**FILL (Qaf)** - Gray, humid, loose, SILTY SAND	X					SA
2		**VERY OLD SURFICIAL DEPOSITS (Qvop)** - Reddish brown, humid, medium dense to dense, SILTY SANDSTONE						
		AUGER REFUSAL AT 2 FEET						
4								
6								
8								
10								
12								
14								
16								
18								
20								

SOUTHERN CALIFORNIA SOIL & TESTING, INC.	ANGIER ELEMENTARY - TASK 5	
	BY: GF/EL	DATE: 2/5/2009
	JOB NUMBER: 0811209-1	FIGURE I - 5

LOG OF EXPLORATORY BORING NUMBER B-5

Date Excavated: 1/20/2009 — Logged by: RB
Equipment: 8-Inch Hollow Stem Auger — Project Manager: GF
Surface Elevation (ft): N/A — Depth to Water (ft): N/A

DEPTH (ft)	USCS	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES: SAMPLER	SAMPLES: BULK	PENETRATION (blows/ ft. of drive)	MOISTURE (%)	DRY UNIT WT. (pcf)	LABORATORY TESTS
0	SM	**FILL (Qaf)** - Gray, humid, loose, SILTY SAND	X					COR
2		**VERY OLD SURFICIAL DEPOSITS (Qvop)** - Reddish brown, humid, medium dense to dense, SILTY SANDSTONE						
		AUGER REFUSAL AT 2½ FEET						
4								
6								
8								
10								
12								
14								
16								
18								
20								

SOUTHERN CALIFORNIA SOIL & TESTING, INC.

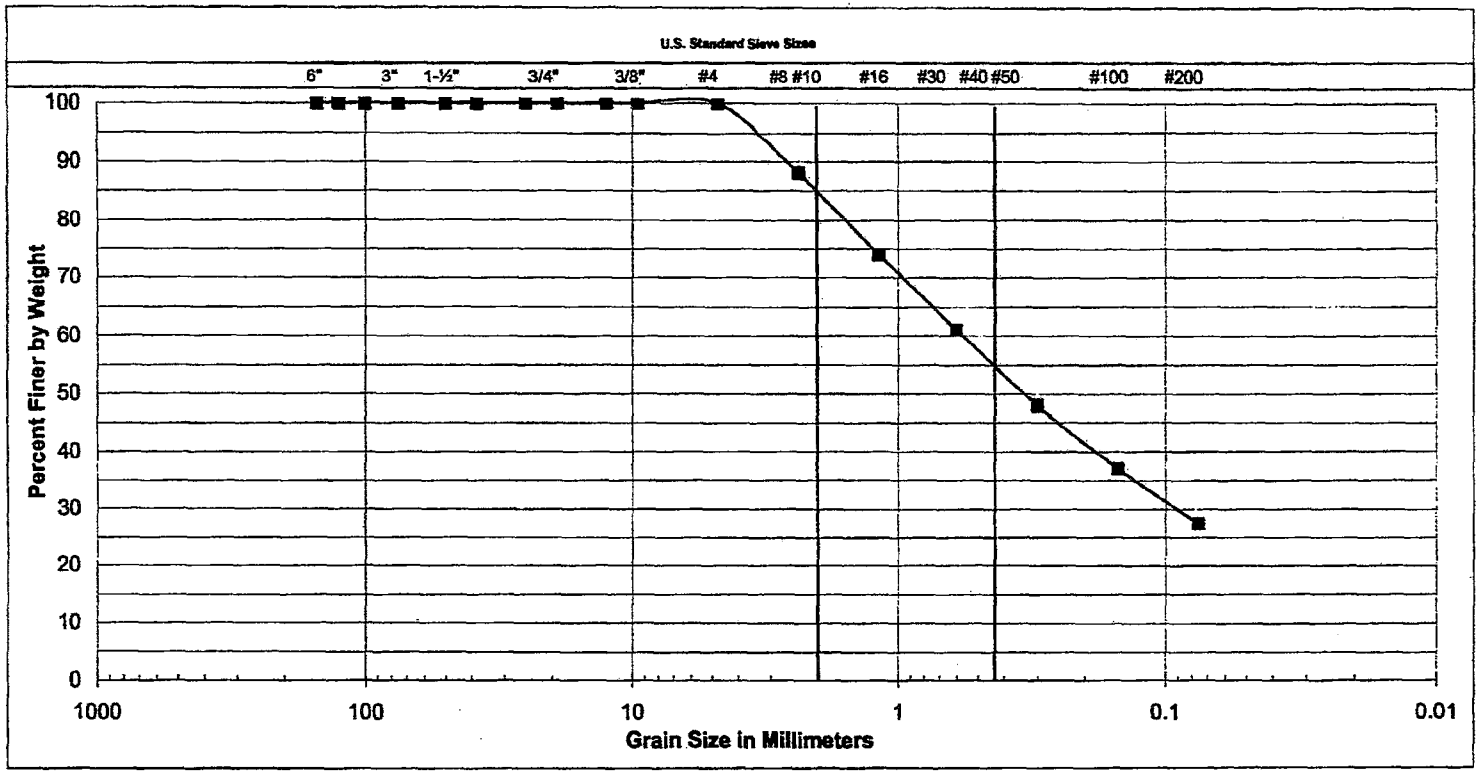
ANGIER ELEMENTARY - TASK 5

BY:	GF/EL	DATE:	2/5/2009
JOB NUMBER:	0811209-1	FIGURE	I - 6

APPENDIX II
LABORATORY TESTING

The laboratory test program was design to fit the specific need of this project and was limited to testing on-site materials. A brief description of each type of test is presented below. Results are given on the following pages and on the test boring logs in Appendix I.

- **CLASSIFICATION:** Field classifications were verified in the laboratory by visual examination. The final soil classifications are in accordance with the Unified Soil Classification System.
- **GRAIN SIZE DISTRIBUTION:** The grain size distribution was determined for 3 samples in accordance with ASTM D 422. The results are presented on Figures II-1 through II-3.
- **MAXIMUM DENSITY AND OPTIMUM MOISTURE:** The maximum density and optimum moisture content was determined for one sample in accordance with ASTM D 1557. The result is presented on Figure II-4.
- **CORROSIVITY:** Corrosivity tests were performed on 2 sample. The pH and minimum resistivity were determined in general accordance with California Test 643. The soluble sulfate content was determined in accordance with California Test 417. The total chloride ion content was determined in accordance with California Test 422. The results of these tests are presented on Figure II-4.
- **DIRECT SHEAR:** A direct shear test was performed in accordance with ASTM D 3080. The shear stress was applied at a constant rate of strain of approximately 0.003 inch per minute. The results are presented on Figure II-5.



Cobbles	Gravel		Sand			Silt or Clay
	Coarse	Fine	Coarse	Medium	Fine	

SAMPLE LOCATION
B-1 at 0 - 2'

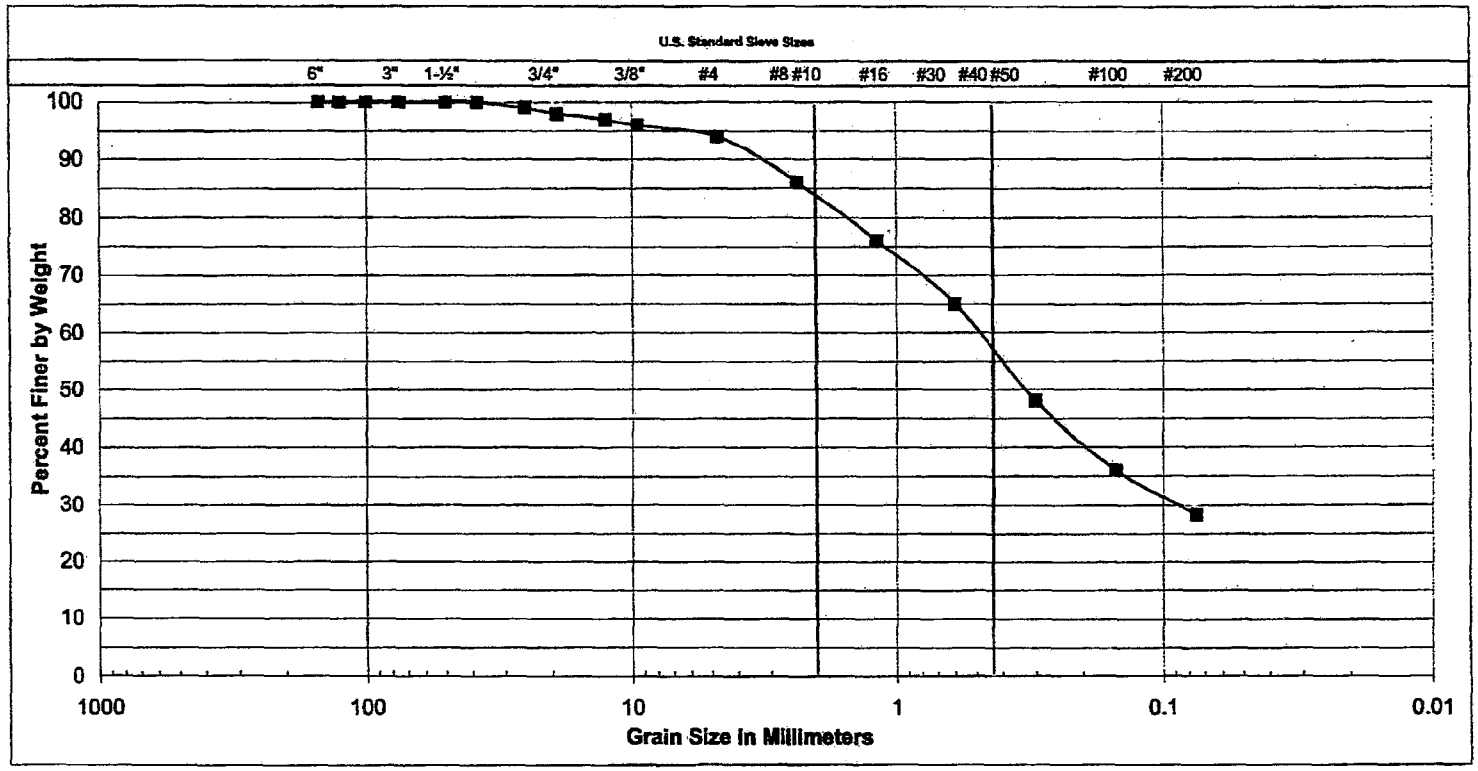
UNIFIED SOIL CLASSIFICATION:	SM
DESCRIPTION	SILTY SAND

ATTERBERG LIMITS	
LIQUID LIMIT	N/A
PLASTIC LIMIT	N/A
PLASTICITY INDEX	N/A

SOUTHERN CALIFORNIA SOIL & TESTING, INC.

ANGIER ELEMENTARY - TASK 5

BY:	GF/EL	DATE:	2/5/09
JOB NUMBER:	0811209P-1	FIGURE II -	1



Cobbles	Gravel		Sand			Silt or Clay
	Coarse	Fine	Coarse	Medium	Fine	

SAMPLE LOCATION
B-3 at 0 - 2'

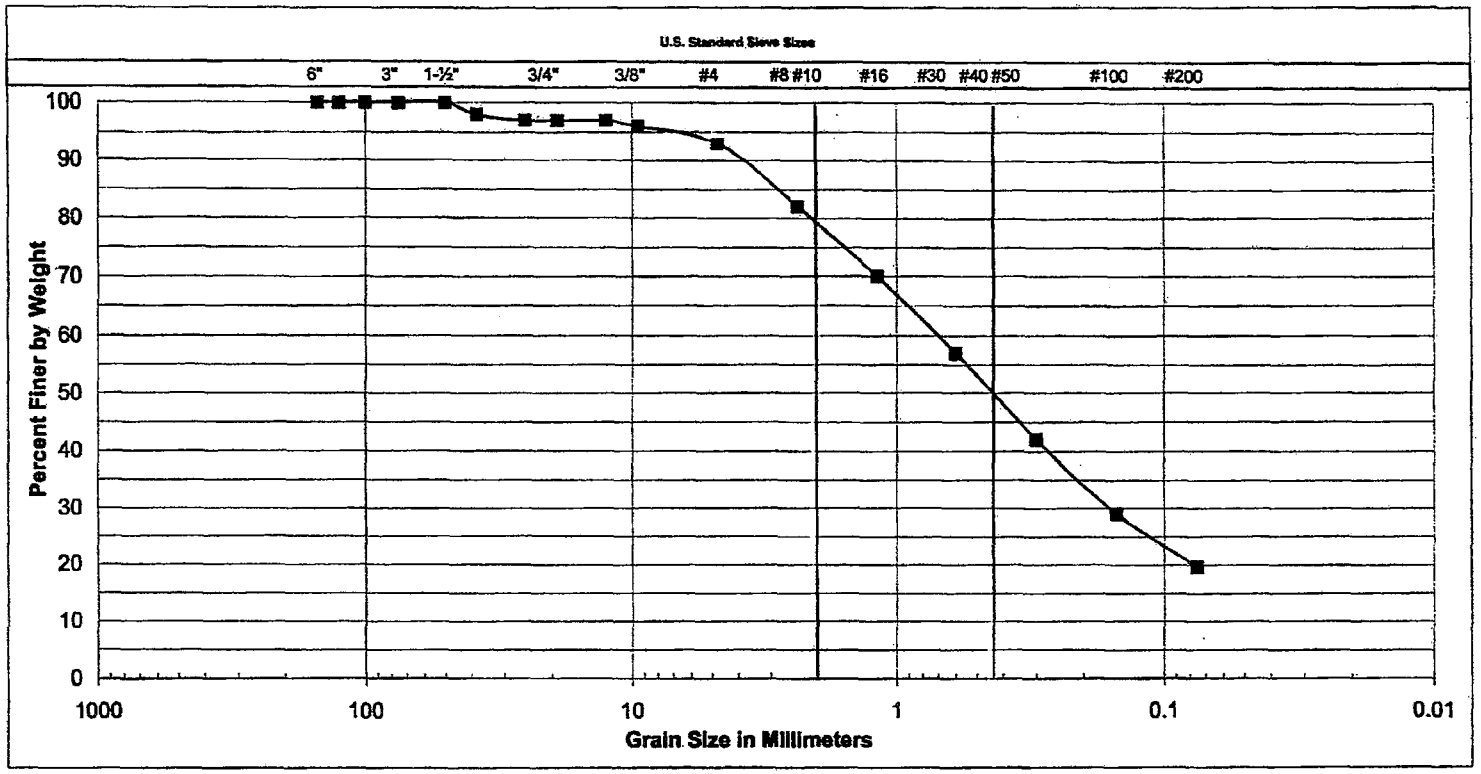
UNIFIED SOIL CLASSIFICATION:	SM
DESCRIPTION	SILTY SAND

ATTERBERG LIMITS	
LIQUID LIMIT	N/A
PLASTIC LIMIT	N/A
PLASTICITY INDEX	N/A

SOUTHERN CALIFORNIA SOIL & TESTING, INC.

ANGIER ELEMENTARY - TASK 5

BY:	GF/EL	DATE:	2/5/09
JOB NUMBER:	0811209P-1	FIGURE II -	2



Cobbles	Gravel		Sand			Silt or Clay
	Coarse	Fine	Coarse	Medium	Fine	

SAMPLE LOCATION
B-4 at 0 - 2'

UNIFIED SOIL CLASSIFICATION:	SM
DESCRIPTION	SILTY SAND

ATTERBERG LIMITS	
LIQUID LIMIT	N/A
PLASTIC LIMIT	N/A
PLASTICITY INDEX	N/A

SOUTHERN CALIFORNIA SOIL & TESTING, INC.

ANGIER ELEMENTARY

BY:	DBA	DATE:	2/5/09
JOB NUMBER:	0811209P-1	FIGURE II -	3

MAXIMUM DENSITY & OPTIMUM MOISTURE CONTENT

METHOD - A ASTM - D1557-00

SAMPLE	DESCRIPTION	MAXIMUM DRY DENSITY (pcf)	OPTIMUM MOISTURE (pcf)
B-3 at 0' - 2'	Gray Silty Sand	134.9	7.8

RESISTIVITY, pH, SOLUBLE SULFATE, CHLORIDE

Caltrans Corrosion Guidelines, Version 1.0 (September 2003)

SAMPLE IDENTIFICATION	RESISTIVITY (W-cm)	pH	SOLUBLE SULFATE (%)	CHLORIDE (%)
B-2 at 1' - 3'	1500	6.6	0.004	0.013
B-5 at 0' - 2½'	3000	7.6	<0.001	0.007

ACI 318-05 Building Code Requirements for Structural Concrete
Table 4.3.1 Requirements for Concrete Exposed to Sulfate-Containing Solutions

Sulfate Exposure	Water-Soluble Sulfate in Soil Percentage by Weight	Cement Type	Maximum Water-Cementitious Materials Ratio, By Weight, Normal Weight Aggregate Concrete[1]	Minimum f'c, Normal-Weight and Lightweight Aggregate Concrete, psi
Negligible	0.00-0.10	-	-	-
Moderate	0.10-0.20	II,IP(MS),IS(MS), P(MS), I(PM)(MS), I(SM)(MS)	0.50	4000
Severe	0.20-2.00	V	0.45	4500
Very Severe	Over 2.00	V plus pozzolan	0.45	4500

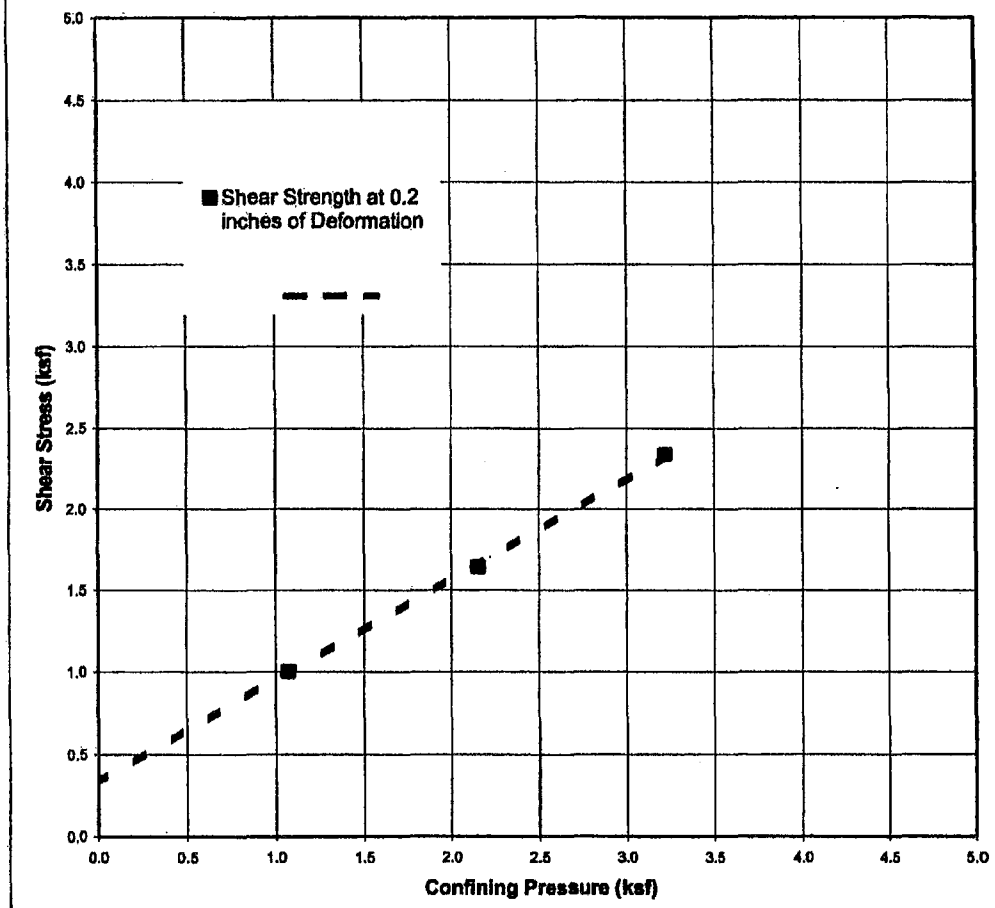
Caltrans Corrosion Criteria

	RESISTIVITY(W - cm)	pH	SOLUBLE SULFATE	CHLORIDE
Corrosive Environment*	<1000	<5.5	>0.2	>0.05

* Corrosive environment as determined by the California Department of Transportation Division of Engineering Services, Materials Engineering and testing Services Corrosion Technology Branch, 2003;Corrosion Guidelines Version 1.0, September 2003

SOUTHERN CALIFORNIA SOIL & TESTING, INC.	ANGIER ELEMENTARY - TASK 5	
	BY: DW/EL	DATE: 2/6/2009
	JOB NUMBER: 0811209P-1	FIGURE II - 4

Direct Shear Test Results



SAMPLE	DESCRIPTION	INTERNAL FRICTION ANGLE(DEG.)	COHESION INTERCEPT (PSF)
B3 at 0 - 2	Silty Sand, Remolded to 90% Relative Compaction		
Shear Strength at 0.2 Inches of Deformation		32	326

SOUTHERN CALIFORNIA SOIL & TESTING	ANGIER ELEMENTARY - TASK 5		
	BY: JJS/GBF	DATE:	2/6/2009
	JOB NUMBER: 0811209P	FIGURE II-5	

APPENDIX III

WALLACE LABS
365 Coral Circle
El Segundo, CA 90245
(310) 615-0116

SOILS REPORT

Print Date Jan. 30, 2009 Receive Date 1/30/09
Location Job No: 0811209P
Requester Raleigh Easton, Southern California Soil & Testing Inc.
graphic interpretation: * very low, ** low, *** moderate, **** high, ***** very high

ammonium bicarbonate/DTPA extractable - mg/kg soil	Sample ID Number	09-30-15 B1 @ 0-2'	millieq/l	09-30-16 B2 @ 1-3'	millieq/l	09-30-17 B3 @ 0-2'	millieq/l	09-30-18 B4 @ 0-2'	millieq/l	09-30-19 B5 @ 0-2.5'	millieq/l
Interpretation of data: low medium high	elements	graphic		graphic		graphic		graphic		graphic	
0 - 7 8-15 over 15	phosphorus	1.43 *		0.80 *		2.45 *		3.27 **		2.47 *	
0-60 60 -120 121-180	potassium	35.35 **		62.96 ***		47.76 **		56.81 **		36.47 **	
0 - 4 4 - 10 over 10	iron	5.84 ***		6.38 ***		12.51 ****		6.97 ***		4.03 ***	
0- 0.5 0.6- 1 over 1	manganese	2.34 ****		2.01 ****		2.89 ****		1.93 ****		0.75 ***	
0 - 1 1 - 1.5 over 1.5	zinc	1.56 ****		1.34 ***		1.58 ****		3.12 ****		2.28 ****	
0- 0.2 0.3- 0.5 over 0.5	copper	0.79 ****		0.74 ****		0.89 ****		1.33 ****		0.82 ****	
0- 0.2 0.2- 0.5 over 1	boron	0.08 *		0.19 **		0.09 *		0.11 **		0.17 **	
ratio of calcium to magnesium	calcium	378.52 ***		380.12 ***		370.44 ***		403.81 ****		446.24 ****	
needs to be more than 2 or 3	magnesium	298.46 *****		399.81 *****		227.54 *****		146.70 ****		179.28 *****	
should be less than potassium	sodium	102.78 ***		256.11 ****		230.42 ****		79.29 **		218.39 ****	
	sulfur	12.79 *		22.46 *		23.08 *		9.52 *		10.16 *	
	molybdenum	nd *		nd *		0.03 ***		nd *		0.04 ***	
	nickel	nd *		0.02 *		0.10 *		0.08 *		0.02 *	
The following trace	aluminum	nd *		nd *		nd *		nd *		nd *	
elements may be toxic	arsenic	0.05 *		0.04 *		0.17 *		0.10 *		0.03 *	
The degree of toxicity	barium	1.16 *		0.72 *		1.37 *		1.84 *		1.32 *	
depends upon the pH of	cadmium	0.01 *		0.02 *		0.01 *		0.02 *		nd *	
the soil, soil texture,	chromium	nd *		nd *		0.01 *		nd *		nd *	
organic matter, and the	cobalt	0.02 *		0.07 *		0.04 *		nd *		nd *	
concentrations of the	lead	0.49 *		0.63 *		1.57 **		1.07 **		0.92 *	
individual elements as well	lithium	0.19 *		0.20 *		0.19 *		0.22 *		0.24 *	
as to their interactions	mercury	nd *		nd *		nd *		nd *		nd *	
	selenium	nd *		nd *		nd *		nd *		nd *	
The pH optimum depends	silver	nd *		nd *		nd *		nd *		nd *	
upon soil organic	strontium	1.95 *		2.21 *		1.72 *		2.32 *		2.47 *	
matter and clay content-	tin	nd *		nd *		nd *		nd *		nd *	
for clay and loam soils:	vanadium	0.30 *		0.28 *		0.22 *		0.18 *		0.27 *	
under 5.2 is too acidic											
6.5 to 7 is ideal	**Saturation Extract**										
over 8.0 is too alkaline	pH value	7.06 ***		6.57 ***		6.77 ***		7.28 ***		6.56 ***	
The ECe is a measure of	ECe (milli-	0.92 ***		1.44 ***		2.00 ****		0.57 **		1.63 ***	
the soil salinity:	mho/cm)		millieq/l		millieq/l		millieq/l		millieq/l		millieq/l
1-2 affects a few plants	calcium	47.8	2.4	43.4	2.2	91.7	4.6	20.9	1.0	47.6	2.4
2-4 affects some plants,	magnesium	23.4	1.9	26.4	2.2	34.6	2.9	8.8	0.7	24.5	2.0
> 4 affects many plants.	sodium	107.4	4.7	212.1	9.2	282.2	12.3	86.0	3.7	243.5	10.6
	potassium	4.8	0.1	6.9	0.2	6.8	0.2	5.0	0.1	6.5	0.2
	cation sum		9.1		13.8		19.9		5.6		15.2
problems over 150 ppm	chloride	156	4.4	274	7.7	388	10.9	26	0.7	346	9.7
good 20 - 30 ppm	nitrate as N	29	2.1	40	2.9	41	3.0	11	0.8	36	2.6
	phosphorus as P	0.2	0.0	0.4	0.0	0.5	0.0	0.3	0.0	0.3	0.0
toxic over 800	sulfate as S	23.1	1.4	37.5	2.3	67.1	4.2	31.2	2.0	38.5	2.4
	anion sum		7.9		13.0		18.1		3.4		14.7
toxic over 1 for many plants	boron as B	0.13 *		0.23 **		0.05 *		0.12 *		0.25 **	
increasing problems start at 3	SAR	3.2 ***		6.3 ****		6.4 ****		4.0 ***		7.1 ****	
est. gypsum requirement-lbs./1000 sq. ft.		33		93		39		13		37	
	relative infiltration rate	slow/fair		slow/fair		slow		slow		slow	
	estimated soil texture	sandy loam		sandy loam		sandy loam		sandy loam		loam	
	lime (calcium carbonate)	no		no		no		no		no	
	organic matter	low/fair		low/fair		low/fair		low/fair		low/fair	
	moisture content of soil	4.1%		5.2%		4.0%		2.6%		8.2%	
	half saturation percentage	16.1%		18.1%		15.9%		12.3%		18.8%	

Elements are expressed as mg/kg dry soil or mg/l for saturation extract.
pH and ECe are measured in a saturation paste/extract. nd means not detected.

WALLACE LABORATORIES
365 Coral Circle
El Segundo, CA 90245
phone (310) 615-0116 fax (310) 640-6863

February 2, 2009

reaston@scst.com, rbaudour@scst.com
Southern California Soil and Testing
Raleigh Easton
PO Box 600627
San Diego, CA 92120

RE: 0811209P

Dear Raleigh,

Sample B1 @ 0-2'
Sample B2 @ 1-3'
Sample B3 @ 0-2'
Sample B4 @ 0-2'
Sample B5 @ 0-2.5'

These samples have near neutral pH values which range from 6.56 to 7.28. Salinity is slightly elevated at 2.00 millimho/cm in sample B3. The values of salinity range from 0.57 to 1.63 millimho/cm for the other 4 samples. Chloride is higher than desired in samples B2, B3 and B5 and range from 274 to 388 parts per million in the saturation extract. Salt-sensitive plants need chloride below about 150 parts per million.

Nitrogen is moderate except in sample B4. Potassium is low or modest. Phosphorus is low. The micronutrients are sufficient except for low boron. Sulfur is low. Sodium is moderately high and ranges from 79 to 256 parts per million.

Recommendations

General soil preparation for turf, ground cover and shrub areas. Broadcast the following materials uniformly. The rates are per 1,000 square feet. Incorporate them homogeneously 6 inches deep:

Potassium sulfate (0-0-50) – 8 pounds
Triple superphosphate (0-45-0) – 4 pounds
agricultural gypsum - 40 pounds except 15 pounds for B4
Organic soil amendment - 3 cubic yards, sufficient for about 3% to 5% soil organic matter

For the preparation of backfill mix for container plants and boxed trees, homogeneously blend the following materials into excavated or leached soil. Rates are expressed per cubic yard:

Potassium sulfate (0-0-50) – 1/3 pound
Triple superphosphate (0-45-0) – 1/4 pound
agricultural gypsum – 2 pounds except 1 pound for B4
Organic soil amendment - 15% by volume, sufficient for about 3% to 5% soil organic matter

Organic soil amendment:

1. Humus material shall have an acid-soluble ash content of no less than 6% and no more than 20%.
2. The pH of the material shall be between 6 and 7.5.
3. The salt content shall be less than 10 millimho/cm @ 25° C. on a saturated paste extract.
4. Boron content of the saturated extract shall be less than 1.0 parts per million.
5. Silicon content (acid-insoluble ash) shall be less than 50%.
6. Calcium carbonate shall not be present if to be applied on alkaline soils.
7. Types of acceptable products are composts, manures, mushroom composts, straw, alfalfa, peat mosses etc. low in salts, low in heavy metals, free from weed seeds, free of pathogens and other deleterious materials.
8. Composted wood products are conditionally acceptable [stable humus must be present]. Wood based products are not acceptable which are based on red wood or cedar.
9. Sludge-based materials are not acceptable.
10. Carbon:nitrogen ratio is less than 25:1.
11. The compost shall be aerobic without malodorous presence of decomposition products.
12. The maximum particle size shall be 0.5 inch, 80% or more shall pass a No. 4 screen for soil amending.

    Maximum total permissible pollutant concentrations in amendment in parts per million on a dry weight basis:

arsenic	20	copper	150	selenium	50
cadmium	15	lead	200	silver	10
chromium	300	mercury	10	vanadium	500
cobalt	50	molybdenum	20	zinc	300
		nickel	100		

    Higher amounts of salinity or boron may be present if the soils are to be preleached to reduce the excess or if the plant species will tolerate the salinity and/or boron.

Leach and reduce the salinity, sodium and chloride. Reduce the chloride to less than 150 parts per million in the saturation extract. Lower the sodium to less than 150 part per million. After leaching, apply ammonium sulfate (21-0-0) at 5 pounds per 1,000 square feet. Normally irrigate deeply but not frequently.

For site maintenance, apply 12-12-12 at 8 pounds per 1,000 square feet about once per quarter. Monitor the site with periodic soil testing. Apply gypsum as needed.

Sincerely,

Garn A. Wallace, Ph. D.
Executive Director
GAW:n

SOUTHERN CALIFORNIA SOIL & TESTING, INC.

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GEOTECHNICAL INVESTIGATION
ANGIER ELEMENTARY SCHOOL
JOINT USE IMPROVEMENTS
SAN DIEGO, CALIFORNIA

PREPARED FOR:

MS. ANA DEL RINCON
THE CITY OF SAN DIEGO
ENGINEERING AND CAPITAL
PROJECTS DEPARTMENT
600 B STREET, SUITE 800, MS 908A
SAN DIEGO, CALIFORNIA 92101

PREPARED BY:

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Providing Professional Engineering Services Since 1959

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February 6, 2009

SCS&T No. 0811209
Report No. 1

Ms. Ana Del Rincon
The City of San Diego
Engineering and Capital Projects Department
600 B Street, Suite 800, MS 908A
San Diego, California 92101

Subject: GEOTECHNICAL INVESTIGATION
ANGIER ELEMENTARY SCHOOL
JOINT USE IMPROVEMENTS
SAN DIEGO, CALIFORNIA

Dear Ms. Del Rincon:

This letter transmits Southern California Soil & Testing Inc.'s (SCS&T) report describing the geotechnical investigation performed for the subject site. We understand the improvements on the site will consist of typical park and elementary school improvements. If you have any questions concerning this report, or need additional information, please call us at (619) 280-4321.

Respectfully Submitted,
SOUTHERN CALIFORNIA SOIL AND TESTING, INC.

Eddie Liang
Staff Engineer

REGISTERED PROFESSIONAL ENGINEER
GARRETT B. FOUNTAIN
No. 2752
Exp. 9-30-2010
GEOTECHNICAL
STATE OF CALIFORNIA

Garrett B. Fountain, GE 2752
Senior Engineer

GBF:EL:aw

(2) Addressee
(1) Addressee via e-mail [AdelRincon@sandiego.gov]

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EXECUTIVE SUMMARY

This report presents the results of the geotechnical investigation Southern California Soil and Testing performed for the proposed Angier Elementary School joint use improvements. The school is located at 8450 Hurlburt Street in the city of San Diego, California. We understood that the project consists of the design and construction of typical park and elementary school playground improvements.

Five exploratory borings were drilled to depths of between 2 and 19 feet with a truck mounted drill rig equipped with a hollow stem auger. Selected samples from the borings were tested to evaluate pertinent classification and engineering properties and enable development of geotechnical conclusions and recommendations.

Materials encountered in the borings consisted of about one foot of fill over very old surficial deposits commonly identified as the Lindavista Formation. The Lindavista Formation consists of very dense silty sandstone. The fill is comprised of loose to medium dense silty sand.

The main geotechnical consideration affecting the site is the presence of about one foot of undocumented fill that is potentially compressible.

No specific grading or foundation plans are available at this time. The undocumented fill should be excavated. It can be replaced as compacted fill if needed. Shallow foundations can be used to support the planned structures and concrete slab-on-grade floors can be used. The grading and foundation recommendations in this report may need to be updated once grading and foundation plans are developed.

1. INTRODUCTION

1.1 GENERAL

This report presents the conclusions and recommendations from the geotechnical investigation performed by SCS&T for the proposed Angier Elementary School joint use improvements located at 8450 Hurlburt Street in the city of San Diego, California. A site location map is shown on Figure 1.

We understood that the project consists of the design and construction of a typical park and elementary school playground improvements. We anticipate grading will consist of minor cuts and fills to create level pads.

1.2 SCOPE OF WORK

1.2.1 Field Exploration

Subsurface conditions were explored by drilling 5 test borings to depths of between 2 and 19 feet with a truck mounted drill rig equipped with a hollow stem auger at the locations shown on Figure 2. A SCS&T geologist logged the test borings and obtained samples for examination and laboratory testing. The logs of the test borings are in Appendix I. Soils are classified according to the Unified Soil Classification System illustrated on Figure I-1.

1.2.2 Laboratory Testing

The laboratory program consisted of tests for:

- Grain Size Distribution
- Maximum Density and Optimum Moisture Content
- Direct Shear
- Corrosivity
- Agricultural Suitability

The results of the laboratory tests, and brief explanations of test procedures, are in Appendix II.

1.2.3 Agricultural Suitability Tests

A total of 5 samples were tested for agricultural suitability. The results of these tests are presented in Appendix III.

1.2.4 Analysis and Report

The results of the field and laboratory tests were evaluated to develop conclusions and recommendations regarding:

1. Subsurface conditions beneath the site.
2. Site preparation and grading.
3. Criteria for seismic design in accordance with military standard and California Building Code procedures.
4. Alternative types of foundation support for the structure along with geotechnical engineering criteria for design of the type of foundation considered most appropriate.
5. Resistance to lateral loads.
6. Estimated foundation settlements.
7. Support for slab-on-grade floors.
8. The corrosion potential of on-site soils with respect to ferrous metals and reinforced concrete.
9. Agricultural suitability of the soil for turf and trees.

2. FINDINGS

2.1 SITE DESCRIPTION

The site is bounded by existing commercial property on the north, Hurlbut Street on the south, Afton Road on the east and Cabrillo Heights Park on the west. Topographically, the project area is relatively flat with a total elevation difference of about 5 feet over a span of 100 feet. The site is devoid of vegetation.

2.2 SUBSURFACE CONDITIONS

Fill and very old surficial deposits underlie the subject site.

Fill: Approximately 1 foot of fill, comprised of loose to medium dense silty sand was encountered in all of test borings. Surficial deposits underlie the fill.

Very Old Surficial Deposits: Very old surficial deposits commonly identified as the Lindavista Formation was encountered below the fill in all of the test borings. This material consists of very dense silty sandstone.

2.3 GROUNDWATER

Groundwater was not encountered in the test borings. However, groundwater levels can fluctuate seasonally, and can rise significantly following periods of precipitation.

2.4 GROUNDSHAKING

A geologic hazard likely to affect the project is groundshaking as a result of movement along an active fault zone in the vicinity of the subject site. The site coefficients and adjusted maximum considered earthquake spectral response acceleration parameters in accordance with the 2007 California Building Code based on the 2006 International Building Code are presented below:

Site Coordinates: Latitude 33.806°
Longitude 117.145°
Site Class: D
Site Coefficient F_a = 1.0
Site Coefficient F_v = 1.5
Spectral Response Acceleration at Short Periods S_s = 1.362
Spectral Response Acceleration at 1-Second Period S_1 = 0.499
$S_{MS}=F_aS_s$
$S_{M1}=F_vS_1$
$S_{DS}=2/3^* S_{MS}$
$S_{D1}=2/3^* S_{M1}$

3. CONCLUSIONS

3.1 GENERAL

Earthwork for the project is expected to consist of cuts and fills of less than 5 feet in depth. The new buildings can be supported on shallow foundations founded in compacted fill following subgrade preparation in accordance with the following recommendations.

3.2 SITE EXCAVATION CHARACTERISTICS

Conventional heavy equipment in good working order is expected to be able to excavate the fill and very old surficial deposits to the anticipated excavation depth. However, cemented zones in the very old surficial deposits should be expected below a depth of about 2 feet. Contract documents should specify that the contractor mobilize equipment capable of excavating and breaking the rock.

It should be noted that gravel, cobbles, and boulders up to 24 inches in diameter could be encountered within the very old surficial deposits. Contract documents should specify that the contractor mobilize equipment capable of compacting and excavating materials with gravel and cobbles.

4. RECOMMENDATIONS

4.1 GRADING

4.1.1 Site Preparation

Site preparation should begin with the removal of the vegetation and deleterious matter in the area of planned structural improvements and areas to receive fill. The existing fill should be excavated in its entirety in areas to receive fill or settlement sensitive improvements. Horizontally, the excavation should extend a minimum of 5 beyond the perimeter of buildings and 2 feet beyond the perimeter of exterior slabs. The excavated material can be used as fill.

A SCS&T representative should observe conditions exposed in the bottom of the excavations to determine if additional removal is required.

4.1.2 Earthwork

The material exposed in the bottom of the excavation should be scarified to a depth of 3 inches, moisture conditioned and compacted to at least 90% relative compaction. Fill should be placed in 6- to 8-inch thick loose lifts, moisture conditioned to near optimum moisture content, and compacted to at least 90% relative compaction. The maximum dry density and optimum moisture content for the evaluation of relative compaction should be determined in accordance with ASTM D 1557.

Utility trench backfill within 5 feet of the structures and beneath pavements should be compacted to a minimum of 90% relative compaction. The upper 12 inches of subgrade beneath paved areas should be compacted to 95% relative compaction. This compaction should be obtained just prior to placing the aggregate base material.

4.1.3 Expansive Soil

The soils on-site were visually classified as non-detrimentally expansive.

4.1.4 Imported Soil

Imported soils should consist of non-detrimentally expansive soils (EI less than 20), free of organic material and over-size material (greater than 3 inches in any dimension).

Additionally, imported soil should be approved by SCS&T prior to transport to the subject site.

4.1.5 Surface Drainage

Final surface grades around improvements should be designed to collect and direct surface water away from the improvements and toward appropriate drainage facilities.

The ground around improvements should be graded so that surface water flows rapidly away without ponding. In general, we recommend that the ground slope at a gradient of at least 2%. Densely vegetated areas where runoff can be impaired should have a minimum gradient of at least 5% within the first 5 feet from the structures.

Drainage patterns established at the time of fine grading should be maintained throughout the life of the proposed structures. Site irrigation should be limited to the minimum necessary to sustain landscape growth. Should excessive irrigation, impaired drainage, or unusually high rainfall occur, saturated zones of perched groundwater can develop.

4.1.6 Grading Plan Review

The grading plans should be submitted to SCS&T for review to ascertain that the recommendations contained in this report have been implemented, and no revised recommendations are necessary due to change in the development scheme.

4.2 FOUNDATIONS

4.2.1 Shallow Foundations

Shallow foundations with bottom levels in undisturbed very old surficial deposits (Formation) can be used for the support of the new structure. The footings should have a minimum depth of 12 inches below lowest adjacent finish pad grade. A minimum footing width of 12 inches is recommended.

A bearing capacity of 3,000 pounds per-square-foot (psf) can be used for the total of dead and long-term live loads. This value can be increased by ⅓ when considering the total of all loads, including wind or seismic forces.

4.2.2 Static Settlement Characteristics

Total footing settlements are estimated to be less than ½ inch. Differential settlements between adjacent footings are estimated to be less than ½ inch. Settlements should occur rapidly, and should be completed shortly after structural loads are applied.

4.2.3 Resistance to Lateral Loads

Lateral loads will be resisted by friction between the bottoms of footings and passive pressure on the faces of footings and other structural elements below grade. A friction factor of 0.35 can be used. Passive pressure can be computed using a lateral pressure value of 350 psf per foot of depth below the ground surface. The upper 1 foot of soil should not be relied on for passive support unless the ground is covered with pavements or slabs.

4.2.4 Foundation Plan Review

The foundation plans should be submitted to SCS&T for review to ascertain that the intent of the recommendations in this report has been implemented and that revised recommendations are not necessary due to the layout.

4.2.5 Foundation Excavation Observations

It is recommended that all foundation excavations and pier holes be approved by a representative from SCS&T prior to forming or placing reinforcing steel.

4.3 SLABS-ON-GRADE

4.3.1 Interior Concrete Slabs-on-Grade

Concrete slabs-on-grade should have a thickness of at least 5 inches and be reinforced with at least No. 3 reinforcing bars placed at 18 inches on-center each way. Slab reinforcement should be placed approximately at mid-height of the slab and extend at least 6 inches down into the footings.

Slabs-on-grade should be underlain by a 4-inch thick blanket of clean, poorly graded, coarse sand or crushed rock. A moisture vapor retarder/barrier should be placed beneath slabs where floor coverings will be installed. Typically, 10-mil-thick Visqueen is used as the moisture vapor retarder/barrier. Stegowrap with a thickness of 15 mils also can be used.

Current construction practice typically includes placement of a two-inch thick sand cushion between the bottom of the concrete slab and the moisture vapor retarder/barrier. This cushion can provide some protection to the vapor retarder/barrier during construction, and may assist in reducing the potential for edge curling in the slab during curing. However, the sand layer also provides a source of moisture vapor to the underside of the slab that can increase the time required to reduce moisture vapor emissions to limits acceptable for the type of floor covering placed on top of the slab. The floor covering manufacturer should be contacted to determine the volume of moisture vapor allowable and any treatment needed to reduce moisture vapor emissions to acceptable limits for the particular type of floor covering installed.

4.3.2 Exterior Concrete Slabs-on-Grade

The upper 2 feet of soil below exterior concrete slabs-on-grade should have an Expansion Index of 20 or less. Exterior concrete slabs-on-grade should have a minimum thickness of 5 inches; reinforced with at least No. 3 bars at 18 inches on center each way. Slabs should be provided with weakened plane joints. Joints should be placed in accordance with the American Concrete Institute Guidelines. The landscape architect should be consulted in selecting the final joint patterns.

A 1-inch maximum size aggregate mix is recommended for concrete for exterior slabs. A water/cement ratio of less than 0.45 also is recommended, to decrease the potential for shrinkage cracks. The corrosion potential of on-site soils with respect to reinforced concrete will need to be taken into account in concrete mix design. Coarse and fine aggregate in concrete should conform to the "Greenbook" Standard Specifications for Public Works Construction.

4.4 CORROSIVITY

Based on Caltrans "Corrosion Guidelines, Version 1.0", dated September 2003, the materials underlying the alignments form a non-corrosive environment with respect to steel and reinforced concrete. Nevertheless, Type II modified portland cement is recommended for use in concrete in contact with ground.

5. CLOSURE

5.1 GEOTECHNICAL REVIEW

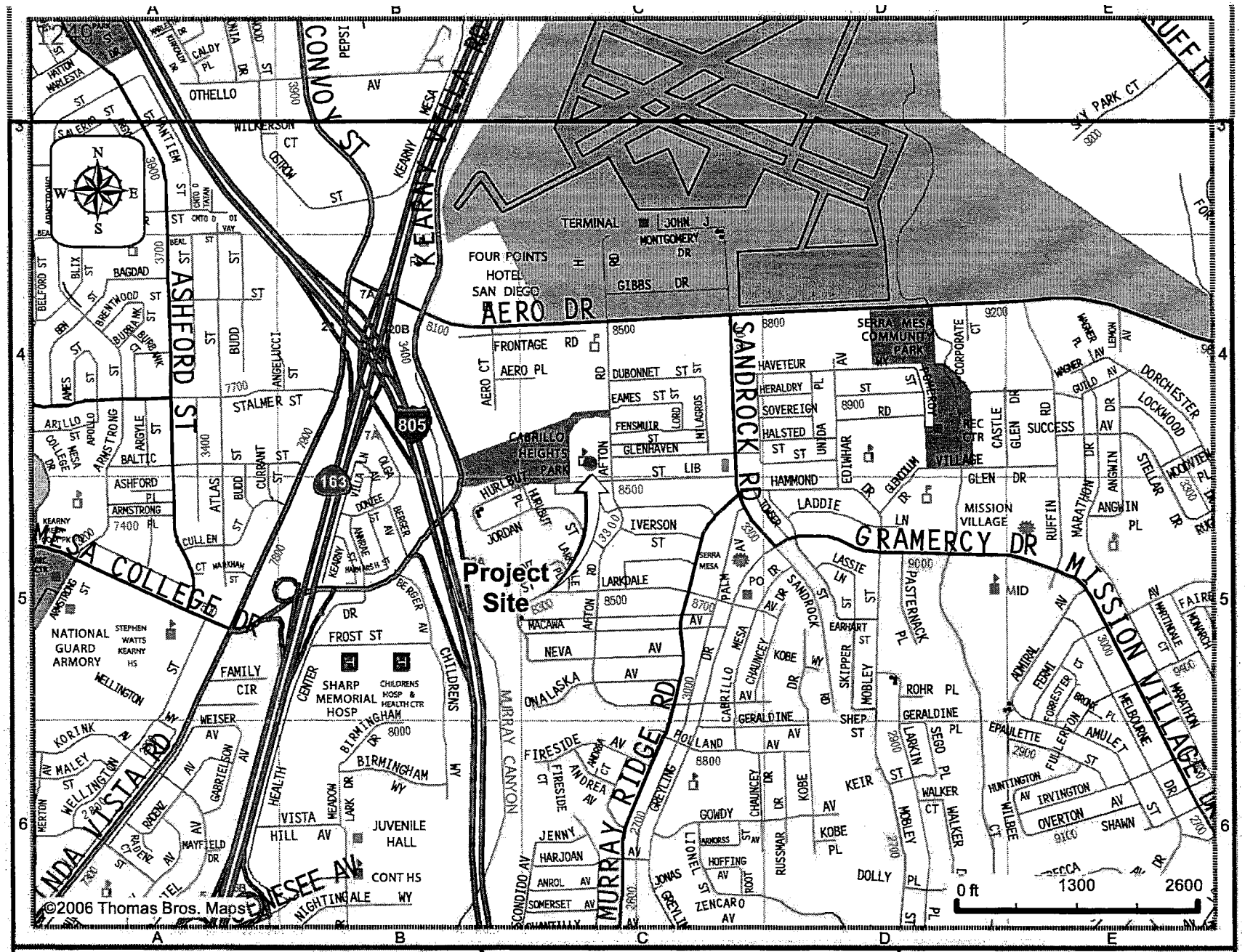
The foundation and earthwork plans and pertinent sections of the project specifications should be reviewed by the geotechnical engineer to evaluate conformance with the intent of the conclusions and recommendations contained in this report. If project conditions or final design vary from those described in this report, SCS&T should be contacted regarding the applicability of, and the necessity for any revisions to, the conclusions and recommendations presented in this report.

Removal of unsuitable soils, placement and compaction of structural fill and excavations for footings should be observed by the geotechnical engineer or engineering geologist of record. Appropriate field tests should be performed to provide quality control and quality assurance for structural fills and related earthwork elements.

5.2 LIMITATIONS

This report is based on the project as described and the information obtained from the test borings at the approximate locations indicated on Figure 2. The findings are based on the results of the field, laboratory and office investigations, combined with interpolation and extrapolation of conditions between and beyond the boring and test pit locations and reflect interpretation of the limited direct evidence obtained.

This report has been prepared for the use of The City of San Diego in design of the described project. It may not contain sufficient information for other users or other purposes. This report has been prepared in accordance with generally accepted geotechnical practice in San Diego County. No warranty, express or implied, is given or intended with respect to the information contained in this report.



SOUTHERN CALIFORNIA SOIL & TESTING, INC.

SITE LOCATION MAP
ANGIER ELEMENTARY - TASK 5
City of San Diego, California

Job No. 0811209-1

Figure: 1


SCS&T LEGEND
B-5 Approximate Test Boring Location
B-5
B-4
B-3
B-2
B-1
Afton Rd
Fensmuir St
Glenhaven St
Hurlbut St
Not to Scale
SOUTHERN CALIFORNIA
SOIL & TESTING, INC.
ANGIER ELEMENTARY - TASK 5
By: GF/EL
Date: 1/29/09
Job No.: 0811209-1
Figure: 2

APPENDIX I
FIELD INVESTIGATION

Five exploratory test borings were drilled at the locations indicated on Figure 2 on January 20, 2009. The fieldwork was performed under the observation of our geologist, who also logged the borings and obtained samples of the materials encountered. Relatively undisturbed samples were obtained with a 2.5-inch inner diameter sampler driven with a 140-pound weight falling 30 inches. The number of blows required to drive the sampler the final 12 inches of an 18-inch drive are noted on the borings logs as "Penetration (blows/ft. of drive)." Disturbed samples were obtained from drill cuttings.

SUBSURFACE EXPLORATION LEGEND

UNIFIED SOIL CLASSIFICATION CHART

SOIL DESCRIPTION		GROUP SYMBOL	TYPICAL NAMES
I. COARSE GRAINED, more than 50% of material is larger than No. 200 sieve size.			
GRAVELS More than half of coarse fraction is larger than No. 4 sieve size but smaller than 3".	CLEAN GRAVELS	GW	Well graded gravels, gravel-sand mixtures, little or no fines.
		GP	Poorly graded gravels, gravel sand mixtures, little or no fines.
	GRAVELS WITH FINES (Appreciable amount of fines)	GM	Silty gravels, poorly graded gravel-sand-silt mixtures.
		GC	Clayey gravels, poorly graded gravel-sand, clay mixtures.
SANDS More than half of coarse fraction is smaller than No. 4 sieve size.	CLEAN SANDS	SW	Well graded sand, gravelly sands, little or no fines.
		SP	Poorly graded sands, gravelly sands, little or no fines.
	SANDS WITH FINES (Appreciable amount of fines)	SM	Silty sands, poorly graded sand and silty mixtures.
		SC	Clayey sands, poorly graded sand and clay mixtures.
II. FINE GRAINED, more than 50% of material is smaller than No. 200 sieve size.			
	SILTS AND CLAYS (Liquid Limit less than 50)	ML	Inorganic silts and very fine sands, rock flour, sandy silt or clayey-silt-sand mixtures with slight plasticity.
		CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays.
		OL	Organic silts and organic silty clays or low plasticity.
	SILTS AND CLAYS (Liquid Limit greater than 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.
III. HIGHLY ORGANIC SOILS		PT	Peat and other highly organic soils.

▽ - Water level at time of excavation or as indicated
☒ - Bulk Sample
AL - Atterberg Limits
CAL - Modified California pentration test sampler
CK - Undisturbed chunk sample
CL - Chloride
CON - Consolidation
COR - Corrosivity Test
- Sulfate
- Chloride
- pH and Resistivity

DS - Direct Shear
EI - Expansion Index
MS - Maximum Size of Particle
MAX - Maximum Density
pH - pH & Resistivity
RC - Relative Compaction
RV - R Value
SA - Sieve Analysis
SC - Sand Cone
SF - Sulfate & Chloride
SPT - Standard penetration test sampler
ST - Shelby Tube
TX - Triaxial Compression
UC - Unconfined Compression

SOUTHERN CALIFORNIA SOIL & TESTING, INC.

ANGIER ELEMENTARY			
BY:	GF/EL	DATE:	2/5/2009
JOB NUMBER:	0811209-1	FIGURE I -	1

LOG OF EXPLORATORY BORING NUMBER B-1

Date Excavated: 1/20/2009 — Logged by: RB
Equipment: 8-inch Hollow Stem Auger — Project Manager: GF
Surface Elevation (ft): N/A — Depth to Water (ft): N/A

DEPTH (ft)	USCS	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES: SAMPLER	SAMPLES: BULK	PENETRATION (blows/ ft. of drive)	MOISTURE (%)	DRY UNIT WT. (pcf)	LABORATORY TESTS
0	SM	**FILL (Qaf)** - Gray, humid, loose, SILTY SAND		X				SA
2		**VERY OLD SURFICIAL DEPOSITS (Qvop)** - Reddish brown, humid, medium dense to dense, SILTY SANDSTONE						
		observed gravel and cobbles						
4								
		very dense below 5 feet	CAL	X	50/3"			
6		gravel encountered						
8								
			CAL		50/2"			
10				X				
12								
		cobbles encountered						
14								
			CAL		50/5"			
16								
18			CAL		50/4"			
20		**BOTTOM OF BORING AT 19 FEET**						

SOUTHERN CALIFORNIA SOIL & TESTING, INC.	ANGIER ELEMENTARY - TASK 5	
	BY: GF/EL	DATE: 2/5/2009
	JOB NUMBER: 0811209-1	FIGURE I - 2

LOG OF EXPLORATORY BORING NUMBER B-2

Date Excavated: 1/20/2009 — Logged by: RB
Equipment: 8-inch Hollow Stem Auger — Project Manager: GF
Surface Elevation (ft): N/A — Depth to Water (ft): N/A

DEPTH (ft)	USCS	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES: SAMPLER	SAMPLES: BULK	PENETRATION (blows/ ft. of drive)	MOISTURE (%)	DRY UNIT WT. (pcf)	LABORATORY TESTS
	SM	**FILL (Qaf)** - Gray, moist, loose, SILTY SAND						
2		**VERY OLD SURFICIAL DEPOSITS (Qvop)** - Reddish brown, humid, medium dense to dense, SILTY SANDSTONE		X				COR
		gravel and cobbles encountered						
4								
		very dense below 5 feet	CAL	X	50/2"			
6		gravel encountered						
8								
10			CAL		50/2"			
		gravel encountered		X				
12								
		cobbles encountered						
14								
			CAL		50/3"			
16								
18			CAL		50/6"			
		BOTTOM OF BORING AT 19 FEET						
20								

SOUTHERN CALIFORNIA SOIL & TESTING, INC.	ANGIER ELEMENTARY - TASK 5	
	BY: GF/EL	DATE: 2/5/2009
	JOB NUMBER: 0811209-1	FIGURE 1 - 3

LOG OF EXPLORATORY BORING NUMBER B-3

Date Excavated: 1/20/2009 — Logged by: RB

Equipment: 8-inch Hollow Stem Auger — Project Manager: GF

Surface Elevation (ft): N/A — Depth to Water (ft): N/A

DEPTH (ft)	USCS	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES: SAMPLER	SAMPLES: BULK	PENETRATION (blows/ ft. of drive)	MOISTURE (%)	DRY UNIT WT. (pcf)	LABORATORY TESTS
	SM	**FILL (Qaf)** - Gray, moist, loose, SILTY SAND		X				
2		**VERY OLD SURFICIAL DEPOSITS (Qvop)** - Reddish brown, humid, medium dense to dense, SILTY SANDSTONE		X				SA/ MAX / DS
4		gravel encountered		X				
6		very dense below 5 feet	CAL		50/2"			
8		gravel encountered		X				
10			CAL		50/5"			
12								
14		gravel and cobbles encountered						
16			CAL	X	50/1"			
18			CAL	X	50/5"			
20		**BOTTOM OF BORING AT 19 FEET**						

SOUTHERN CALIFORNIA SOIL & TESTING, INC.	ANGIER ELEMENTARY - TASK 5	
	BY: GF/EL	DATE: 2/5/2009
	JOB NUMBER: 0811209-1	FIGURE 1 - 4

LOG OF EXPLORATORY BORING NUMBER B-4

Date Excavated: 1/20/2009 Logged by: RB

Equipment: 8-inch Hollow Stem Auger Project Manager: GF

Surface Elevation (ft): N/A Depth to Water (ft): N/A

DEPTH (ft)	USCS	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES: SAMPLER	SAMPLES: BULK	PENETRATION (blows/ ft. of drive)	MOISTURE (%)	DRY UNIT WT. (pcf)	LABORATORY TESTS
0	SM	**FILL (Qaf)** - Gray, humid, loose, SILTY SAND	X					SA
2		**VERY OLD SURFICIAL DEPOSITS (Qvop)** - Reddish brown, humid, medium dense to dense, SILTY SANDSTONE						
		AUGER REFUSAL AT 2 FEET						
4								
6								
8								
10								
12								
14								
16								
18								
20								

SOUTHERN CALIFORNIA SOIL & TESTING, INC.	ANGIER ELEMENTARY - TASK 5	
	BY: GF/EL	DATE: 2/5/2009
	JOB NUMBER: 0811209-1	FIGURE 1 - 5

LOG OF EXPLORATORY BORING NUMBER B-5

Date Excavated: 1/20/2009 — Logged by: RB

Equipment: 8-inch Hollow Stem Auger — Project Manager: GF

Surface Elevation (ft): N/A — Depth to Water (ft): N/A

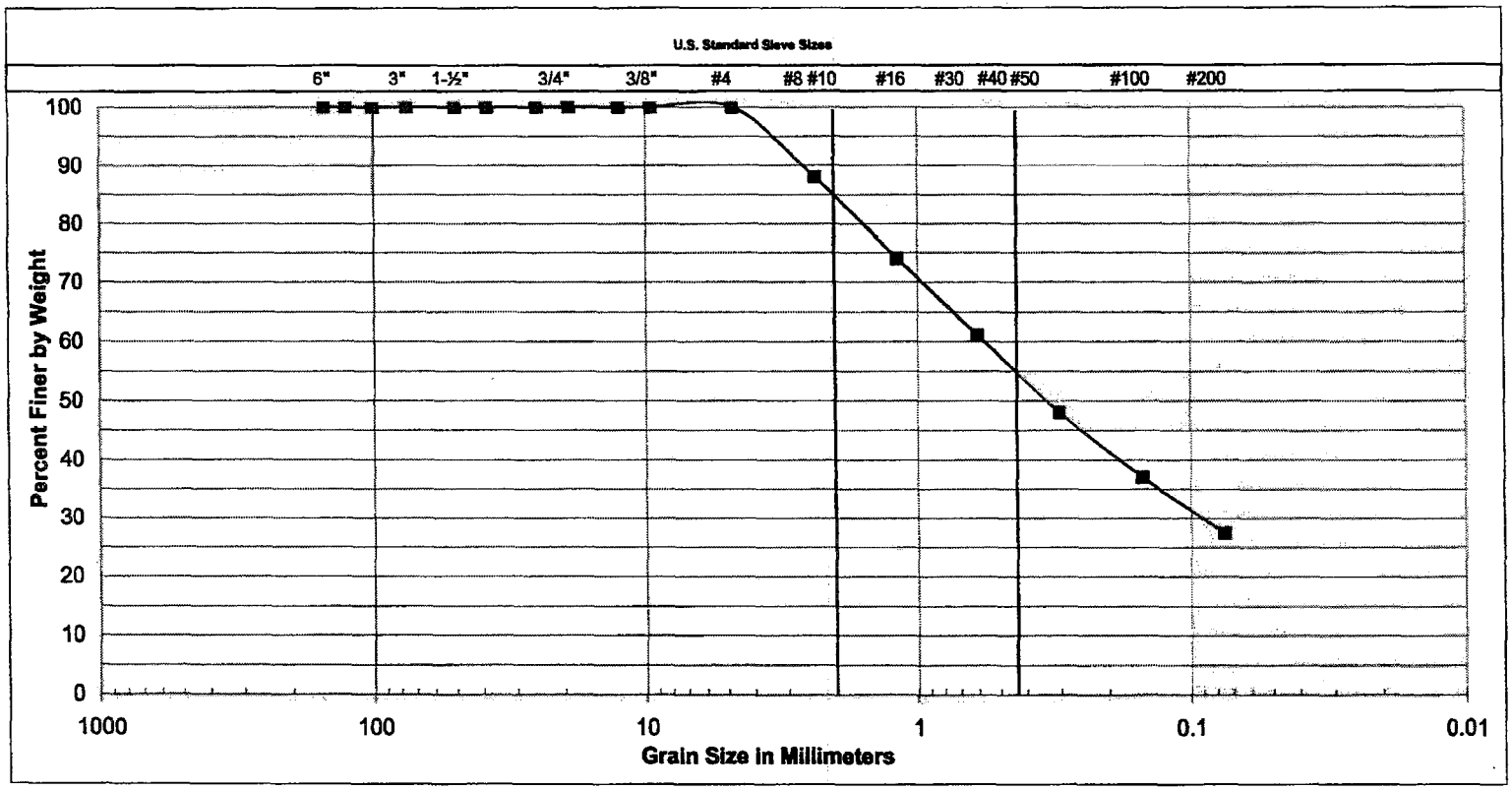
DEPTH (ft)	USCS	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES: SAMPLER	SAMPLES: BULK	PENETRATION (blows/ ft. of drive)	MOISTURE (%)	DRY UNIT WT. (pcf)	LABORATORY TESTS
0	SM	**FILL (Qaf)** - Gray, humid, loose, SILTY SAND	X					COR
2		**VERY OLD SURFICIAL DEPOSITS (Qvop)** - Reddish brown, humid, medium dense to dense, SILTY SANDSTONE						
		AUGER REFUSAL AT 2½ FEET						
4								
6								
8								
10								
12								
14								
16								
18								
20								

SOUTHERN CALIFORNIA SOIL & TESTING, INC.	ANGIER ELEMENTARY - TASK 5	
	BY: GF/EL	DATE: 2/5/2009
	JOB NUMBER: 0811209-1	FIGURE I - 6

APPENDIX II
LABORATORY TESTING

The laboratory test program was design to fit the specific need of this project and was limited to testing on-site materials. A brief description of each type of test is presented below. Results are given on the following pages and on the test boring logs in Appendix I.

- **CLASSIFICATION:** Field classifications were verified in the laboratory by visual examination. The final soil classifications are in accordance with the Unified Soil Classification System.
- **GRAIN SIZE DISTRIBUTION:** The grain size distribution was determined for 3 samples in accordance with ASTM D 422. The results are presented on Figures II-1 through II-3.
- **MAXIMUM DENSITY AND OPTIMUM MOISTURE:** The maximum density and optimum moisture content was determined for one sample in accordance with ASTM D 1557. The result is presented on Figure II-4.
- **CORROSIVITY**: Corrosivity tests were performed on 2 sample. The pH and minimum resistivity were determined in general accordance with California Test 643. The soluble sulfate content was determined in accordance with California Test 417. The total chloride ion content was determined in accordance with California Test 422. The results of these tests are presented on Figure II-4.
- **DIRECT SHEAR:** A direct shear test was performed in accordance with ASTM D 3080. The shear stress was applied at a constant rate of strain of approximately 0.003 inch per minute. The results are presented on Figure II-5.



Cobbles	Gravel		Sand			Silt or Clay
	Coarse	Fine	Coarse	Medium	Fine	

SAMPLE LOCATION
B-1 at 0 - 2'

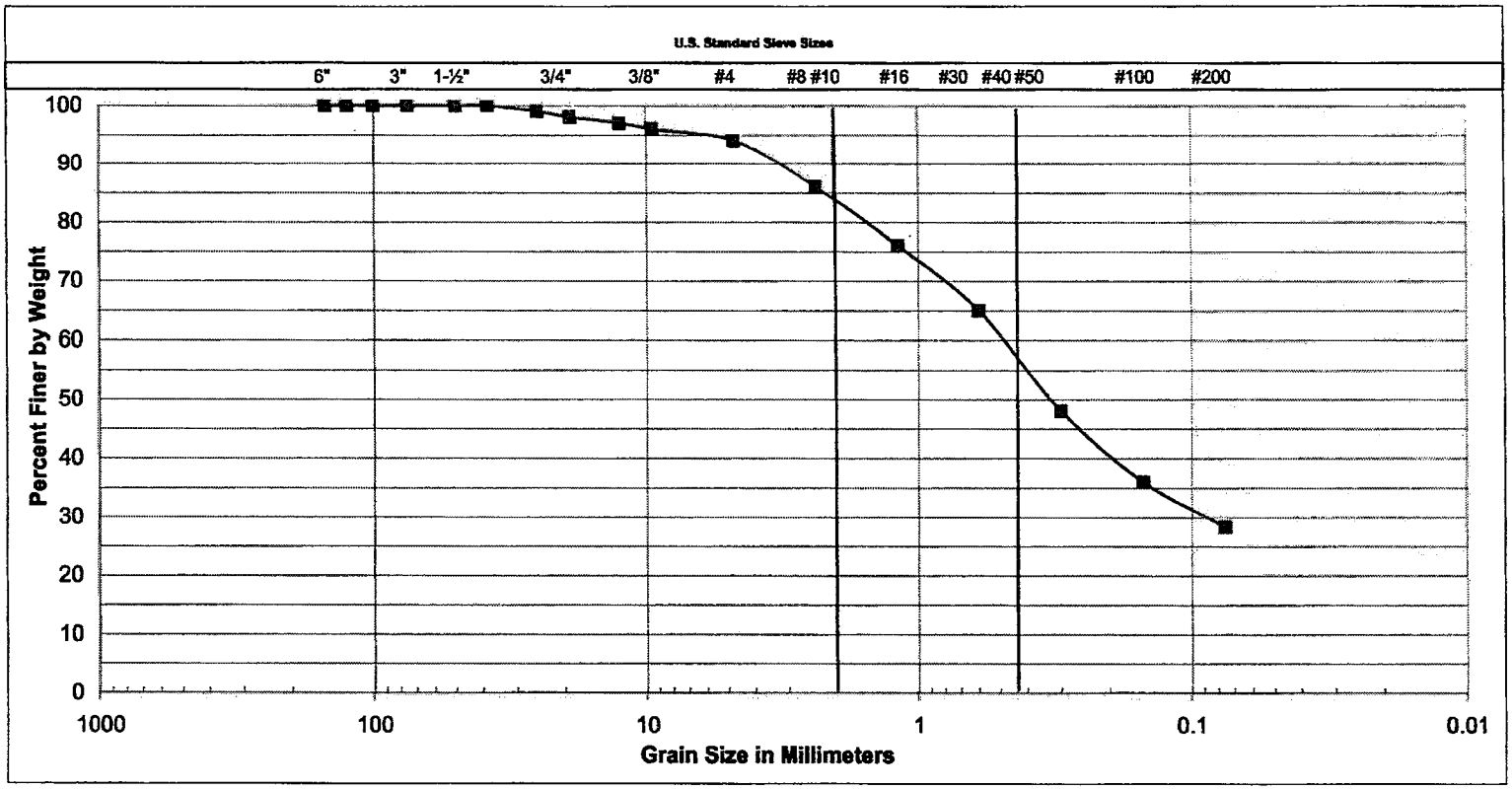
UNIFIED SOIL CLASSIFICATION:	SM
DESCRIPTION	SILTY SAND

ATTERBERG LIMITS	
LIQUID LIMIT	N/A
PLASTIC LIMIT	N/A
PLASTICITY INDEX	N/A

SOUTHERN CALIFORNIA SOIL & TESTING, INC.

ANGIER ELEMENTARY - TASK 5

BY:	GF/EL	DATE:	2/5/09
JOB NUMBER:	0811209P-1	FIGURE II -	1



Cobbles	Gravel		Sand			Silt or Clay
	Coarse	Fine	Coarse	Medium	Fine	

SAMPLE LOCATION
B-3 at 0 - 2'

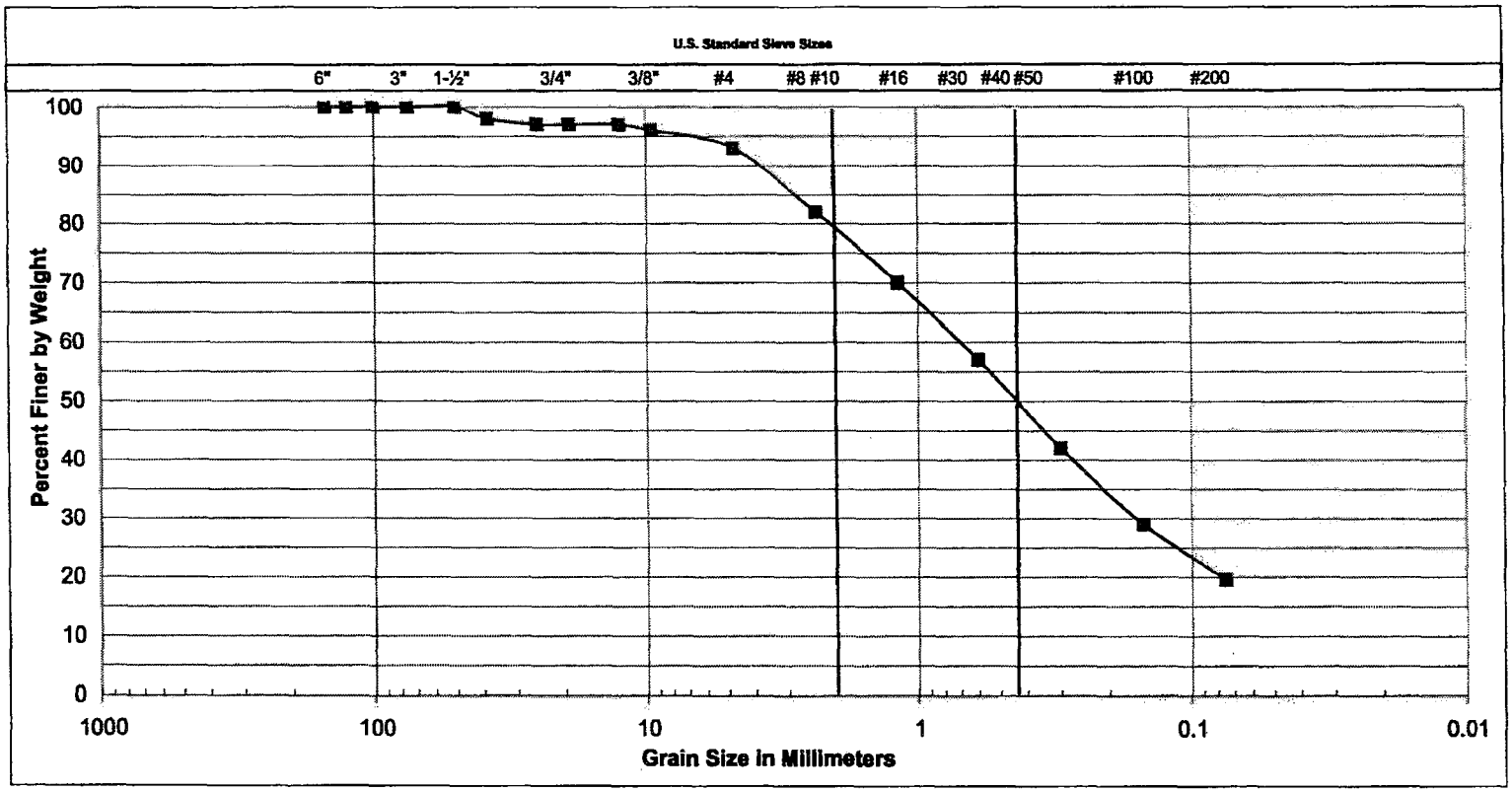
UNIFIED SOIL CLASSIFICATION:	SM
DESCRIPTION	SILTY SAND

ATTERBERG LIMITS	
LIQUID LIMIT	N/A
PLASTIC LIMIT	N/A
PLASTICITY INDEX	N/A

SOUTHERN CALIFORNIA SOIL & TESTING, INC.

ANGIER ELEMENTARY - TASK 5

BY:	GF/EL	DATE:	2/5/09
JOB NUMBER:	0811209P-1	FIGURE II -	2



Cobbles	Gravel		Sand			Silt or Clay
	Coarse	Fine	Coarse	Medium	Fine	

SAMPLE LOCATION
B-4 at 0 - 2'

UNIFIED SOIL CLASSIFICATION:	SM
DESCRIPTION	SILTY SAND

ATTERBERG LIMITS	
LIQUID LIMIT	N/A
PLASTIC LIMIT	N/A
PLASTICITY INDEX	N/A

SOUTHERN CALIFORNIA SOIL & TESTING, INC.

ANGIER ELEMENTARY

BY:	DBA	DATE:	2/5/09
JOB NUMBER:	0811209P-1	FIGURE II -	3

MAXIMUM DENSITY & OPTIMUM MOISTURE CONTENT

METHOD - A ASTM - D1557-00

SAMPLE	DESCRIPTION	MAXIMUM DRY DENSITY (pcf)	OPTIMUM MOISTURE (pcf)
B-3 at 0' - 2'	Gray Silty Sand	134.9	7.8

RESISTIVITY, pH, SOLUBLE SULFATE, CHLORIDE

Caltrans Corrosion Guidelines, Version 1.0 (September 2003)

SAMPLE IDENTIFICATION	RESISTIVITY (W-cm)	pH	SOLUBLE SULFATE (%)	CHLORIDE (%)
B-2 at 1' - 3'	1500	6.6	0.004	0.013
B-5 at 0' - 2½'	3000	7.6	<0.001	0.007

ACI 318-05 Building Code Requirements for Structural Concrete
Table 4.3.1 Requirements for Concrete Exposed to Sulfate-Containing Solutions

Sulfate Exposure	Water-Soluble Sulfate in Soil Percentage by Weight	Cement Type	Maximum Water-Cementitious Materials Ratio, By Weight, Normal Weight Aggregate Concrete[1]	Minimum f'c, Normal-Weight and Lightweight Aggregate Concrete, psi
Negligible	0.00-0.10	-	-	-
Moderate	0.10-0.20	II,IP(MS),IS(MS), P(MS), I(PM)(MS), I(SM)(MS)	0.50	4000
Severe	0.20-2.00	V	0.45	4500
Very Severe	Over 2.00	V plus pozzolan	0.45	4500

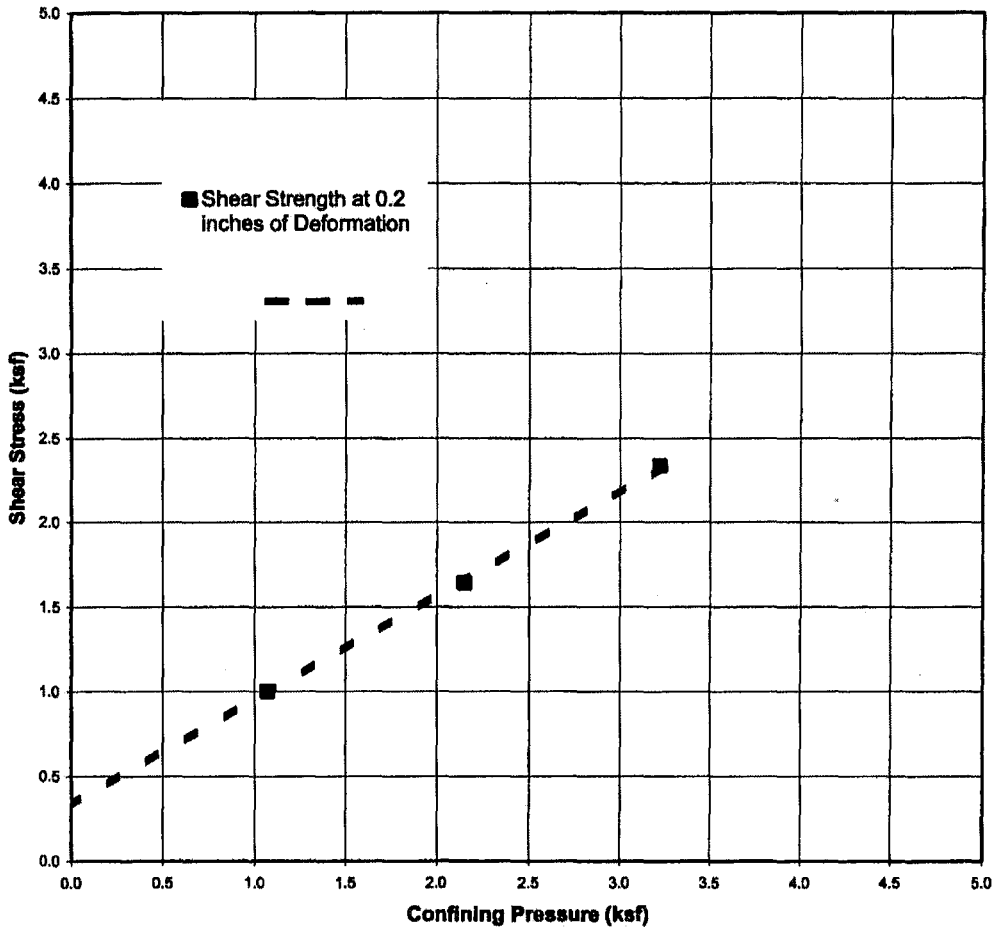
Caltrans Corrosion Criteria

Corrosive Environment*	RESISTIVITY(W - cm)	pH	SOLUBLE SULFATE	CHLORIDE
	<1000	<5.5	>0.2	>0.05

* Corrosive enivronment as determined by the California Department of Transportation Division of Engineering Services, Materials Engineering and testing Services Corrosion Technology Branch, 2003;Corrosion Guidelines Version 1.0, September 2003

SOUTHERN CALIFORNIA SOIL & TESTING, INC.	ANGIER ELEMENTARY - TASK 5	
	BY: DW/EL	DATE: 2/6/2009
	JOB NUMBER: 0811209P-1	FIGURE II - 4

Direct Shear Test Results



SAMPLE	DESCRIPTION	INTERNAL FRICTION ANGLE(DEG.)	COHESION INTERCEPT (PSF)
B3 at 0 - 2	Silty Sand, Remolded to 90% Relative Compaction		
Shear Strength at 0.2 Inches of Deformation		32	326

SOUTHERN CALIFORNIA SOIL & TESTING

ANGIER ELEMENTARY - TASK 5

BY:	JJS/GBF	DATE:	2/6/2009
JOB NUMBER:	0811209P	FIGURE II-5	

APPENDIX III

WALLACE LABS
365 Coral Circle
El Segundo, CA 90245
(310) 615-0116

SOILS REPORT | Print Date Jan. 30, 2009 | Receive Date 1/30/09

Location: Job No. 0811209P

Requester: Raleigh Easton, Southern California Soil & Testing Inc.

graphic interpretation: * very low, ** low, *** moderate, **** high, ***** very high

Interpretation of data	Sample ID Number	09-30-15 B1 @ 0-2'		09-30-16 B2 @ 1-3'		09-30-17 B3 @ 0-2'		09-30-18 B4 @ 0-2'		09-30-19 B5 @ 0-2.5'	
ammonium bicarbonate/DTPA extractable - mg/kg soil											
low medium high	**elements**		graphic		graphic		graphic		graphic		graphic
0-7 8-15 over 15	phosphorus	1.43	*	0.80	*	2.45	*	3.27	**	2.47	*
0-60 60-120 121-180	potassium	35.35	**	62.96	***	47.76	**	56.81	**	36.47	**
0-4 4-10 over 10	iron	5.84	***	6.38	***	12.51	****	6.97	***	4.03	***
0-0.5 0.6-1 over 1	manganese	2.34	****	2.01	****	2.89	****	1.93	****	0.75	***
0-1 1-1.5 over 1.5	zinc	1.56	****	1.34	***	1.58	****	3.12	****	2.28	****
0-0.2 0.3-0.5 over 0.5	copper	0.79	****	0.74	****	0.89	****	1.33	****	0.82	****
0-0.2 0.2-0.5 over 1	boron	0.08	*	0.19	**	0.09	*	0.11	**	0.17	**
ratio of calcium to magnesium	calcium	378.52	***	380.12	***	370.44	***	403.81	****	446.24	****
needs to be more than 2 or 3	magnesium	298.46	*****	399.81	*****	227.54	*****	146.70	****	179.28	*****
should be less than potassium	sodium	102.78	***	256.11	****	230.42	****	79.29	**	218.39	****
	sulfur	12.79	*	22.46	*	23.08	*	9.52	*	10.16	*
	molybdenum	nd	*	nd	*	0.03	***	nd	*	0.04	***
	nickel	nd	*	0.02	*	0.10	*	0.08	*	0.02	*
The following trace	aluminum	nd	*	nd	*	nd	*	nd	*	nd	*
elements may be toxic	arsenic	0.05	*	0.04	*	0.17	*	0.10	*	0.03	*
The degree of toxicity	barium	1.16	*	0.72	*	1.37	*	1.84	*	1.32	*
depends upon the pH of	cadmium	0.01	*	0.02	*	0.01	*	0.02	*	nd	*
the soil, soil texture,	chromium	nd	*	nd	*	0.01	*	nd	*	nd	*
organic matter, and the	cobalt	0.02	*	0.07	*	0.04	*	nd	*	nd	*
concentrations of the	lead	0.49	*	0.63	*	1.57	**	1.07	**	0.92	*
individual elements as well	lithium	0.19	*	0.20	*	0.19	*	0.22	*	0.24	*
as to their interactions	mercury	nd	*	nd	*	nd	*	nd	*	nd	*
	selenium	nd	*	nd	*	nd	*	nd	*	nd	*
The pH optimum depends	silver	nd	*	nd	*	nd	*	nd	*	nd	*
upon soil organic	strontium	1.95	*	2.21	*	1.72	*	2.32	*	2.47	*
matter and clay content-	tin	nd	*	nd	*	nd	*	nd	*	nd	*
for clay and loam soils:	vanadium	0.30	*	0.28	*	0.22	*	0.18	*	0.27	*
under 5.2 is too acidic											
6.5 to 7 is ideal	**Saturation Extract**										
over 8.0 is too alkaline	pH value	7.06	***	6.57	***	6.77	***	7.28	***	6.56	***
The ECe is a measure of	ECe (milli-mho/cm)	0.92	***	1.44	***	2.00	****	0.57	**	1.63	***
the soil salinity:			millieq/l		millieq/l		millieq/l		millieq/l		millieq/l
1-2 affects a few plants	calcium	47.8	2.4	43.4	2.2	91.7	4.6	20.9	1.0	47.6	2.4
2-4 affects some plants,	magnesium	23.4	1.9	26.4	2.2	34.6	2.9	8.8	0.7	24.5	2.0
> 4 affects many plants.	sodium	107.4	4.7	212.1	9.2	282.2	12.3	86.0	3.7	243.5	10.6
	potassium	4.8	0.1	6.9	0.2	6.8	0.2	5.0	0.1	6.5	0.2
	cation sum		9.1		13.8		19.9		5.6		15.2
problems over 150 ppm	chloride	156	4.4	274	7.7	388	10.9	26	0.7	346	9.7
good 20 - 30 ppm	nitrate as N	29	2.1	40	2.9	41	3.0	11	0.8	36	2.6
	phosphorus as P	0.2	0.0	0.4	0.0	0.5	0.0	0.3	0.0	0.3	0.0
toxic over 800	sulfate as S	23.1	1.4	37.5	2.3	67.1	4.2	31.2	2.0	38.5	2.4
	anion sum		7.9		13.0		18.1		3.4		14.7
toxic over 1 for many plants	boron as B	0.13	*	0.23	**	0.05	*	0.12	*	0.25	**
increasing problems start at 3	SAR	3.2	***	6.3	****	6.4	****	4.0	***	7.1	****
est. gypsum requirement-lbs./1000 sq. ft.		33		93		39		13		37	
	relative infiltration rate	slow/fair		slow/fair		slow		slow		slow	
	estimated soil texture	sandy loam		sandy loam		sandy loam		sandy loam		loam	
	lime (calcium carbonate)	no		no		no		no		no	
	organic matter	low/fair		low/fair		low/fair		low/fair		low/fair	
	moisture content of soil	4.1%		5.2%		4.0%		2.6%		8.2%	
	half saturation percentage	16.1%		18.1%		15.9%		12.3%		18.8%	

Elements are expressed as mg/kg dry soil or mg/l for saturation extract.
pH and ECe are measured in a saturation paste/extract. nd means not detected.

WALLACE LABORATORIES
365 Coral Circle
El Segundo, CA 90245
phone (310) 615-0116 fax (310) 640-6863

February 2, 2009

reaston@scst.com, rbaudour@scst.com
Southern California Soil and Testing
Raleigh Easton
PO Box 600627
San Diego, CA 92120

RE: 0811209P

Dear Raleigh,

Sample B1 @ 0-2'
Sample B2 @ 1-3'
Sample B3 @ 0-2'
Sample B4 @ 0-2'
Sample B5 @ 0-2.5'

These samples have near neutral pH values which range from 6.56 to 7.28. Salinity is slightly elevated at 2.00 millimho/cm in sample B3. The values of salinity range from 0.57 to 1.63 millimho/cm for the other 4 samples. Chloride is higher than desired in samples B2, B3 and B5 and range from 274 to 388 parts per million in the saturation extract. Salt-sensitive plants need chloride below about 150 parts per million.

Nitrogen is moderate except in sample B4. Potassium is low or modest. Phosphorus is low. The micronutrients are sufficient except for low boron. Sulfur is low. Sodium is moderately high and ranges from 79 to 256 parts per million.

Recommendations

General soil preparation for turf, ground cover and shrub areas. Broadcast the following materials uniformly. The rates are per 1,000 square feet. Incorporate them homogeneously 6 inches deep:

Potassium sulfate (0-0-50) – 8 pounds
Triple superphosphate (0-45-0) – 4 pounds
agricultural gypsum - 40 pounds except 15 pounds for B4
Organic soil amendment - 3 cubic yards, sufficient for about 3% to 5% soil organic matter

For the preparation of backfill mix for container plants and boxed trees, homogeneously blend the following materials into excavated or leached soil. Rates are expressed per cubic yard:

Potassium sulfate (0-0-50) – 1/3 pound
Triple superphosphate (0-45-0) – 1/4 pound
agricultural gypsum – 2 pounds except 1 pound for B4
Organic soil amendment - 15% by volume, sufficient for about 3% to 5% soil organic matter

Organic soil amendment:

1. Humus material shall have an acid-soluble ash content of no less than 6% and no more than 20%.
2. The pH of the material shall be between 6 and 7.5.
3. The salt content shall be less than 10 millimho/cm @ 25° C. on a saturated paste extract.
4. Boron content of the saturated extract shall be less than 1.0 parts per million.
5. Silicon content (acid-insoluble ash) shall be less than 50%.
6. Calcium carbonate shall not be present if to be applied on alkaline soils.
7. Types of acceptable products are composts, manures, mushroom composts, straw, alfalfa, peat mosses etc. low in salts, low in heavy metals, free from weed seeds, free of pathogens and other deleterious materials.
8. Composted wood products are conditionally acceptable [stable humus must be present]. Wood based products are not acceptable which are based on red wood or cedar.
9. Sludge-based materials are not acceptable.
10. Carbon:nitrogen ratio is less than 25:1.
11. The compost shall be aerobic without malodorous presence of decomposition products.
12. The maximum particle size shall be 0.5 inch, 80% or more shall pass a No. 4 screen for soil amending.

Maximum total permissible pollutant concentrations in amendment in parts per million on a dry weight basis:

arsenic	20	copper	150	selenium	50
cadmium	15	lead	200	silver	10
chromium	300	mercury	10	vanadium	500
cobalt	50	molybdenum	20	zinc	300
		nickel	100		

Higher amounts of salinity or boron may be present if the soils are to be preleached to reduce the excess or if the plant species will tolerate the salinity and/or boron.

Leach and reduce the salinity, sodium and chloride. Reduce the chloride to less than 150 parts per million in the saturation extract. Lower the sodium to less than 150 part per million. After leaching, apply ammonium sulfate (21-0-0) at 5 pounds per 1,000 square feet. Normally irrigate deeply but not frequently.

For site maintenance, apply 12-12-12 at 8 pounds per 1,000 square feet about once per quarter. Monitor the site with periodic soil testing. Apply gypsum as needed.

Sincerely,

Garn A. Wallace, Ph. D.
Executive Director
GAW:n

ATTACHMENT F

INTENTIONALLY LEFT BLANK

City of San Diego

CITY CONTACT: Eleida Felix Yackel Contract Specialist, Email: efelixyackel@sandiego.gov
Phone No. (619) 533-3449, Fax No. (619) 533-3633

ADDENDUM "B"

FOR

ANGIER ELEMENTARY SCHOOL JOINT USE IMPROVEMENTS

BID NO.:	K-15-5694-DBB-3-C
SAP NO. (WBS/IO/CC):	S-00762
CLIENT DEPARTMENT:	1714
COUNCIL DISTRICT:	6
PROJECT TYPE:	GF

BID DUE DATE:

2:00 PM
FEBRUARY 18, 2015
CITY OF SAN DIEGO
PUBLIC WORKS CONTRACTS
1010 SECOND AVENUE, 14th FLOOR, 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. VOLUME 1

1. NOTICE INVITING BIDS, page 4, Item 4, SUBCONTRACTING PARTICIPATION PERCENTAGES, Subsection 4.1., **DELETE** in its entirety and **SUBSTITUTE** with the following:

4.1 The City has incorporated **mandatory** SLBE-ELBE subcontractor participation percentages to enhance competition and maximize subcontracting opportunities. For the purpose of achieving the mandatory subcontractor participation percentages, a recommended breakdown of the SLBE and ELBE subcontractor participation percentages based upon certified SLBE and ELBE firms has also been provided to achieve the mandatory subcontractor participation percentages:

1. SLBE participation	**10.0%**
2. ELBE participation	**15.0%**
3. Total mandatory participation	**25.0%**

James Nagelvoort, Director
Public Works Department

Dated: *February 3, 2015*
San Diego, California

JN/BD/lji

City of San Diego

CITY CONTACT: Eleida Felix Yackel **Contract Specialist, Email:** efelixyackel@sandiego.gov
Phone No. (619) 533-3449, **Fax No.** (619) 533-3633

ADDENDUM "A"

FOR

ANGIER ELEMENTARY SCHOOL JOINT USE IMPROVEMENTS

BID NO.:	**K-15-5694-DBB-3-C**
SAP NO. (WBS/IO/CC):	**S-00762**
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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.

For clarity where applicable, **ADDITIONS**, if any, have been **Underlined** and **DELETIONS**, if any, have been ~~**Stricken out.**~~

B. VOLUME 1

1. **ATTACHMENT A, SCOPE OF WORK**, page 29, **SCOPE OF WORK**, Item 1., **DELETE** in its entirety and **SUBSTITUTE** with the following:

SCOPE OF WORK: ~~The Scope of Work provides for the design and construction of approximately 3.95 acres at Angier Elementary School for joint use facilities to meet population base requirements and to supplement existing park acreage in the Serra Mesa community. Proposed improvements include turfed multi-purpose sports field, half courts, walkways, landscaping, and accessibility upgrades.~~

The Joint Use Area includes one softball field with soccer field overlay, softball backstop, bleachers, drinking fountain, chain link fencing and ball barrier safety netting, decomposed granite running track, picnic shelter, site furnishings, full court basketball court, security access lighting to the facility entrances, accessible concrete access walkways and ramps, landscape and irrigation. The school area includes replacement of the removed ½ court basketball court and three tether ball courts and addition of AC pavement and access gates between the school playground and the joint use field. Upgrades of boys/girls restroom by School District personnel.

Project site is a decomposed granite field at Angier Elementary School.

James Nagelvoort, Director
Public Works Department

Dated: *January 26, 2015*
San Diego, California

JN/BD/lji