PROFESSIONAL DESIGN SERVICES AGREEMENT

THIS AGREEMENT, is made and entered into to be effective the 18th day of December, 2019 by and between the ORANGE COUNTY SANITATION DISTRICT, hereinafter referred to as "SANITATION DISTRICT", and LEE & RO, INC., for purposes of this Agreement hereinafter referred to as "CONSULTANT".

WITNESSETH:

WHEREAS, the SANITATION DISTRICT desires to engage a CONSULTANT for **Seal Beach Pump Station Replacement, Project No. 3-67**; and to provide Design services for the replacement of the existing Seal Beach Pump Station with a deeper wet well on the existing site and demolish the old pump station when the new one is complete. The project will also include odor control improvements of vapor-phase and liquid-phase treatment at the pump station and,

WHEREAS, CONSULTANT is qualified to provide the necessary services in connection with these requirements and has agreed to provide the necessary professional services; and,

WHEREAS, the SANITATION DISTRICT has adopted procedures for the selection of professional services and has proceeded in accordance with said procedures to select a CONSULTANT to perform this work; and,

WHEREAS, at its regular meeting on December 18, 2019 the Board of Directors, by Minute Order, accepted the recommendation of the Operations Committee pursuant to SANITATION DISTRICT's Purchasing Ordinance to approve this Agreement between the SANITATION DISTRICT and CONSULTANT.

NOW, THEREFORE, in consideration of the promises and mutual benefits, which will result to the parties in carrying out the terms of this Agreement, it is mutually agreed as follows:

1. SCOPE OF WORK

CONSULTANT agrees to furnish necessary professional and technical services to accomplish those project elements outlined in the Scope of Work attached hereto as Attachment "A", and by this reference made a part of this Agreement.

A. The CONSULTANT shall be responsible for the professional quality, technical accuracy, completeness, and coordination of all design, drawings, specifications, and other services furnished by the CONSULTANT under this Agreement, including the work performed by its Subconsultants. Where approval by the SANITATION DISTRICT is indicated, it is understood to be conceptual approval only and does not relieve the CONSULTANT of responsibility for complying with all laws, codes, industry standards and liability for damages caused by errors, omissions, noncompliance with industry standards, and/or negligence on the part of the CONSULTANT or its Subconsultants.

B. CONSULTANT is responsible for the quality of work prepared under this Agreement and shall ensure that all work is performed to the standards of best engineering practice for clarity, uniformity, and completeness. CONSULTANT

shall respond to all comments, suggestions, and recommendations on the SANITATION DISTRICT's review comment sheets (i.e. DS1, DS2 and DS3). All comments shall be incorporated into the design prior to the next submittal deadline or addressed, in writing, as to why the comment has not been incorporated. CONSULTANT shall ensure that each submittal is 100% accurate for the level of work submitted (i.e. correct references, terms, capitalization or equal status, spelling, punctuation, etc.)

C. In the event that work is not performed to the satisfaction of the SANITATION DISTRICT and does not conform to the requirements of this Agreement or any applicable industry standards, the CONSULTANT shall, without additional compensation, promptly correct or revise any errors or deficiencies in its designs, drawings, specifications, or other services within the timeframe specified by the Project Engineer/Project Manager. The SANITATION DISTRICT may charge to CONSULTANT all costs, expenses and damages associated with any such corrections or revisions.

D. All CAD drawings, figures, and other work shall be produced by CONSULTANTS and Subconsultants using the SANITATION DISTRICT CAD Manual. Conversion of CAD work from any other non-standard CAD format to the SANITATION DISTRICT format shall not be acceptable in lieu of this requirement.

Electronic files shall conform to the SANITATION DISTRICT specifications. Any changes to these specifications by the CONSULTANT are subject to review and approval of the SANITATION DISTRICT.

Electronic files shall be subject to an acceptance period of thirty (30) calendar days during which the SANITATION DISTRICT shall perform appropriate reviews and including CAD Manual compliance. CONSULTANT shall correct any discrepancies or errors detected and reported within the acceptance period at no additional cost to the SANITATION DISTRICT.

E. The CONSULTANT shall ensure that all plans and specifications prepared, or recommended under this Agreement allow for competitive bidding. The CONSULTANT shall design such plans or specifications so that procurement of services, labor or materials are not available from only one source, and shall not design plans and specifications around a single or specific product, piece of major equipment or machinery, a specific patented design or a proprietary process, unless required by principles of sound engineering practice and supported by a written justification that has been approved in writing by the SANITATION DISTRICT. The CONSULTANT shall submit this written justification to the SANITATION DISTRICT prior to beginning work on such plans and specifications. Whenever the CONSULTANT recommends a specific product or equipment for competitive procurement, such recommendation shall include at least two brand names of products that are capable of meeting the functional requirements applicable to the project.

F. All professional services performed by the CONSULTANT, including but not limited to all drafts, data, correspondence, proposals, reports, and estimates compiled or composed by the CONSULTANT, pursuant to this Agreement, are for the sole use of the SANITATION DISTRICT, its agents and employees. Neither the documents nor their contents shall be released to any third party without the prior written consent of the SANITATION DISTRICT. This provision does not apply to information that (a) was publicly known, or otherwise known to the CONSULTANT, at the time that it was disclosed to the CONSULTANT by the SANITATION DISTRICT, (b) subsequently becomes publicly known to the CONSULTANT other than through disclosure by the SANITATION DISTRICT.

2. COMPENSATION

Total compensation shall be paid to CONSULTANT for services in accordance with the following provisions:

A. Total Compensation

Total compensation shall be in an amount not to exceed Five Million Nine Hundred Forty-Seven Thousand Eight Hundred Fifty Dollars ($5,947,850.00). Total compensation to CONSULTANT including burdened labor (salaries plus benefits), overhead, profit, direct costs, and Subconsultant(s) fees and costs shall not exceed the sum set forth in Attachment “E” - Fee Proposal.

B. Labor

As a portion of the total compensation to be paid to CONSULTANT, the SANITATION DISTRICT shall pay to CONSULTANT a sum equal to the burdened salaries (salaries plus benefits) actually paid by CONSULTANT charged on an hourly-rate basis to this project and paid to the personnel of CONSULTANT. Upon request of the SANITATION DISTRICT, CONSULTANT shall provide the SANITATION DISTRICT with certified payroll records of all employees’ work that is charged to this project.

C. Overhead

As a portion of the total compensation to be paid to CONSULTANT, the SANITATION DISTRICT shall compensate CONSULTANT and Subconsultants for overhead at the rate equal to the percentage of burdened labor as specified in Attachment “E” - Fee Proposal.

D. Profit

Profit for CONSULTANT and Subconsultants shall be a percentage of consulting services fees (Burdened Labor and Overhead). When the consulting or subconsulting services amount is $250,000 or less, the maximum Profit shall be 10%. Between $250,000 and $2,500,000, the maximum Profit shall be limited by a straight declining percentage between 10% and 5%. For consulting or

subconsulting services fees with a value greater than $2,500,000, the maximum Profit shall be 5%. Addenda shall be governed by the same maximum Profit percentage after adding consulting services fees.

As a portion of the total compensation to be paid to CONSULTANT and Subconsultants, the SANITATION DISTRICT shall pay profit for all services rendered by CONSULTANT and Subconsultants for this project according to Attachment “E” - Fee Proposal.

E. Subconsultants

For any Subconsultant whose fees for services are greater than or equal to $100,000 (excluding out-of-pocket costs), CONSULTANT shall pay to Subconsultant total compensation in accordance with the Subconsultant amount specified in Attachment “E” - Fee Proposal.

For any Subconsultant whose fees for services are less than $100,000, CONSULTANT may pay to Subconsultant total compensation on an hourly-rate basis per the attached hourly rate Schedule and as specified in the Scope of Work. The SANITATION DISTRICT shall pay to CONSULTANT the actual costs of Subconsultant fees and charges in an amount not to exceed the sum set forth in Attachment “E” - Fee Proposal.

F. Direct Costs

The SANITATION DISTRICT shall pay to CONSULTANT and Subconsultants the actual costs of permits and associated fees, travel and licenses for an amount not to exceed the sum set forth in Attachment “E” - Fee Proposal. The SANITATION DISTRICT shall also pay to CONSULTANT actual costs for equipment rentals, leases or purchases with prior approval of the SANITATION DISTRICT. Upon request, CONSULTANT shall provide to the SANITATION DISTRICT receipts and other documentary records to support CONSULTANT’s request for reimbursement of these amounts, see Attachment “D” - Allowable Direct Costs. All incidental expenses shall be included in overhead pursuant to Section 2 - COMPENSATION above.

G. Other Direct Costs

Other Direct Costs incurred by CONSULTANT and its Contractor due to modifications in scope of work resulting from field investigations and field work required by Contract. These items may include special equipment, test equipment and tooling and other materials and services not previously identified. Refer to attachment “D” Allowable Direct Costs for payment information.

H. Reimbursable Direct Costs

The SANITATION DISTRICT will reimburse the CONSULTANT for reasonable travel and business expenses as described in this section and further described in Attachment “D” - Allowable Direct Costs to this Agreement. The reimbursement of

the above-mentioned expenses will be based on an “accountable plan” as considered by Internal Revenue Service (IRS). The plan includes a combination of reimbursements based upon receipts and a “per diem” component approved by IRS. The most recent schedule of the per diem rates utilized by the SANITATION DISTRICT can be found on the U.S. General Service Administration website at http://www.gsa.gov/portal/category/104711#.

The CONSULTANT shall be responsible for the most economical and practical means of management of reimbursable costs inclusive but not limited to travel, lodging and meals arrangements. The SANITATION DISTRICT shall apply the most economic and practical method of reimbursement which may include reimbursements based upon receipts and/or “per diem” as deemed the most practical.

CONSULTANT shall be responsible for returning to the SANITATION DISTRICT any excess reimbursements after the reimbursement has been paid by the SANITATION DISTRICT.

Travel and travel arrangements – Any travel involving airfare, overnight stays or multiple day attendance must be approved by the SANITATION DISTRICT in advance.

Local Travel is considered travel by the CONSULTANT within the SANITATION DISTRICT general geographical area which includes Orange, Los Angeles, Ventura, San Bernardino, Riverside, San Diego, Imperial and Kern Counties. Automobile mileage is reimbursable if CONSULTANT is required to utilize personal vehicle for local travel.

Lodging – Overnight stays will not be approved by the SANITATION DISTRICT for local travel. However, under certain circumstances overnight stay may be allowed at the discretion of the SANITATION DISTRICT based on reasonableness of meeting schedules and the amount of time required for travel by the CONSULTANT. Such determination will be made on a case-by-case basis and at the discretion of the SANITATION DISTRICT.

Travel Meals – Per-diem rates as approved by IRS shall be utilized for travel meals reimbursements. Per diem rates shall be applied to meals that are appropriate for travel times. Receipts are not required for the approved meals.

Additional details related to the reimbursement of the allowable direct costs are provided in the Attachment “D” - Allowable Direct Costs of this Agreement.

I. Limitation of Costs

If, at any time, CONSULTANT estimates the cost of performing the services described in CONSULTANT’s Proposal will exceed seventy-five percent (75%) of the not-to-exceed amount of the Agreement, including approved additional compensation, CONSULTANT shall notify the SANITATION DISTRICT immediately, and in writing. This written notice shall indicate the additional amount necessary to complete the services. Any cost incurred in excess of the

approved not-to-exceed amount, without the express written consent of the SANITATION DISTRICT's authorized representative shall be at CONSULTANT's own risk. This written notice shall be provided separately from, and in addition to any notification requirements contained in the CONSULTANT's invoice and monthly progress report. Failure to notify the SANITATION DISTRICT that the services cannot be completed within the authorized not-to-exceed amount is a material breach of this Agreement.

3. REALLOCATION OF TOTAL COMPENSATION

The SANITATION DISTRICT, by its Director of Engineering, shall have the right to approve a reallocation of the incremental amounts constituting the total compensation, provided that the total compensation is not increased.

4. PAYMENT

A. Monthly Invoice: CONSULTANT shall include in its monthly invoice, a detailed breakdown of costs associated with the performance of any corrections or revisions of the work for that invoicing period. CONSULTANT shall allocate costs in the same manner as it would for payment requests as described in this Section of the Agreement. CONSULTANT shall warrant and certify the accuracy of these costs and understand that submitted costs are subject to Section 11 - AUDIT PROVISIONS.

B. CONSULTANT may submit monthly or periodic statements requesting payment for those items included in Section 2 - COMPENSATION hereof in the format as required by the SANITATION DISTRICT. Such requests shall be based upon the amount and value of the work and services performed by CONSULTANT under this Agreement and shall be prepared by CONSULTANT and accompanied by such supporting data, including a detailed breakdown of all costs incurred and project element work performed during the period covered by the statement, as may be required by the SANITATION DISTRICT.

Upon approval of such payment request by the SANITATION DISTRICT, payment shall be made to CONSULTANT as soon as practicable of one hundred percent (100%) of the invoiced amount on a per-project-element basis.

If the SANITATION DISTRICT determines that the work under this Agreement or any specified project element hereunder, is incomplete and that the amount of payment is in excess of:

i. The amount considered by the SANITATION DISTRICT's Director of Engineering to be adequate for the protection of the SANITATION DISTRICT; or

ii. The percentage of the work accomplished for each project element.

He may, at his discretion, retain an amount equal to that which insures that the total amount paid to that date does not exceed the percentage of the completed work for each project element or the project in its entirety.

C. CONSULTANT may submit periodic payment requests for each 30-day period of this Agreement for the profit as set forth in Section 2 - COMPENSATION above. Said profit payment request shall be proportionate to the work actually accomplished to date on a per-project-element basis. In the event the SANITATION DISTRICT's Director of Engineering determines that no satisfactory progress has been made since the prior payment, or in the event of a delay in the work progress for any reason, the SANITATION DISTRICT shall have the right to withhold any scheduled proportionate profit payment.

D. Upon satisfactory completion by CONSULTANT of the work called for under the terms of this Agreement, and upon acceptance of such work by the SANITATION DISTRICT, CONSULTANT will be paid the unpaid balance of any money due for such work, including any retained percentages relating to this portion of the work.

E. Upon satisfactory completion of the work performed hereunder and prior to final payment under this Agreement for such work, or prior settlement upon termination of this Agreement, and as a condition precedent thereto, CONSULTANT shall execute and deliver to the SANITATION DISTRICT a release of all claims against the SANITATION DISTRICT arising under or by virtue of this Agreement other than such claims, if any, as may be specifically exempted by CONSULTANT from the operation of the release in stated amounts to be set forth therein.

F. Pursuant to the California False Claims Act (Government Code Sections 12650-12655), any CONSULTANT that knowingly submits a false claim to the SANITATION DISTRICT for compensation under the terms of this Agreement may be held liable for treble damages and up to a ten thousand dollars ($10,000) civil penalty for each false claim submitted. This Section shall also be binding on all Subconsultants.

A CONSULTANT or Subconsultant shall be deemed to have submitted a false claim when the CONSULTANT or Subconsultant: a) knowingly presents or causes to be presented to an officer or employee of the SANITATION DISTRICT a false claim or request for payment or approval; b) knowingly makes, uses, or causes to be made or used a false record or statement to get a false claim paid or approved by the SANITATION DISTRICT; c) conspires to defraud the SANITATION DISTRICT by getting a false claim allowed or paid by the SANITATION DISTRICT; d) knowingly makes, uses, or causes to be made or used a false record or statement to conceal, avoid, or decrease an obligation to the SANITATION DISTRICT; or e) is a beneficiary of an inadvertent submission of a false claim to the SANITATION DISTRICT, and fails to disclose the false claim to the SANITATION DISTRICT within a reasonable time after discovery of the false claim.

5. CALIFORNIA DEPARTMENT OF INDUSTRIAL RELATIONS (DIR) REGISTRATION AND RECORD OF WAGES

A. To the extent CONSULTANT’s employees and/or Subconsultants who will perform Work during the design and preconstruction phases of a construction contract for which Prevailing Wage Determinations have been issued by the DIR

and as more specifically defined under Labor Code Section 1720 et seq, CONSULTANT and Subconsultants shall comply with the registration requirements of Labor Code Section 1725.5. Pursuant to Labor Code Section 1771.4, the Work is subject to compliance monitoring and enforcement by the DIR.

B. The CONSULTANT and Subconsultants shall maintain accurate payroll records and shall comply with all the provisions of Labor Code Section 1776, and shall submit payroll records to the Labor Commissioner pursuant to Labor Code Section 1771.4(a)(3). Penalties for non-compliance with the requirements of Section 1776 may be deducted from progress payments per Section 1776.

C. Pursuant to Labor Code Section 1776, the CONSULTANT and Subconsultants shall furnish a copy of all certified payroll records to SANITATION DISTRICT and/or general public upon request, provided the public request is made through SANITATION DISTRICT, the Division of Apprenticeship Standards or the Division of Labor Enforcement of the Department of Industrial Relations.

D. The CONSULTANT and Subconsultants shall comply with the job site notices posting requirements established by the Labor Commissioner per Title 8, California Code of Regulation Section 16461(e).

6. DOCUMENT OWNERSHIP – SUBSEQUENT CHANGES TO PLANS AND SPECIFICATIONS

A. Ownership of Documents for the Professional Services performed.

All documents, including but not limited to, original plans, studies, sketches, drawings, computer printouts and disk files, and specifications prepared in connection with or related to the Scope of Work or Professional Services, shall be the property of the SANITATION DISTRICT. The SANITATION DISTRICT's ownership of these documents includes use of, reproduction or reuse of and all incidental rights, whether or not the work for which they were prepared has been performed. The SANITATION DISTRICT ownership entitlement arises upon payment or any partial payment for work performed and includes ownership of any and all work product completed prior to that payment. This Section shall apply whether the CONSULTANT's Professional Services are terminated: a) by the completion of the Agreement, or b) in accordance with other provisions of this Agreement. Notwithstanding any other provision of this paragraph or Agreement, the CONSULTANT shall have the right to make copies of all such plans, studies, sketches, drawings, computer printouts and disk files, and specifications.

B. CONSULTANT shall not be responsible for damage caused by subsequent changes to or uses of the plans or specifications, where the subsequent changes or uses are not authorized or approved by CONSULTANT, provided that the service rendered by CONSULTANT was not a proximate cause of the damage.

7. INSURANCE

A. General

i. Insurance shall be issued and underwritten by insurance companies acceptable to the SANITATION DISTRICT.

ii. Insurers must have an "A-" Policyholder's Rating, or better, and Financial Rating of at least Class VIII, or better, in accordance with the most current A.M. Best's Guide Rating. However, the SANITATION DISTRICT will accept State Compensation Insurance Fund, for the required policy of Worker's Compensation Insurance subject to the SANITATION DISTRICT's option to require a change in insurer in the event the State Fund financial rating is decreased below "B". Further, the SANITATION DISTRICT will require CONSULTANT to substitute any insurer whose rating drops below the levels herein specified. Said substitution shall occur within twenty (20) days of written notice to CONSULTANT, by the SANITATION DISTRICT or its agent.

iii. Coverage shall be in effect prior to the commencement of any work under this Agreement.

B. General Liability

The CONSULTANT shall maintain during the life of this Agreement, including the period of warranty, Commercial General Liability Insurance written on an occurrence basis providing the following minimum limits of liability coverage: Two Million Dollars ($2,000,000) per occurrence with Two Million Dollars ($2,000,000) aggregate. Said insurance shall include coverage for the following hazards: Premises-Operations, blanket contractual liability (for this Agreement), products liability/completed operations (including any product manufactured or assembled), broad form property damage, blanket contractual liability, independent contractors liability, personal and advertising injury, mobile equipment, owners and contractors protective liability, and cross liability and severability of interest clauses. A statement on an insurance certificate will not be accepted in lieu of the actual additional insured endorsement(s). If requested by SANITATION DISTRICT and applicable, XCU coverage (Explosion, Collapse and Underground) and Riggers/On Hook Liability must be included in the General Liability policy and coverage must be reflected on the submitted Certificate of Insurance.

C. Umbrella Excess Liability

The minimum limits of general liability and Automotive Liability Insurance required, as set forth herein, shall be provided for through either a single policy of primary insurance or a combination of policies of primary and umbrella excess coverage. Umbrella excess liability coverage shall be issued with limits of liability which, when combined with the primary insurance, will equal the minimum limits for general liability and automotive liability.

D. Automotive/Vehicle liability Insurance

The CONSULTANT shall maintain a policy of Automotive Liability Insurance on a comprehensive form covering all owned, non-owned, and hired automobiles, trucks, and other vehicles providing the following minimum limits of liability coverage: Combined single limit of Two Million Dollars ($2,000,000) or alternatively, One Million Dollars ($1,000,000) per person for bodily injury and One Million Dollars ($1,000,000) per accident for property damage. A statement on an insurance certificate will not be accepted in lieu of the actual additional insured endorsement.

E. Drone Liability Insurance

If a drone will be used, drone liability insurance must be maintained by CONSULTANT in the amount of One Million Dollars ($1,000,000) in form acceptable to the SANITATION DISTRICT.

F. Worker's Compensation Insurance

The CONSULTANT shall provide such Workers' Compensation Insurance as required by the Labor Code of the State of California in the amount of the statutory limit, including Employer's Liability Insurance with a minimum limit of One Million Dollars ($1,000,000) per occurrence. Such Worker's Compensation Insurance shall be endorsed to provide for a waiver of subrogation in favor of the SANITATION DISTRICT. A statement on an insurance certificate will not be accepted in lieu of the actual endorsements unless the insurance carrier is State of California Insurance Fund and the identifier "SCIF" and endorsement numbers 2570 and 2065 are referenced on the certificate of insurance. If an exposure to Jones Act liability may exist, the insurance required herein shall include coverage for Jones Act claims.

G. Errors and Omissions/Professional Liability

CONSULTANT shall maintain in full force and effect, throughout the term of this Agreement, standard industry form professional negligence errors and omissions insurance coverage in an amount of not less than Five Million Dollars ($5,000,000) with limits in accordance with the provisions of this Paragraph. If the policy of insurance is written on a "claims made" basis, said policy shall be continued in full force and effect at all times during the term of this Agreement, and for a period of five (5) years from the date of the completion of the services hereunder.

In the event of termination of said policy during this period, CONSULTANT shall obtain continuing insurance coverage for the prior acts or omissions of CONSULTANT during the course of performing services under the term of this Agreement. Said coverage shall be evidenced by either a new policy evidencing no gap in coverage or by separate extended "tail" coverage with the present or new carrier.

In the event the present policy of insurance is written on an "occurrence" basis, said policy shall be continued in full force and effect during the term of this Agreement or until completion of the services provided for in this Agreement, whichever is later. In the event of termination of said policy during this period, new coverage shall be obtained for the required period to insure for the prior acts of CONSULTANT during the course of performing services under the term of this Agreement.

CONSULTANT shall provide to the SANITATION DISTRICT a certificate of insurance in a form acceptable to the SANITATION DISTRICT indicating the deductible or self-retention amounts and the expiration date of said policy, and shall provide renewal certificates not less than ten (10) days prior to the expiration of each policy term.

H. Proof of Coverage

The CONSULTANT shall furnish the SANITATION DISTRICT with original certificates and amendatory endorsements effecting coverage. Said policies and endorsements shall conform to the requirements herein stated. All certificates and endorsements are to be received and approved by the SANITATION DISTRICT before work commences. The SANITATION DISTRICT reserves the right to require complete, certified copies of all required insurance policies, including endorsements, effecting the coverage required, at any time. The following are approved forms that must be submitted as proof of coverage:

• Certificate of Insurance	ACORD Form 25 (5/2010) or equivalent.
• Additional Insurance (General Liability)	(ISO Form) CG2010 11 85 or The combination of (ISO Forms) CG 2010 10 01 and CG 2037 10 01 All other Additional Insured endorsements must be submitted for approval by the SANITATION DISTRICT, and the SANITATION DISTRICT may reject alternatives that provide different or less coverage to the SANITATION DISTRICT.
• Additional Insured (Auto Liability)	Submit endorsement provided by carrier for the SANITATION DISTRICT approval.
• Waiver of Subrogation	State Compensation Insurance Fund Endorsement No. 2570 or equivalent.
• Cancellation Notice	State Compensation Insurance Fund Endorsement No. 2065 or equivalent.

I. Cancellation Notice

Each insurance policy required herein shall be endorsed to state that coverage shall not be cancelled by either party, except after thirty (30) days' prior written notice. The Cancellation Section of ACORD Form 25 (5/2010) shall state the required thirty (30) days' written notification. The policy shall not terminate, nor shall it be cancelled, nor the coverage reduced until thirty (30) days after written notice is given to the SANITATION DISTRICT except for nonpayment of premium, which shall require not less than ten (10) days written notice to the SANITATION DISTRICT. Should there be changes in coverage or an increase in deductible or SIR amounts, the CONSULTANT and its insurance broker/agent shall send to the SANITATION DISTRICT a certified letter which includes a description of the changes in coverage and/or any increase in deductible or SIR amounts. The certified letter must be sent to the attention of Risk Management, and shall be received by the SANITATION DISTRICT not less than thirty (30) days prior to the effective date of the change(s) if the change would reduce coverage or increase deductibles or SIR amounts or otherwise reduce or limit the scope of insurance coverage provided to the SANITATION DISTRICT.

J. Primary Insurance

All liability policies shall contain a Primary and Non-Contributory Clause. Any other insurance maintained by the SANITATION DISTRICT shall be excess and not contributing with the insurance provided by CONSULTANT.

K. Separation of Insured

All liability policies shall contain a "Separation of Insureds" clause.

L. Non-Limiting (if applicable)

Nothing in this document shall be construed as limiting in any way, nor shall it limit the indemnification provision contained in this Agreement, or the extent to which CONSULTANT may be held responsible for payment of damages to persons or property.

M. Deductibles and Self-Insured Retentions

Any deductible and/or self-insured retention must be declared to the SANITATION DISTRICT on the Certificate of Insurance. All deductibles and/or self-insured retentions require approval by the SANITATION DISTRICT. At the option of the SANITATION DISTRICT, either: the insurer shall reduce or eliminate such deductible or self-insured retention as respects the SANITATION

DISTRICT; or the CONSULTANT shall provide a financial guarantee satisfactory to the SANITATION DISTRICT guaranteeing payment of losses and related investigations, claim administration and defense expenses.

N. Defense Costs

Liability policies shall have a provision that defense costs for all insureds and additional insureds are paid in addition to and do not deplete any policy limits.

O. Subconsultants

The CONSULTANT shall be responsible to establish insurance requirements for any Subconsultant hired by the CONSULTANT. The insurance shall be in amounts and types reasonably sufficient to deal with the risk of loss involving the Subconsultant's operations and work.

P. Limits Are Minimums

If the CONSULTANT maintains higher limits than any minimums shown above, then SANITATION DISTRICT requires and shall be entitled to coverage for the higher limits maintained by CONSULTANT.

8. SCOPE CHANGES

In the event of a change in the Scope of Work, requested by SANITATION DISTRICT, the parties hereto shall execute an amendment to this Agreement setting forth with particularity all terms of the new Agreement, including but not limited to any additional CONSULTANT's fees.

9. PROJECT TEAM AND SUBCONSULTANTS

CONSULTANT shall provide to SANITATION DISTRICT, prior to execution of this Agreement, the names and full description of all Subconsultants and CONSULTANT's project team members anticipated to be used on this project by CONSULTANT. CONSULTANT shall include a description of the scope of work to be done by each Subconsultant and each CONSULTANT's project team member. CONSULTANT shall include the respective compensation amounts for CONSULTANT and each Subconsultant on a per-project-element basis, broken down as indicated in Section 2 - COMPENSATION.

There shall be no substitution of the listed Subconsultants and CONSULTANT's project team members without prior written approval by the SANITATION DISTRICT.

10. ENGINEERING REGISTRATION

The CONSULTANT's personnel are comprised of registered engineers and a staff of specialists and draftsmen in each department. The firm itself is not a registered engineer but represents and agrees that wherever in the performance of this Agreement requires the services of a registered engineer. Such services hereunder will be performed under the direct supervision of registered engineers.

11. AUDIT PROVISIONS

A. SANITATION DISTRICT retains the reasonable right to access, review, examine, and audit, any and all books, records, documents and any other evidence of procedures and practices that the SANITATION DISTRICT determines are necessary to discover and verify that the CONSULTANT is in compliance with all requirements under this Agreement. The CONSULTANT shall include the SANITATION DISTRICT's right as described above, in any and all of their subcontracts, and shall ensure that these rights are binding upon all Subconsultants.

B. SANITATION DISTRICT retains the right to examine CONSULTANT's books, records, documents and any other evidence of procedures and practices that the SANITATION DISTRICT determines are necessary to discover and verify all direct and indirect costs, of whatever nature, which are claimed to have been incurred, or anticipated to be incurred or to ensure CONSULTANT's compliance with all requirements under this Agreement during the term of this Agreement and for a period of three (3) years after its termination.

C. CONSULTANT shall maintain complete and accurate records in accordance with generally accepted industry standard practices and the SANITATION DISTRICT's policy. The CONSULTANT shall make available to the SANITATION DISTRICT for review and audit, all project related accounting records and documents, and any other financial data within 15 days after receipt of notice from the SANITATION DISTRICT. Upon SANITATION DISTRICT's request, the CONSULTANT shall submit exact duplicates of originals of all requested records to the SANITATION DISTRICT. If an audit is performed, CONSULTANT shall ensure that a qualified employee of the CONSULTANT will be available to assist SANITATION DISTRICT's auditor in obtaining all project related accounting records and documents, and any other financial data.

12. LEGAL RELATIONSHIP BETWEEN PARTIES

The legal relationship between the parties hereto is that of an independent contractor and nothing herein shall be deemed to make CONSULTANT an employee of the SANITATION DISTRICT.

13. NOTICES

All notices hereunder and communications regarding the interpretation of the terms of this Agreement, or changes thereto, shall be effected by delivery of said notices in person or by depositing said notices in the U.S. mail, registered or certified mail, return receipt requested, postage prepaid.

Notices shall be mailed to the SANITATION DISTRICT at:

ORANGE COUNTY SANITATION DISTRICT
10844 Ellis Avenue
Fountain Valley, CA 92708-7018
Attention: Ludwig Lapus, Senior Contracts Administrator
Copy: Jacob Dalgoff, Project Manager

Notices shall be mailed to CONSULTANT at:

LEE & RO, INC.
1199 South Fullerton Road
City of Industry, CA 91748
Attention: Charles Ro, Principal in Charge

All communication regarding the Scope of Work, will be addressed to the Project Manager. Direction from other SANITATION DISTRICT's staff must be approved in writing by the SANITATION DISTRICT's Project Manager prior to action from the CONSULTANT.

14. TERMINATION

The SANITATION DISTRICT may terminate this Agreement at any time, without cause, upon giving thirty (30) days written notice to CONSULTANT. In the event of such termination, CONSULTANT shall be entitled to compensation for work performed on a prorated basis through and including the effective date of termination.

CONSULTANT shall be permitted to terminate this Agreement upon thirty (30) days written notice only if CONSULTANT is not compensated for billed amounts in accordance with the provisions of this Agreement, when the same are due.

Notice of termination shall be mailed to the SANITATION DISTRICT and/or CONSULTANT in accordance with Section 13 - NOTICES.

15. DOCUMENTS AND STUDY MATERIALS

The documents and study materials for this project shall become the property of the SANITATION DISTRICT upon the termination or completion of the work. CONSULTANT agrees to furnish to the SANITATION DISTRICT copies of all memoranda, correspondence, computation and study materials in its files pertaining to the work described in this Agreement, which is requested in writing by the SANITATION DISTRICT.

16. COMPLIANCE

A. Labor

CONSULTANT certifies by the execution of this Agreement that it pays employees not less than the minimum wage as defined by law, and that it does not discriminate in its employment with regard to race, color, religion, sex or national origin; that it is in compliance with all federal, state and local directives and executive orders regarding non-discrimination in employment; and that it agrees to demonstrate positively and aggressively the principle of equal opportunity in employment.

B. Air Pollution

CONSULTANT and its subconsultants and subcontractors shall comply with all applicable federal, state and local air pollution control laws and regulations.

17. AGREEMENT EXECUTION AUTHORIZATION

Both the SANITATION DISTRICT and CONSULTANT do covenant that each individual executing this document by and on behalf of each party is a person duly authorized to execute agreements for that party.

18. DISPUTE RESOLUTION

In the event of a dispute arising between the parties regarding performance or interpretation of this Agreement, the dispute shall be resolved by binding arbitration under the auspices of the Judicial Arbitration and Mediation Service ("JAMS"), or similar organization or entity conducting alternate dispute resolution services.

19. ATTORNEY'S FEES, COSTS AND NECESSARY DISBURSEMENTS

If any action at law or in equity or if any proceeding in the form of an Alternative Dispute Resolution (ADR) is necessary to enforce or interpret the terms of this Agreement, the prevailing party shall be entitled to reasonable attorney's fees, costs and necessary disbursements in addition to any other relief to which it may be entitled.

20. PROGRESS REPORTS

Monthly progress reports shall be submitted for review by the tenth day of the following month and must include as a minimum: 1) current activities, 2) future activities, 3) potential items that are not included in the Scope of Work, 4) concerns and possible delays, 5) percentage of completion, and 6) budget status.

21. WARRANTY

CONSULTANT shall perform its services in accordance with generally accepted industry and professional standards. If, within the 12-month period following completion of its services, the SANITATION DISTRICT informs CONSULTANT that any part of the services fails to meet those standards, CONSULTANT shall, within the time prescribed by the SANITATION DISTRICT, take all such actions as are necessary to correct or complete the noted deficiency(ies).

22. INDEMNIFICATION

To the fullest extent permitted by law, CONSULTANT shall indemnify, defend (at CONSULTANT's sole cost and expense and with legal counsel approved by the SANITATION DISTRICT, which approval shall not be unreasonably withheld), protect and hold harmless the SANITATION DISTRICT and all of SANITATION DISTRICT's officers, directors, employees, CONSULTANT's, and agents (collectively the "Indemnified Parties"), from and against any and all claims, damages, liabilities, causes of action, suits, arbitration awards, losses, judgments, fines, penalties, costs and expenses (including, without limitation, attorneys' fees, disbursements and court costs, and all other professional, expert or CONSULTANT's fees and costs and the SANITATION DISTRICT's general and administrative expenses; individually, a "Claim"; collectively, "Claims") which may arise from or are in any manner related, directly or

indirectly, to any work performed, or any operations, activities, or services provided by CONSULTANT in carrying out its obligations under this Agreement to the extent of the negligent, recklessness and/or willful misconduct of CONSULTANT, its principals, officers, agents, employees, CONSULTANT's suppliers, CONSULTANT, Subconsultants, subcontractors, and/or anyone employed directly or indirectly by any of them, regardless of any contributing negligence or strict liability of an Indemnified Party. Notwithstanding the foregoing, nothing herein shall be construed to require CONSULTANT to indemnify the Indemnified Parties from any Claim arising solely from:

(A) the active negligence or willful misconduct of the Indemnified Parties; or

(B) a natural disaster or other act of God, such as an earthquake; or

(C) the independent action of a third party who is neither one of the Indemnified Parties nor the CONSULTANT, nor its principal, officer, agent, employee, nor CONSULTANT's supplier, CONSULTANT, Subconsultant, subcontractor, nor anyone employed directly or indirectly by any of them.

Exceptions (A) through (B) above shall not apply, and CONSULTANT shall, to the fullest extent permitted by law, indemnify the Indemnified Parties, from Claims arising from more than one cause if any such cause taken alone would otherwise result in the obligation to indemnify hereunder.

CONSULTANT's liability for indemnification hereunder is in addition to any liability CONSULTANT may have to the SANITATION DISTRICT for a breach by CONSULTANT of any of the provisions of this Agreement. Under no circumstances shall the insurance requirements and limits set forth in this Agreement be construed to limit CONSULTANT's indemnification obligation or other liability hereunder. The terms of this Agreement are contractual and the result of negotiation between the parties hereto. Accordingly, any rule of construction of contracts (including, without limitation, California Civil Code Section 1654) that ambiguities are to be construed against the drafting party, shall not be employed in the interpretation of this Agreement.

23. DUTY TO DEFEND

The duty to defend hereunder is wholly independent of and separate from the duty to indemnify and such duty to defend shall exist regardless of any ultimate liability of CONSULTANT and shall be consistent with Civil Code Section 2782.8. Such defense obligation shall arise immediately upon presentation of a Claim by any person if, without regard to the merit of the Claim, such Claim could potentially result in an obligation to indemnify one or more Indemnified Parties, and upon written notice of such Claim being provided to CONSULTANT. Payment to CONSULTANT by any Indemnified Party or the payment or advance of defense costs by any Indemnified Party shall not be a condition precedent to enforcing such Indemnified Party's rights to indemnification hereunder. In the event a final judgment, arbitration, award, order, settlement, or other final resolution expressly determines that the claim did not arise out of, pertain to, or relate to the negligence, recklessness, or willful misconduct of the CONSULTANT, to any extent, then the DISTRICT will reimburse CONSULTANT for the reasonable costs of defending the Indemnified Parties against such claims.

CONSULTANT's indemnification obligation hereunder shall survive the expiration or earlier termination of this Agreement until such time as action against the Indemnified Parties for such matter indemnified hereunder is fully and finally barred by the applicable statute of limitations.

24. CONSULTANT PERFORMANCE

The CONSULTANT's performance shall be evaluated by the SANITATION DISTRICT. A copy of the evaluation shall be sent to the CONSULTANT for comment. The evaluation, together with the comments, shall be retained by the SANITATION DISTRICT and may be considered in future CONSULTANT selection processes.

25. COMPLIANCE WITH SANITATION DISTRICT POLICIES AND PROCEDURES

CONSULTANT shall comply with all SANITATION DISTRICT policies and procedures including the OCSD Safety Standards, as applicable, all of which may be amended from time to time.

26. CLOSEOUT

When the SANITATION DISTRICT determines that all Work authorized under the Agreement is fully complete and that the SANITATION DISTRICT requires no further work from CONSULTANT, or the Agreement is otherwise terminated or expires in accordance with the terms of the Agreement, the SANITATION DISTRICT shall give the Consultant written notice that the Agreement will be closed out. CONSULTANT shall submit all outstanding billings, work submittals, deliverables, reports or similarly related documents as required under the Agreement within thirty (30) days of receipt of notice of Agreement closeout.

Upon receipt of CONSULTANT's submittals, the SANITATION DISTRICT shall commence a closeout audit of the Agreement and will either:

i. Give the CONSULTANT a final Agreement Acceptance: or

ii. Advise the CONSULTANT in writing of any outstanding item or items which must be furnished, completed, or corrected at the CONSULTANT's cost.

CONSULTANT shall be required to provide adequate resources to fully support any administrative closeout efforts identified in this Agreement. Such support must be provided within the timeframe requested by the SANITATION DISTRICT.

Notwithstanding the final Agreement Acceptance the CONSULTANT will not be relieved of its obligations hereunder, nor will the CONSULTANT be relieved of its obligations to complete any portions of the work, the non-completion of which were not disclosed to the SANITATION DISTRICT (regardless of whether such nondisclosures were fraudulent, negligent, or otherwise); and the CONSULTANT shall remain obligated under all those provisions of the Agreement which expressly or by their nature extend beyond and survive final Agreement Acceptance.

Any failure by the SANITATION DISTRICT to reject the work or to reject the CONSULTANT's request for final Agreement Acceptance as set forth above shall not be deemed to be acceptance of the work by the SANITATION DISTRICT for any purpose nor imply acceptance of, or agreement with, the CONSULTANT's request for final Agreement Acceptance.

27. ENTIRE AGREEMENT

This Agreement constitutes the entire understanding and agreement between the Parties and supersedes all previous negotiations between them pertaining to the subject matter thereof.

IN WITNESS WHEREOF, this Agreement has been executed in the name of the SANITATION DISTRICT, by its officers thereunto duly authorized, and CONSULTANT as of the day and year first above written.

CONSULTANT: LEE & RO, INC.

By _____
Date

_____
Printed Name & Title

ORANGE COUNTY SANITATION DISTRICT

By _____
David John Shawver Date
Board Chairman

By _____
Kelly A. Lore Date
Clerk of the Board

By _____
Ruth Zintzun Date
Purchasing & Contracts Manager

Attachments: Attachment “A” – Scope of Work
Attachment “B” – NOT USED
Attachment “C” – NOT USED
Attachment “D” – Allowable Direct Costs
Attachment “E” – Fee Proposal
Attachment “F” – NOT USED
Attachment “G” – NOT USED
Attachment “H” – NOT USED
Attachment “I” – Cost Matrix and Summary
Attachment “J” – NOT USED
Attachment “K” – Minor Subconsultant Hourly Rate Schedule
Attachment “L” – OCSD Safety Standards

LRL:ms

ATTACHMENT “A”

SCOPE OF WORK

ATTACHMENT A

SCOPE OF WORK

Seal Beach Pump Station Replacement
Project No. 3-67

TABLE OF CONTENTS

I. SUMMARY

Provide professional engineering services for the project described herein including the following:

1. Preliminary Design Report
2. Permitting assistance
3. Preparation of bid documents

II. BACKGROUND, GENERAL PROJECT DESCRIPTION, AND PROJECT ELEMENTS

BACKGROUND

Seal Beach Pump Station (SBPS) is located in the City of Seal Beach, California, on the corner of Seal Beach Boulevard and Westminster Boulevard and was initially constructed in 1970 (Project No. 3-12). The pump station was expanded in 1973 and 1980 (Project Nos. 3-12-1 and 3-12-2 respectively) and consists of two wet wells that share a common below grade pump room where eight pumps are located. The eight motors are located in an above-ground building directly above the pumps. Currently, two force mains extend easterly within Westminster Boulevard for about 3 miles. The north force main has a nominal diameter of 30-inches and was constructed in 1978 (Project No. 3-13-1). The force main extends 14,290 feet from the pump station until it reaches Rancho Road/Hammon Place. The south force main parallels the north one and has a nominal diameter of 42-inches (Project No. 3-36R). The south force main was constructed in 1995 with a total length of 14,335 feet and replaces the 30-inch force main that was originally constructed under Project No. 3-13. These two existing force mains will be replaced with two new 36-inch force mains by Westminster Blvd. Force Main Replacement, Project No. 3-62, prior to the construction of this project.

A detailed description of the pump station can be found in the 1999 report prepared by MacDonald Stephens, Engineers entitled “Rehabilitation of Outlying Pump Stations”. This report assessed the condition of the SBPS and identified deficiencies in the pump station and the force mains. This report is included in **Exhibit 03** – “Project Reference Material”. Project No. 3-62 originally intended to rehabilitate SBPS; however, in evaluating the pump station as part of the preliminary design it was determined that full replacement is needed. Hence, the replacement of Seal Beach Pump Station is now designated as Project No. 3-67 (the force mains are still being replaced as part of Project No. 3-62). Record Drawings for the SBPS initial construction and subsequent expansions and the force main construction projects are included in **Exhibit 03**.

The purpose of the project is to replace the existing SBPS, eliminate the need for the upstream Westside Pump Station and meet current and future flow demands to 2040.

GENERAL PROJECT DESCRIPTION

The project involves the completion of the preliminary design and final design phases of the replacement of the SBPS. The replacement pump station includes demolition, civil,

mechanical, structural, architectural, HVAC, electrical, instrumentation, and control systems. Site improvements include above ground buildings, underground vaults, manholes, paving, walls, facilities for drainage, landscaping, irrigation, perimeter wall and security as well as water, storm drain, and other utilities. The work is split into an evaluation phase, a preliminary design phase, a final design phase, and a bidding phase.

DESCRIPTION OF PROJECT ELEMENTS

Detailed descriptions of the Project Elements are presented below.

PROJECT ELEMENT 1 – NEW PUMP STATION

The new pump station and associated facilities will include the items listed below and all other components required to provide a fully functionally pump station.

Main Sewage Pumps

Vertically driven with non-clog impellers or extended shaft motor. Pumps will convey flows for the design wet weather event, and to minimize or eliminate fill and draw cycling during the nighttime/early morning low flow periods. Pump motors will be controlled by variable frequency drives (VFDs) with constant speed bypass. The VFDs will be fitted with anti-ragging technology.

Wet Well

Self-cleaning trench type designed to minimize backwater conditions in the upstream system. The wet well design shall include a control panel for a manually initiated cleaning cycle. The goal of the wet well size and configuration is to provide ~~one hour of storage capacity (including upstream collection system capacity with appropriate freeboard) during typical peak daily flows~~.*maximum extra storage capacity possible, in conjunction with the optimum configuration of the pump station structure*. There shall be drain lines from the force mains (FMs) to the wet well(s) with multiple ports on the discharge line (one per pump intake).

Dry Well

Contains pumps, sump pumps, discharge header piping, flow meter, a bridge crane, a pressure washer, lighting, and ventilation. The bridge crane will be sized and located to accommodate removal of the pumps, motors, valves, and other large equipment within the dry well. The dry well will be rated for Class I Division 2 service; except the sump which is rated Class 1 Division 1. Ventilation system shall maintain a slight negative pressure in the dry well. Pump station and controls will be designed so pumps can be operated from the electrical room in the event the dry well floods. Devices not rated for submergence will be operator-accessible and located above the flood level.

Electrical Room and Equipment

The new electrical building will house the electrical equipment and will have air conditioning for protection of electrical and control equipment. The equipment will be located to provide proper working clearances per NEC and OCSD standards. The building will contain the following equipment:

- 480V arc-resistant switchgear with a main-tie-tie-main breaker configuration, complete with an automatic, open-transition transfer scheme per OCSD standards. Provide one main breaker for the incoming source from an externally accessible SCE transformer and metering/main breaker switchboard. The other main breaker shall be fed from a permanent standby generator and a portable generator via a stand-alone manual transfer control. The switchgear will feed loads such as motor control centers (MCCs) and VFDs.

- 480V MCCs will be double-ended and arc-resistant with a key-interlocked, main-tie-tie-main breaker configuration. The MCCs will feed power to loads such as a UPS, 480-208/120V lighting transformer and panelboard(s) with primary and standby source, sump pumps, odor control, HVAC, etc.

- The UPS 120Vac panel will feed loads such as the PLCs, RIOs, local human machine interface (HMI), network communication equipment, CCTV, fire alarm system, and security systems. The UPS will have an external bypass switch.

- HVAC equipment and associated controls. A 120Vac weatherproof convenience receptacle will be provided near the unit(s).

- 125Vdc flooded cell, lead acid batteries for the 480V switchgear will be located in a separate battery room equipped with climate control equipment and ventilation. A battery disconnect switch will be located in the battery room. The associated battery charger and 125Vdc panel will be located in the electrical room.

- Provide system grounding configuration and coordinate with SCE.

Influent Structure

A flow-combining structure upstream of the wet well, preferably out of traffic, and connection points downstream of the pump station to accommodate bypassing equipment and plugs so future wet well shut downs can be performed. Influent structure to accommodate existing sewer connections and future connection to newly designed deep sewer. The structure will have means to isolate flow from wet well and provide access for Maintenance staff to draw sewage and bypass the pump station.

Temporary Pumping Provisions

Means for pump station bypass from influent structure using portable pumps to the downstream force mains. Provisions shall include means of safely isolating incoming flows upstream of the wet well, and above-grade manifold of smaller pipe connections that connect to and feed into the dual force mains by way of buried yard piping with associated valves, clean-outs, and appurtenances.

Provide grade level access to dry well with provisions to connect to submersible pump-to-pump-out the dry well in the case of flooding.

Piping and Utilities

All on-site pump suction and discharge piping and associated motorized and manual valves and appurtenances including valve vaults. New potable water service and piping for wash down, the restroom, irrigation, and fire hydrant. Drainage, sewer, and utility piping. All buried steel piping must be catholically protected.

Lighting

All luminaire shall be LED type. Exterior luminaire shall be dark-sky compliant and controlled via photocell and timeclock. Provide emergency egress lighting and illuminated exit signs along the path of egress and at each exit door.

Southern California Edison (SCE) Power Service

SCE will supply 480-volt incoming power to the pump station via its own outdoor step-down transformer. Provide a meter and service entrance switchboard in a dedicated room with exterior access for OCSD and SCE. Coordination with SCE, determining the required size of the transformer to handle peak wet weather flow conditions, available fault current, transformer location, transformer installation requirements, and configuration and location of the incoming metering section, and service entrance switchboard.

Restroom

Restroom will include a toilet and sink. The drain will be connected to an off-site gravity sewer isolated from wet well pressures and possibly surcharged gravity sewers. The restroom may be a part of the electrical building but must have an exterior door (no interior door to electrical room).

Site & Perimeter Wall

Fully secured site with fencing and perimeter wall, gates, video cameras outside and inside all structures, and door security systems. Landscaping must be provided where needed to minimize visual impacts and be compatible with the surrounding development. Necessary modifications and improvements to the adjacent hardscape (curb, gutter, driveway access, drainage culvert, etc.). Site drainage must not leave the site. All onsite stormwater must drain into an upstream gravity sewer and not be affected by wet well pressures. Vehicle and equipment access gates will accommodate all maintenance activities. Architectural style of perimeter wall and buildings should be California Mission.

Onsite Standby Generator

Permanently installed, diesel powered generator set fully enclosed in its own building to meet City noise ordinance standards. Generator will be sized for maximum anticipated load demand during peak wet weather conditions. Fuel tank capacity will be sized for 24 hours of operation at peak load. Provide fuel polishing system and dry disconnect on tank.

Portable Generator Connections

Cam-lok style plug/receptacle connections will be provided for a roll-up “portable” generator(s) sized to support critical loads on each switchgear bus in the event the permanent generator fails or to provide power during electrical equipment maintenance.

Fire Protection

A fire alarm system will be installed within all enclosed rooms. System shall have the ability to remotely notify OCSD.

Instrumentation and Control (I&C)

Instrumentation and control in accordance with OCSD design guidelines and standards. Communications services from pump station to OCSD ICS network.

Safety

Guard rails, tie off points, arc flash labeling, safety features, signage and railings around open shafts, shower and eye wash station, wash basin, etc. Flammable gas (both heavier than air and lighter than air), low/high oxygen, H2S, sensors in wet well and dry well while low oxygen and CO shall be monitored in the generator building. Additional gas monitoring as appropriate for odor control systems.

PROJECT ELEMENT 2 – MODIFICATIONS TO EXISTING GRAVITY SEWERS AND FORCE MAINS

In association with the work involved to install the new pump station, new gravity sewer and new force main segments will need to be constructed. Tie new force main segments into existing force mains constructed under OCSD Project 3-62. Tie into existing Seal Beach gravity sewer and provide provisions to connect to future deeper sewer. This will require sidewalk/curb, paving, striping, gutter, traffic control systems, existing utilities, and public landscaping to be restored. All facilities in the public streets shall be abandoned in place per OCSD Standards.

PROJECT ELEMENT 3 – DEMOLITION AND ABANDONMENT OF EXISTING PUMP STATION AND FORCE MAINS

The demolition and abandonment of the existing pump station will occur following complete commissioning and testing of the new pump station. All above-ground features will be removed and disposed of, including trees, shrubs, chemical storage and dosing equipment, equipment pads and buildings. Equipment, piping and appurtenances, and mechanical and electrical components will be removed and disposed of. Programmable logic controller modules will be turned over to OCSD. Below grade structures/improvements will be removed/abandoned as required. The hole created by the removal, and remaining portions of any structure or improvements, would then be cleaned of all wastewater and/or hazardous materials and filled with cement slurry. Remove all onsite piping and utilities. Remove all temporary facilities.

PROJECT ELEMENT 4 – ONSITE ODOR CONTROL FACILITIES

The onsite odor control facilities will consist of upstream vapor phase odor control and liquid-phase odor control for downstream odor management*. Liquefied Oxygen (LOx) system with the required injection equipment will be designed for the pump station effluent force mains. Appropriate* ~~with~~ liquid and vapor phase sampling and monitoring *will be provided*. Proposed mechanical facilities shall be housed within buildings to mitigate noise. The building will be designed to minimize visual impacts and blend into California Mission architectural style. Components that don't match the architectural theme shall be screened from view. Design odor control mitigation measures for sewage bypassing and other stages of construction.

PROJECT ELEMENT 5 - TEMPORARY FACILITIES DURING CONSTRUCTION

In certain cases, construction sequencing constraints may require the contractor to implement a temporary facility to be used during a certain portion of the construction period. CONSULTANT shall identify in what instances such facilities are required or reasonably warranted and present those instances with implementation plans and construction sequencing constraints to OCSD for consideration. When such facilities are found to be either required or reasonably warranted, CONSULTANT shall provide sufficiently detailed drawings and specifications to be included in the Bid Documents that bidders understand what is required to provide and potentially operate the temporary facilities and that the reliability and performance of the facilities will meet OCSD's needs and reasonably mitigate construction risks. Examples of potential facilities include:

- Temporary odor control facilities
- Temporary noise abatement
- Temporary connections to facilitate start-up and testing
- Temporary piping to phase the replacement of the utilities
- Temporary standby power or temporary electrical equipment to accommodate modifications to SCE incoming power feed, relocation or replacement of the existing SCE transformer.
- Temporary communications.
- Temporary handling of flow

ASSUMPTIONS FOR LEVEL OF EFFORT

For the purpose of estimating the predesign and design phase levels of effort, the CONSULTANT shall make the following assumptions regarding the project elements:

- Deeper sewer will be approximately 6,200 linear feet in length, 54-inch diameter FRP or RCP pipe at a depth of approximately 35 feet, with four or more manhole structures, running from Westside PS to SBPS. Include approximately 600 linear feet of casing. This assumes the existing 51-inch pipeline will remain in service and carry partial flows,

while the new pipeline carries only those flows that were previously pumped through Westside Pump Station.

- The new pump station will have one, self-cleaning wet well, connected to the upstream structure by a 60-inch diameter pipe.

- The construction of the new pump station will be constructed such that the Navy contamination plume will not expand.

- The pump station will be equipped with six pumps (5 duty, 1 spare) with extended shaft motors. Assume pumps are two different sizes to accommodate the range of flows.

- The existing pumps station will remain in service for the duration of construction and commissioning of the new pump station.

- New odor control measures will consist of onsite LOx storage and dosing station with injection to the force mains, and onsite two-stage (bio trickling filter plus carbon polishing) air scrubbing system on the upstream side of the pump station. Chemical storage must include secondary containment, capable of holding the full storage volume of the tank.

- Temporary liquid phase odor control facilities for the duration of construction.

- Remove existing SCE transformer and provide temporary power for the duration of construction.

- The on-site structure that combines Los Alamitos flows and Seal Beach flows will be cast-in-place concrete with a concrete cover and manhole cover.

- The new standby generator will be housed in its own building.

- A concrete block building will be constructed to house electrical and control equipment.

- All above-ground structures visible from the road will be designed with California Mission architectural style.

- The electrical building will be provided with air conditioning.

- Communications will be maintained to OCSD control network.

- Access to the bottom of the dry well will be provided by two staircases.

- New security fence, gate, and personal access gate and access road on navy property 30 feet parallel to the existing fence at the rear of the SBPS property per Navy standards.

- New perimeter walls along the west and south sides of the property with a secured and automated vehicle gate, 32-ft in width. A personal secured access gate should be provided on each wall.

- Onsite stormwater retention includes trench drains to capture hardscape and driveway runoff and infiltration to softscape and drainage to wet well.

DESIGN CONSIDERATIONS

The following design considerations shall be implemented from Preliminary Design through Final Design.

With each design submittal, the CONSULTANT shall address operational and maintenance issues including access, safety, and security issues and how they have been addressed. The goal is to provide safe and adequate access to all equipment and instrumentation for operation, maintenance, repair, and replacement purposes. Maintain comprehensive data sheets of all equipment, valves, instrumentation etc. Data sheets should identify how these components will be accessed for operation, maintenance, and removal, which will later be used for development of the EID and SAT and Project Commissioning Dashboard. It is expected that updates within each design submittal will be triggered by changes from the previous.

Operations and Maintenance

The goal is to provide sufficient access to all equipment that requires daily or regular operation or maintenance located on the floor or an elevated level using access steps/stairs with elevated platforms and elevated mezzanine type walkway with proper working space. In areas where it is unpractical or not feasible to provide such platforms or access for operation or maintenance from the floor level or mezzanine level, the CONSULTANT is to bring this to OCSD's attention. In these cases, provide alternatives for operation or maintenance for OCSD to review. Equipment that requires significant force to operate such as valves shall be designed ergonomically to minimize the effort involved. Automate valves on the main sewage pump suction and discharge piping and valves located within confined space. Design piping systems so valves, pumps, flowmeters and other critical equipment can be removed while maintaining service. Provide means to bleed off pressure and drain components between isolation points required for operation or maintenance. Provide means for positive physical isolation for the replacement of each pump, the replacement of each isolation valve between the wet well and the pump, and the replacement of each isolation valve between the pump and the discharge manifold. Provide means to drain isolated suction or discharge piping to sump. Provide connections or accommodation for skillets, blinds, blanks, spectacle blinds, or spades for isolation of these areas and at other critical points. Provide bypass piping around the flowmeter.

Mechanical systems shall be ergonomically designed and have sufficient access for maintenance, removal, and replacement.

Provide a traveling bridge crane at the top of the pump room for lifting and removal of pumps, motors, valves, pipe segments and other heavy equipment, skids, or appurtenances. Equipment shall be located within the travel limits of the bridge crane. The system shall be designed so all pieces over 50 pounds can be removed with a maximum of two picks. One pick from the bridge crane and the other from a vehicle crane that is at grade level.

Provide heavy-duty floor-loading dumbwaiter that travels from grade level to mezzanine and ground floor of dry well for transport of tools and maintenance equipment.

Provide mechanical workstation at ground floor of dry well with stainless steel work table, chairs, wall-mounted LED lighting, power, compressed air supply, utility sink/potable water source, tool storage, and a selection of tools.

Provide equipment access hatch from grade to drywell such that man entry isn't required if the drywell gets flooded and to allow removal of equipment from the dry well.

Safety

Provide Safety Data Sheets of all proposed chemicals to be utilized. The goal is to design engineering controls to mitigate or eliminate safety hazards. If the hazards cannot be engineered out of the equation, then mitigate the hazards by meeting all OSHA and OCSD standards and regulations. Ensure the status lights, signage, alarms, other instrumentation, and other safety measures are included in the design. Ensure guard rails, handrails, and other fall protection measures are put in place. Add accommodations for confined space entry including concrete inserts for davit arms, and anchor points rated for 5,000 pounds per person in strategic locations. Label mezzanines, anchor points, and lifting brackets for design load capacities.

The final flow-combining structure upstream of the wet well shall be located on OCSD property and/or not in the street, so traffic control is not required when accessing the structure for operation or maintenance.

ABBREVIATIONS

The following abbreviations may be used on this project:

CEQA	California Environmental Quality Act
CPM	Critical Path Method
CSB	City of Seal Beach
Designer	The Engineering Design Consultant that shall be performing this Scope of Work
DM	Design Memo
DSX	Design Submittal X
EDG	Engineering Design Guidelines
FAT	Functional Acceptance Test
GWRS	Orange County Water District's Groundwater Replenishment System.
OCPW	County of Orange Public Works
OC Parks	Orange County Parks
OCSD	Orange County Sanitation District
ORT	Operational Readiness Test
P&ID	Process and Instrumentation Diagram
PDR	Preliminary Design Report
P1	OCSD Wastewater Treatment Plant No. 1, located in Fountain Valley
P2	OCSD Wastewater Treatment Plant No. 2, located in Huntington Beach
PRCS	Permit Required Confined Space
PRCSE	Permit Required Confined Space Entry
RAT	Reliability Acceptance Test
SAT	SCADA Administration Tool (database)
SOW	This Attachment A, Scope of Work.
RWQCB	Regional Water Quality Control Board

USACOE U.S. Army Corps of Engineers
WoUS Waters of the United States
WSPS West Side Pumping Station

III. PROJECT SCHEDULE

The table below lists the time frames associated with each major project deliverable and with OCSD's review and approval of those deliverables. CONSULTANT shall comply with the deadlines indicated in that table.

OCSD's Project Manager will issue an Administrative Notice to Proceed (NTP) that will authorize CONSULTANT to begin preparation of the Project Management Plan (PMP) specified under Task 2.6.1 Project Management Plan. The Administrative NTP does not authorize costs to be incurred for execution of the technical portion of the Work, except where specifically noted in the Administrative NTP.

Concurrent with OCSD's review and acceptance of the PMP, OCSD's Project Manager will issue a Preliminary Design NTP. OCSD's Project Manager will also issue a Final Design NTP upon OCSD's acceptance of the final Preliminary Design Report.

Project Milestones and Deadlines

MILESTONE	DEADLINE
Submit Project Management Plan (PMP)	10 workdays from Administrative NTP.
OCSD Review of PMP	10 working days from receipt of PMP. If the PMP is sufficient, the OCSD PM will set the date for the Kickoff Meeting. In any case, CONSULTANT shall issue a revised PMP within 5 working days of receipt of OCSD's comments for OCSD approval.
Kickoff Meeting	The kickoff meeting will be scheduled to coincide with the **Preliminary Design NTP**.
Preliminary Design NTP	
Preliminary Design Production NTP	5 working days from Preliminary Design NTP.
Submit draft Preliminary Design Report (PDR)*	140 workdays from the Preliminary Design NTP. CONSULTANT shall establish a schedule with the OCSD PM for separately submitting working drafts of each Design Memo for OCSD review prior to completing the draft PDR. This schedule shall factor in the logical sequence for completing the memos as well as both CONSULTANT and OCSD resources.

Project Milestones and Deadlines

MILESTONE	DEADLINE
OCSD Review of draft PDR	20 workdays from receipt of Draft PDR. This review will happen concurrently with Value Engineering.
Review of Value Engineering Recommendations	20 workdays from receipt of OCSD Comments on Draft PDR and completion of Value Engineering. This effort includes OCSD and CONSULTANT.
Submit final Preliminary Design Report	40 workdays from close of Review of Value Engineering Report.
Final Design Notice to Proceed	15 working days from submittal of the final PDR to receipt of the Design Phase NTP.
Submit Design Submittal 1 (DS1)	60 workdays from Design Phase NTP.
OCSD Review of DS1	20 workdays from receipt of DS1
Submit Design Submittal 2 (DS2)	100 workdays from receipt of OCSD comments on DS1.
OCSD Review of DS2	20 workdays from receipt of DS2
Submit Design Submittal 3 (DS3)	120 workdays from receipt of OCSD comments on DS2.
OCSD Review of DS3	20 workdays from receipt of DS3
Submit Final Design Submittal (FDS)	40 workdays from receipt of OCSD comments on DS3. CONSULTANT shall stop work upon submission of DS3, except as required to participate in OCSD meetings, until receipt of OCSD comments on DS3.
OCSD Review of FDS	20 workdays from receipt of FDS
Final Technical Specifications and Plans	20 workdays from receipt of OCSD comments on FDS.

Miscellaneous Due Dates:

Draft Groundwater Management Study	60 workdays from the Preliminary Design NTP.

Risk Management Plan Due	120 workdays from the Preliminary Design NTP.
*DM1B Draft Preliminary Design Report	40 workdays from receipt of Draft PDR (DM1A – DM14)

The time frames specified in the table above are used to estimate the actual milestone dates based on the assumed NTP date, as shown in **Exhibit 02**.

The above schedule identifies OCSD's review period for each project submittal. The CONSULTANT shall not proceed with the design after each major milestone submittal. The CONSULTANT shall not start the Final Design until directed by OCSD.

OCSD will consider an alternative CONSULTANT-proposed schedule provided it is consistent with OCSD resources and schedule constraints and adds value to OCSD.

IV. PROJECT EXECUTION

All OCSD projects are divided into six phases. CONSULTANT shall provide engineering services for all Project Elements listed in Section II of this Scope of Work for the following Phases:

- Phase 1 – Project Development (Not in this Scope of Work)
- Phase 2 – Preliminary Design
- Phase 3 – Design
- Phase 4 – Construction (Not in this Scope of Work)
- Phase 5 – Commissioning (Not in this Scope of Work)
- Phase 6 – Close Out (Not in this Scope of Work)

PHASE 1 – PROJECT DEVELOPMENT

Not in this Scope of Work.

PHASE 2 – PRELIMINARY DESIGN

TASK 2.1 – NOT USED

TASK 2.2 - PRELIMINARY DESIGN PRODUCTION

Preliminary Design Production (PDR Production) involves the preparation of design memos, drawings, calculations, and other supporting material resulting in the Preliminary Design Report (PDR).

The following requirements apply to PDR Production.

- Each design memo shall be submitted as a draft, along with any relevant associated drawings for OCSD review. Except where significant revisions are required, design memos need not be resubmitted prior to the compiled draft PDR.

- CONSULTANT shall schedule and execute the work so that draft design memos are produced and submitted early enough that OCSD comments can be addressed and the changes incorporated into the draft PDR. All significant equipment decisions are to be made before the start of Phase 3 –Design. At the end of Phase 2 – Preliminary Design, major design elements should be fixed and major equipment, building footprints, major structural elements, and process pipelines should be well defined and established. The extent of the design and the number and type of drawings should also be established.

- The design memos shall clearly document exact naming conventions to be used for all process equipment covered by the design memo.

- Each design memo shall identify any equipment and instruments that have fewer than three competitive suppliers. In those cases, the design memo shall recommend an appropriate procurement strategy compatible with California Law and OCSD policies.

- Where appropriate, OCSD will circulate design memos to permitting agencies for review. OCSD will review comments from those agencies and forwarded them to CONSULTANT. CONSULTANT shall respond to all OCSD and agency comments in writing and incorporate all comments into the final Design Memos as applicable.

Task 2.2.1 Preliminary Design Report (PDR) Contents and Organization

The CONSULTANT shall combine the material specified above for the Preliminary Design Production tasks into a draft PDR. The PDR shall be structured as outlined below, with the contents corresponding to the tasks listed in this Scope of Work.

Volume 1 – Preliminary Design Report
Table of Contents
Executive Summary
Design Memos
Design Memo 1 – Los Alamitos Sub Trunk Extension Sewer Horizontal and Vertical Alignment Design and Pump Station Base Map
Design Memo 2 – Pump Station Alternatives and Basis of Design
Design Memo 3 –Geotechnical and Groundwater Management Study
Design Memo 4 – Structural and Architectural
Design Memo 5 – Civil, Landscaping, Irrigation, Noise and Utilities
Design Memo 6 – Mechanical
Design Memo 7 – Electrical and Standby Power
Design Memo 8 – Instrumentation and Control
Design Memo 9 - Odor Control and Air Quality Management
Design Memo 10 - Fire Protection, Security and Safety
Design Memo 11 – Hazardous Material Survey, Mitigation and Control
Design Memo 12 - Environmental, Permits, Agency Coordination, Community Outreach Program and Traffic Control
Design Memo 13 –Construction Phase Implementation, Constructability Issues, Cost and Schedule

Design Memo 14 – Facility Operation and Maintenance
List of Proposed Specification Sections

Volume 2 – Drawings
- **General**
- **Civil**
- **Landscape**
- **Structural**
- **Architectural**
- **Mechanical**
- **Electrical**
- **Instrumentation & Control**
- **Telecom**
- **Demolition**
- **Traffic Control**

Volume 3 – Submittal Documentation
- **Table of Contents**
- **Calculations**
- **Equipment Data & Catalog Cuts**
- **Decision Log**
- **Meeting Minutes**

The Executive Summary shall summarize the conclusions of the Memos included in the report, and specifically include a summary construction schedule and construction cost estimate.

The draft PDR and final PDR shall be submitted in searchable PDF format legible on-screen and as a hard copy. The number of hard copies is indicated in **Exhibit 04.** The following requirements apply to the labeling and organization of the PDF submittal:

- Each design memo shall be a separate file/tab within the PDR.
- CAD Drawing files shall be submitted as a single compiled file, in accordance with the CAD & Drafting Standards Manual.
- The PDF files shall be submitted via Bluebeam in accordance with the CAD & Drafting Standards Manual, section 7.4.2 and the general Requirements contained hereon. In no case may drawings be submitted as separate PDF files for each drawing. The order of drawings in the PDF file shall match the list of drawings.
- These requirements do not affect the organization, naming, and submittal of native files for CAD or MS Office files specified elsewhere in this Scope of Work and OCSD Engineering Design Standards.

The OCSD Project Manager may request that the CONSULTANT submit an electronic proof set of the Draft PDR and Final PDR prior to hard copy production to initially confirm that the submittal is ready for printing.

Task 2.2.1.1 Design Memo 1 – Los Alamitos Sub Trunk Extension Sewer Horizontal and Vertical Alignment Design and Pump Station Base Map

Design Memo 1 shall ultimately validate the depth needed in the new SBPS wet well by designing the Los Alamitos Sub Trunk Extension pipeline to a level that confirms the elevation in the pipe throughout its entire length. The northern portion of pipe shall be designed for a peak wet weather (PWW) flow rate of 16.50 MGD from three feed points near Westside Pump Station. The new pipe will be approximately 6,200 linear feet in length from Yellowtail Drive north of Westside Pump Station, to the upstream combining structure near the SBPS site.

A Peak Wet Weather Flow (PWWF) of 11.63 MGD will continue to flow through the existing 51-inch Seal Beach Sewer Interceptor, assuming it will remain in service and flows from the 51-inch will combine with the new Los Alamitos Sub Trunk Extension near the SBPS site.

A final length of new pipe shall convey the total combined Los Alamitos Sub Trunk flows, Seal Beach Interceptor flows and City of Seal Beach flows (34 MGD) from the upstream combining structure to the wet well inlet at the proposed Seal Beach Pump Station. This final length of pipe will be designed and built under the 3-67 project.

This design memo is broken into two parts. Design Memo 1A will consist of the following:

- Aerial and Topographical Survey.
- Development of a utility base map based on record drawings and visible indicators (valve cans, MH lids, etc.).
- Three proposed horizontal and vertical alignments. *However, because proposed alignments will only be confined to currently established and available easements or right-of ways, a reduced number of options, will be considered with justification.*
- One recommendation of a horizontal and vertical alignment, along with a suitable construction methodology for each major segment of its construction.

Consideration should be given to the known soil and groundwater conditions including the Navy's contamination plume in making a recommendation. Include in the recommendation, the material of construction of pipe and appurtenances, size, capacity, velocity, and access methods. If facilities are determined necessary outside the project boundaries, indicate the recommended improvement. The alternatives shall be presented with life cycle costs and consideration to operation and maintenance issues. The CONSULTANT shall submit this memo to OCSD for review and acceptance before proceeding with Design Memo 1B.

Design Memo 1B will further refine the selected alignment's plan and profile by proposing location of manholes and points of connection and confirming utility locations and depth through potholing and geophysical investigations. (Note: DM1B draft PDR is due 40 workdays following the remainder of the draft PDR)

The parameters required for preliminary and final design shall be developed, though final design of the pipeline will be completed under a separate project.

Easements, Property Boundaries and Work Area Limits (DM 1A)

The CONSULTANT shall identify easement and property boundary requirements and prepare all easement legal descriptions, including performing any field investigations, and surveys required to identify and prepare easements.

Unless otherwise directed, the CONSULTANT shall identify, survey, and show all property and city boundaries, and all existing and proposed easements, within and/or adjacent to the project boundaries.

CONSULTANT shall show and explicitly identify the limits of work for all portions of the project, including any restrictions to the work allowed in any area, e.g., whether the area can be used for parking or laydown.

All survey research and survey field work shall be performed by a Professional Land Surveyor licensed by the State of California.

Aerial Photography (DM 1A)

Review historical aerial photography as far back in time as possible. Document locations of prior structures that could affect earthwork required for force main preferred alignment. Use this data for pump station DM. Investigate via potholing as necessary.

Utility Research (DM 1A)

CONSULTANT shall perform a thorough search of all utilities and all other facilities above or below ground that may be impacted by the work for all applicable Project Elements. OCSD and non-OCSD data and records shall be researched and on-site inspections shall be completed. Utilities include all those on-site and those in the public right of way including, utility company-owned and public agency-owned piping, duct banks, facilities, structures, and other interferences. Emphasis shall be given to document abandoned structures and utilities. The search shall include utilities within the public right-of-way, and those located on public or private property and OCSD property impacted by the proposed project. The search shall include the records and plans of OCSD and all public and private companies and utilities.

Review of OCSD Records (DM 1A)

OCSD's "As-built/Record" plans may be incomplete or inaccurate with respect to the routing of individual utilities, pipelines, etc. in the vicinity of the project. CONSULTANT shall check OCSD records against those of the other agencies, companies, and utilities. These may include, but not be limited to, oil, gas, fuel, water, reclaimed water, sewer pipelines, traffic control facilities, telephone and electrical conduit and duct banks, storm drains, manholes, and other structures. Provide ground penetrating radar at all critical locations to verify utility locations and check for unknown utilities. Emphasis shall be given to document abandoned structures and utilities.

Review of Outside Agency Records (DM 1A)

Investigation of existing utilities shall be in accordance with the respective ASCE guidelines, except as amended by this Scope of Work. Refer to CI/ASCE 38-02, Standard Guidelines for

Collection and Depiction of Existing Subsurface Utility Data for details. Subsurface investigation for all utilities in and around the work area shall be performed to Quality Level D and Quality Level C. All utilities shall be plotted both in plan and profile on a scaled drawing

CONSULTANT shall contact, in writing, all jurisdictional agencies and utilities owners to inform them of OCSD's project. CONSULTANT shall request plans showing any of the agency's or utility's facilities, pipelines, etc. in the project area. CONSULTANT shall also request plans and schedules for any proposed construction in the project areas.

CONSULTANT shall meet with applicable field staff from each agency to confirm the completeness of their research. Abandoned utilities and subsurface structures shall also be considered. CONSULTANT shall document the contacts and information requested and received, including that from Underground Service Alert (USA). OCSD shall be copied on all correspondence between CONSULTANT and public and private agencies, and utility companies. CONSULTANT shall submit a copy of all documentation to OCSD with an itemized submittal letter. CONSULTANT's Project Manager shall sign the transmittal cover letter and the cover letter shall confirm that CONSULTANT has sent a representative to each agency/company/utility, performed on-site inspections for each utility, and has listed the utilities.

CONSULTANT shall contact USA and request a substructure listing for the project area. CONSULTANT shall follow through with due diligence on utilities that do not participate in the USA program, unknown owner of a facility and/or abandoned utilities.

Utilities for Adjacent Properties (DM 1B)

CONSULTANT shall investigate all utilities serving properties adjacent to the work and submit a spreadsheet at the end of the utility research accounting for all anticipated utilities for OCSD review, with the following information:

- List all utilities anticipated or each adjacent property.
- Whether or not each such utility was found on as-built drawings of any agency, with an identification of the agencies identifying such utility.
- Whether or not the utility was field located by utility through USA process, and if so by which agency.

Potholes and Geophysical Investigation (DM 1B)

CONSULTANT shall submit, for acceptance by OCSD, recommendations on which utilities should be investigated to Quality Level A and where Quality Level B investigations should be performed. A potholing plan and geophysical investigation plan shall be developed including proposed pothole locations and type of geophysical investigation.

CONSULTANT shall then "pothole" and perform geophysical investigation on all utilities described and shown in the accepted Potholing Plan/Geophysical Investigation Plan. CONSULTANT's staff shall be on-site during potholing to provide direction to potholing crew. OCSD staff may also be present during potholing.

CONSULTANT shall provide all work necessary, including, but not limited to:

- Documentation of information
- Notification of USA's "Dig Alert"
- Providing field survey
- Obtaining required permits
- Submission of traffic control plans
- Provide traffic control
- Soft dig potholing
- Excavating
- Backfilling
- Repairing pavement to local jurisdiction requirements

"Soft" excavation potholing methods such as vacuum extraction is preferred; however, excavation methods shall be chosen to adequately define the utility. Crosscut trenches may be preferred for defining some utility locations. Hydro-jetting soft dig should be avoided in sandy, wet or contaminated soil conditions.

Potholing subcontractor shall measure and document the depth of pavement and of base material at each pothole, and every five feet along crosscut trenches. Potholing activity shall meet all Stormwater Pollution Prevention requirements.

CONSULTANT shall provide a licensed land surveyor or hire a licensed survey subcontractor(s) to field locate the actual horizontal and vertical location of the constructed potholes. Survey controls shall be set and coordinated with the survey controls used on previous construction drawings. City and County control points shall be checked; northing, easting and elevation data for each pothole shall be shown on the Contract Drawings; and physical tie-ins provided in order to easily re-establish pothole locations after construction.

CONSULTANT shall supply and supervise survey work and subcontractors needed to perform the pothole work. Survey datum differences shall also be reconciled. CONSULTANT shall backfill and repair potholes consistent with the requirements of the local jurisdiction. If CONSULTANT is unable to determine local jurisdiction requirements prior to the proposal, CONSULTANT shall assume the following requirements:

- The materials removed from the excavation may not be used for backfill.
- Hauling off and disposing of excavated pothole material. In this case, excavation holes shall be filled with a cement slurry mix from the bottom up. The excavated materials shall be tested for hazardous materials and disposed of offsite accordingly. Testing shall be the minimum required for classifying the materials. The potholing samples

shall be tested by a California Environmental Laboratory Accreditation Program (ELAP) certified laboratory to identify characteristics of hazardous waste. A substance shall be considered hazardous if it possesses properties of toxicity, ignitability, corrosivity and/or reactivity per California Code of Regulations Title 22, Section 66261. In addition, the laboratory testing shall include an on-site Organic Vapor Analyzer (OVA) test for potential hydrocarbon contaminants. Should the OVA reading be equal to or greater than 45 ppm, further laboratory testing shall be performed to include Benzene, Toluene, Ethyl Benzene, and Xylene (BTEX) test per EPA guideline 8020 and Total Hydrocarbons (TPH) tests per EPA guideline. All testing results shall be provided to OCSD with a location map.

- AC pavement shall be replaced to full depth or the structural section (AC & Base) plus two inches with hot mix asphalt unless otherwise required by the City or Caltrans. Cold mix shall only be allowed when the patch will be replaced by the project and where approved by the City or Caltrans.

- Concrete pavement shall be replaced to full depth plus two inches with Portland cement unless otherwise required by the City or Caltrans.

- Underground Service Alert paint markings shall be removed within 90 days.

CONSULTANT's fee proposal shall include the cost for potholes (base) and unit cost for additional potholes.

- The cost (base) shall provide for 50 potholes. Potholes on the pump station site shall not exceed 10 and the remaining shall be in the public right of way. The CONSULTANT shall plan for two mobilizations at the pump station and up to six in the public right of way and channel crossing. Potholes shall fulfill Quality Level A requirements.

- CONSULTANT's fee proposal shall include a cost for geophysical investigation. The cost shall provide for geophysical (Level B) during preliminary design. Coverage areas shall be for the pump station site and along the entire Los Alamitos Sub Trunk Extension alignment. The intent is to help locate utilities prior to potholing and to identify undisclosed utilities that will later be potholed to confirm presence.

All utilities encountered during the preliminary design shall be shown on the Plans. Project work that requires other agencies to relocate existing utilities shall be coordinated during the design by CONSULTANT. Each subsurface utility shown on the drawings shall include the Quality Level to which it was investigated as required by CI/ASCE 38-02. Pothole locations shall be shown on drawings with survey information.

The CONSULTANT shall identify easement, right of way boundaries, and property boundary requirements. Property boundaries and easements shall be shown on drawings.

The CONSULTANT shall identify work area limits on drawings and include any restrictions to the work area including its use as laydown and storage area.

OCSD Maintenance will **not** provide any support to perform the work described in this section. The CONSULTANT shall provide the following:

- Personnel to open manhole lids and test for flammable gases before opening
- All traffic control required to perform the work described in this section
- Prepare traffic control plans, apply for encroachment permits, and pay for all associated fees. Fees will be reimbursed as a direct cost.

Task 2.2.1.2 Design Memo 2 – Pump Station Alternatives and Basis of Design

The purpose of this memorandum is to document the work to be completed by the CONSULTANT regarding the preliminary design of the pumps and wet well, performance of hydraulic calculations, and the development of the basis of design including pump type alternatives, pump configuration and mechanical layout, preliminary site plan and layout drawings, and life cycle costs. This memorandum shall focus on the pump configuration, layout, pump type and sizing alternatives, the wet well, and the electrical (major equipment, conduit runs and cable tray runs, location of panels) and mechanical configurations (pipe, HVAC, bridge crane and dumbwaiter) within the pump station structures. Other design issues will be addressed in other memoranda or studies. Work required to satisfy other portions of the scope of work shall be incorporated into the alternative development. The CONSULTANT shall consider all aspects of pump station design such as building layouts and OCSD Design Guidelines.

Pump Alternatives

Pump Station Alternatives shall include; 1) immersible vertically driven with *2-vane* non-clog *or screw* impellers or, 2) extended shaft motor.

Pump selection will include; 1) pumps of all the same size/capacity, and 2) pumps of two different sizes to accommodate the full range of flows.

Pump Analysis

For each pump alternative, the CONSULTANT shall perform hydraulic calculations to size and select the pumps, motors, and drives including NPSH calculations. The hydraulic analysis shall include graphical representation showing the performance for each combination of pumps, high and low wet well levels and various FM system pressures with one or two force mains in operation. System pressures shall include the range of the Hazen-Williams or Manning's coefficients. The analysis shall include a summary of the dynamics of the wet well level and pump speeds with the starting or stopping of a pump including fill and draw calculations. Detailed calculations and graphic representation of each hydraulic case shall be submitted. The analysis shall look at fill and draw operation during the lowest flow conditions and the number of pumps starts and stops per hour. The analysis shall also include a summary of the dynamics of the wet well level and pumps speeds during a cleaning cycle.

Utilize the design flow rates developed from the hydraulic modeling study performed under Project 3-62 to properly size the pumps and determine the quantity of pumps. Use the following design parameters: a) Peak Wet Weather Flow (1-hour average, using a 10-year storm event, year 2040) 34 MGD; b) Peak Dry Weather Flow (1-hour average, year 2040) 10.9 MGD; c) Average Daily Dry Weather Flow (daily average, year 2016-17 from recent flow

monitoring) 8.0 MGD; and d) Minimum Daily Dry Weather Flow (1-hour average, year 2016-17) 3.3 MGD.

The pumps shall be selected to pass suspended solids, rags, fibrous material, and floatables as well as grit and heavy material. Rags must also be passed at minimum speeds by the pump, valves, meter, and piping and appurtenances. The CONSULTANT shall determine how the facility will operate under minimum daily flows for each alternative and shall delineate how often the pumps cycle on and off during the fill and draw cycles. Establish motor and pump vibration tolerances and acceptance criteria. Ensure adequate motor cooling is provided at minimum speeds.

The CONSULTANT shall present, in tabular form, each alternative describing its merits, advantages, disadvantages, life cycle costs, and operation and maintenance issues. CONSULTANT shall make one recommendation based on analysis, including a discussion of why the proposed configuration is preferred over another likely configuration.

The CONSULTANT shall provide a single wet well that shall be of the self-cleaning trench style. Wet well design shall meet the intent of Hydraulic Institute (HI) guidelines and minimize odors and corrosion. Determine the size/configuration of the wet well. The goal of the wet well size and configuration is to provide one hour of storage capacity (including upstream collection system capacity) before spilling during typical future peak daily flows. If this size is not feasible per the site restrictions, provide alternative recommendations.

In development of the design alternatives and configurations the CONSULTANT shall consult extensively with OCSD's staff. OCSD may authorize the CONSULTANT to eliminate pump alternatives during analysis if the CONSULTANT and OCSD conclude that an alternate configuration is not cost effective or constructible.

Basis of Design

The CONSULTANT shall provide recommendations for the most advantageous alternatives in a draft memorandum. Once OCSD has selected the preferred alternative, the CONSULTANT shall complete the remaining calculations and assessments required to establish all final design parameters for the pumps and station configuration and layouts and present these in the final memorandum (part of the PDR). The requirements in the most current EDGs shall be met. Any deviations or exceptions to the EDGs shall be pre-approved by OCSD before submitting. Pump hydraulics shall be finalized and complete detailed hydraulic calculations provided that include developing graphics that plot system curves, pump performance curves, NPSH curves, power curves, and efficiency curves at all the various operating conditions and for each sequence of pump operation. Graphics shall be designed to be easily read and interpreted. Samples shall be provided to OCSD for review prior to presentation of final graphics. NPSH margin shall be in accordance with the EDG, which is more restrictive than HI Standards. All the equations and calculations and data used to develop the data for the curves shall be provided along with the narrative explaining the methodologies used.

In preliminary design, the CONSULTANT shall develop harmonic factors for the concrete structure.

A limited analysis on operating levels shall be performed for this DM's alternatives for both the current (no deeper sewer) and future (with Los Alamitos Sub Trunk sewer installed) flow and

water level conditions. Operating philosophies shall be determined for the selected pumps and types within the Facility Operation and Maintenance DM.

CONSULTANT shall determine the "flood" level in the dry well, and what equipment should be above/below this level, and where a spill would occur for various system failures.

Design parameters for ancillary features, such as designing ventilation facilities and the sump pumps for the pump room drainage shall be calculated and established.

Corrosion control requirements; identify corrosive environments and recommend galvanic protection requirements, materials for piping, conduits, gates, covers, grating, and structural elements. Identify protective coating requirements for corrosive and non-corrosive areas.

Validation of Wet Well Configuration

After OCSD's acceptance of the draft Design Memo 2, a physical model in accordance with the Hydraulic Institute standards shall be constructed of the pump station wet well including the first reach of the upstream gravity system and any appurtenances on or in the suction piping. This is to confirm that favorable flow conditions would be created over the full range of flow rates. The physical model shall be reasonably large geometric scale to minimize viscous and surface tension scale effects, and to reproduce the flow pattern in the vicinity of the pump intake, and to be large enough to allow visual observations of flow patterns, accurate measurements of swirl and velocity distribution and sufficient dimensional control. The model shall be scaled and constructed in accordance with Hydraulic Institute recommendations with all pertinent sump structures and/or piping features that affect the flow*. In addition, the Influent Structure for the incoming, existing and future connections to the pump stations will be modeled to verify the effects of the cascading flows.*

This project scope includes that physical modeling and testing. The physical model of the pump station shall further refine wet well and piping dimensions. The physical model findings shall be incorporated into the PDR Executive Summary and in the Final Design.

Task 2.2.1.3 Design Memo 3 - Geotechnical and Groundwater Management Study

CONSULTANT shall secure the services of a qualified Geotechnical Engineering firm to prepare a desktop study Preliminary Geotechnical Design Report ~~and Geotechnical Baseline Report~~ that addresses geotechnical concerns for all applicable Project Elements of the project Scope of Work. The Geotechnical Design Report shall be prepared during the Preliminary Design Phase ~~and the Geotechnical Baseline Report~~ shall be prepared during Final Design Phase (see Task 3.3).

Review of Existing Data

CONSULTANT shall review all known soils and inspection reports, including 3-62 Evaluation Memo 2 Appendix 2 N&M Prelim PGR Force Mains. The review shall include all relevant reports.

Desktop Study Geotechnical Data Report

The desktop study Geotechnical Data Report (GDR) shall summarize the review of existing data and make recommendations regarding the provisions to be included in the construction specifications and regarding the Design of facilities. Specification recommendations shall be prepared for the following topics: dewatering, trench shoring, backfill, compaction, and road repairs. Design recommendations shall include active, at-rest, passive and dynamic earth pressures, foundation type, allowable bearing pressure, coefficient of friction between the foundation and soils/subgrade, pile or mat foundation design data, settlement potential, pipe bedding, trench shoring/maximum cut slope requirements, soil contamination/corrosion potential, structural needs, pipe stability, expected earthquake displacement, and other CONSULTANT design requirements. The GDR shall also make recommendations regarding the demolition of the existing pump station.

Delivery of Desktop Study

The draft and final desktop study GDR shall be submitted to OCSD for review and comment. All comments received regarding the GDR shall be addressed.

Refer to the Engineering Design Guidelines, Chapter 1 for further requirements. Some of the related design requirements can be found in the Engineering Design Guidelines, Chapter 2, Chapter 8, and Chapter 9.

Groundwater Management Study

The CONSULTANT shall provide options and a final recommendation for building the pump station and the future deeper sewer while avoiding any movement of the Navy's contamination plume during construction activities. The CONSULTANT shall document the contaminants of concern, map the plume concentration boundaries, and provide the assumptions for each option proposed.

The CONSULTANT shall provide a study outlining each option with cost, schedule/duration, permit requirements and risks associated with each option. The hydrogeologic investigation conducted under 3-62 shall be reviewed and evaluated if CONSULTANT proposes dewatering requirements for inclusion in the specifications. Additional information regarding the Navy's groundwater research may be found on the following websites:

https://www.cnic.navy.mil/regions/cnrsw/installations/nws_seal_beach/om/environmental_support/environmental_cleanup/seal_beach/documents.html

https://geotracker.waterboards.ca.gov/profile_report.asp?global_id=DOD100355700

The accepted option shall be full developed during Final Design Phase.

A draft Groundwater Management Study outlining plausible construction options shall be submitted to OCSD for consideration 60 working days following Preliminary Design NTP.

Task 2.2.1.4 Design Memo 4 - Structural and Architectural

The purpose of this memorandum is to document the work to be completed by the CONSULTANT regarding the structural and architectural elements of the project. Alternatives shall be developed for site layout.

The architectural design shall be for:

- Motor/Pump Room
- Electrical Building
- Generator Building
- Chemical Storage/Dosing and Air Scrubber Building
- Landscaping (See Design Memo 5)
- Perimeter Wall, fencing and screening of equipment and appurtenances
- Security features (see Design Memo 10)
- Include conceptual layout of a future replacement Pump Station in the current proposed PS layout.

A restroom shall be provided onsite. Install the restroom door on the exterior wall. The walls within the restroom must be sealed from the pump or electrical room.

The architectural design shall use building exterior features, size, orientation, site layout, hardscape and landscaping to accomplish the architectural goal for the site. Exposed mechanical and electrical features on the exterior of the buildings shall be kept to the absolute minimum and those required shall be recessed and/or covered to blend into the architectural features. Mechanical feature like chemical tanks shall be screened with hardscape, buildings or architectural facades. Civil, electrical, and structural design shall not advance to Final Design until an architectural site layout, perimeter wall concept and exterior building features have been approved by OCSD.

The CONSULTANT shall develop three preliminary layouts with different building combinations and orientations. Once the quantity and general layout of buildings is approved, the CONSULTANT shall develop multi-viewed renderings. Architectural renderings and preliminary and final design shall be completed by California licensed Architects. A Public/Commercial Architect shall work with a Landscape Architect to develop all renderings. The architects shall consult with OCSD Security layering requirements before beginning any renderings.

The chosen rendering shall undergo four revisions that include checks against each final design submittal to ensure all appurtenances, piping, conduit, and all other industrial elements are strategically screened from public view.

Provide structural engineering and design for the entire pump station facility. Detailed drawings to be generated in Phase 3. The harmonic factors for the concrete structure developed during DM2 – Pump Station Alternatives and Basis of Design shall be incorporated into the final design and into the Contract Documents as vibrations parameters.

Use the reinforcing distribution factor for severe sanitary exposure for wet well analysis. Design shall ensure water tightness of the structure.

Provide a finite element computer aided structural and dynamic analysis for proposed design. Determine the natural frequency of the structural support systems for rotating equipment and piping. Ensure that pumps and motors and valves can be removed from building via a bridge crane or other method without going through the electrical and control room.

Task 2.2.1.5 Design Memo 5 – Civil, Landscaping, Irrigation, Noise, and Utilities

The purpose of this memorandum is to document the work to be completed by the CONSULTANT regarding the civil, landscape, irrigation, and utility design elements of the project. Alternatives for landscaping and hardscape shall be prepared to support the building architectural alternatives. Landscaping and hardscape shall be designed in conjunction with the building architecture to provide an overall aesthetically pleasing site that screens facilities from public view and meets City of Seal Beach criteria.

Civil Improvements

Design facilities to maintain separation of off-site drainage from on-site drainage. On-site drainage shall be contained on-site and shall percolate into the ground or be conveyed by gravity to the wet well. Include flap gates to contain odors. Design hardscape and grade the site to allow percolation of rainwater where feasible. Design on-site facilities to contain 24-hour 85^{th} percentile rain event and force larger flows off-site to City facilities. Design facilities to meet agency requirements with regards to pervious areas and other pertinent criteria. Recommend permanent Best Management Practices for incorporation to the final design.

Design storm drains to eliminate ditches along southern and western edges of property. Connect to existing inlet at City storm drain on the northeast corner of the intersection of Seal Beach Boulevard and Westminster Boulevard. Backfill and compact the existing ditches to grade.

Design to prevent releases of industrial stormwater (process/chemical area) and sanitary sewer overflow releases, to meet NDPES permit conditions.

Review maintenance vehicle and chemical deliver truck sizes and design site and building layout and access roads to accommodate. The largest vehicle to access the site will be a full length chemical delivery truck. OCSD Maintenance vehicles will need access to clean the wet wells and remove equipment (via a crane). Maintain separation between chemical loading area and wet well access manholes, so that chemical delivery does not disrupt maintenance operations.

Paving shall be designed to handle H-20 loading and loads from delivery trucks and cranes. The two entry points shall be maintained to allow drive through access. Provide design of all

utilities required for the project including City water, natural gas (if required), electricity, storm drain, fiber optic, sewer, cable, telephone, and as required for the project. The sewer lateral from the restroom shall be routed to the next upstream manhole. Include back flow prevention devices and meet cross connection requirements. Coordinate with utility providers to ensure service can be provided. Provide all parameters required for civil preliminary and final design.

Design Navy security fence 30-feet offset from existing fence at rear of SBPS property. During 3-62 Preliminary Design, preliminary plan layouts were prepared showing how the new station and Navy security fence improvements may exist on the property. These preliminary plan layouts are provided to the CONSULTANT. See **Exhibit 15**.

Electrical and generator building foundations shall be located above the 100-year storm event elevation.

In conjunction with the geotechnical studies, indicate the limits of excavation and shoring requirements.

Landscaping and Irrigation Improvements

Landscaping shall be completed by a Landscape Architect, duly registered in the State of California. Landscaping shall be coordinated to blend in with the California Mission architectural style. Landscaping shall be incorporated into architectural renderings. Conduct soil tests and recommend amendments as necessary. Minimize the amount of irrigation and maintenance required by softscape.

Noise

Provide noise attenuation measures within the standby generator room, odor control system, and ventilation fans. Provide noise attenuation on the inlet and exhaust sides of the generator system. Provide critical hospital grade silencers on the generator. Assess the need to place noise attenuation on the ventilation systems of the other buildings. Prepare a written noise report as part of this memorandum that includes:

- Visiting the site and conduct ambient noise measurements to establish baseline.
- Identify external sources of noise.
- Identify potential methods for defining noise impacts.
- Develop noise model consistent with noise impact assessment methods.
- Determine exterior noise levels and compliance with assessment standards.
- Determine noise impacts of the proposed improvements.
- If required, develop mitigation measures to meet design standards.
- Determine compliance with City ordinance.

Utilities

CONSULTANT shall determine all required utilities and coordinate acquisition of service and coordination with utilities.

Task 2.2.1.6 Design Memo 6 – Mechanical

The purpose of this memorandum is to document the work to be completed by the CONSULTANT regarding the Mechanical elements of the project (except for the main pumps which are covered in Design Memo 2). The mechanical elements include sump pumps, HVAC, ventilation, air compressor, and miscellaneous appurtenances. Mechanical design shall meet currently adopted building code requirements.

Mechanical systems shall be ergonomically designed and have sufficient access for maintenance, removal and replacement (See Design Memo 14). Indicate how access will be provided for operation and maintenance.

HVAC

Provide preliminary calculations, and equipment and material recommendations for those facilities that require air conditioning or ventilation. Ventilation levels shall conform to NFPA 820 requirements for the dry well for reducing the area classification level even though the dry well will be designed for Class I, Division 2. Design shall be completed by a California registered Mechanical Engineer.

Sump Pumps

Document the basis of sump pump sizing. Develop a reasonable design approach to maintain pump reliability even when pump room floods. Design the sump dimensions to adequately handle the explosion proof submersible pumps while minimizing fluid volume after shut off. Design the sump pump system with a standby pump. All sump pumps shall be the same size and type. Sump pumps shall be submersible, non-clog sewage pumps with chopper blades. Power and control cable connections shall be plug in type.

Pump Room Accessories

Document basis of the sizing and selection of the following equipment.

Cranes and hoists. Size a traveling bridge crane at the top of the pump room for lifting and removal of pumps, motors, valves, pipe segments, and other heavy equipment, skids, or appurtenances. Design the pump room layout and crane system such that the hoist can be moved directly over the centerline of each pump, pump and motor combination, valves, and piping. The capacity of the system shall be designed to lift two times the weight of the heaviest pump and motor combined or the heaviest piece of equipment. Add lifting brackets to walls and slabs to accommodate lifting of equipment other than the equipment described above. Design the facility configuration such that removal of items from the pump room can be accomplished without making openings into the electrical or control room or other unclassified building areas. Design the system to remove items with a maximum of two lifts.

Heavy-duty floor-loading dumbwaiter that travels from grade level to mezzanine and ground floor of dry well for transport of tools and maintenance equipment.

Compact, sound attenuated air compressor system to run pneumatic tools for operation and maintenance of the station.

Miscellaneous

Document sizing and selection criteria for motorized vehicle entry gates.

Plumbing Fixtures

Restroom fixtures shall be institutional heavy duty and stainless-steel construction. Provide stainless steel emergency shower for chemical areas. Design the restroom in a separate enclosed room as part of the building over the pump room or one of the other buildings.

Task 2.2.1.7 Design Memo 7 – Electrical and Standby Power

CONSULTANT shall obtain and adhere to OCSD's most recent Electrical Design Guidelines on the following subjects before proceeding with the preliminary electrical design. Particular subjects of concern include the following:

- Electrical equipment naming conventions and tagging
- Switchgear automatic transfer scheme
- Arc flash mitigation measures

CONSULTANT shall provide the following:

- Preliminary Load List with motor horsepower. This list shall show all major and auxiliary electrical loads for each voltage level. Load lists shall be provided for dry weather and wet weather conditions.
- Preliminary standby power requirements (see Engineering Design Guidelines, Chapter 10, Section 10.7 "Distribution System Requirements"). Include general requirements and preliminary equipment sizing.
- OCSD will perform preliminary calculations for the short circuit analysis, load flow/voltage drop study, motor starting study, preliminary settings for the protection device and coordination study, and preliminary arc flash analysis and approach recommendations. The CONSULTANT shall provide OCSD with the SCE incoming short-circuit information and a single line diagram with circuit breaker ratings and cable sizes and lengths.
- Hazardous Area Classification requirements (see Engineering Design Guidelines, Chapter 10, Section 10.6.1 "Hazardous Areas" and NFPA 820 requirements).
- SCE Coordination. Size SCE transformer to handle peak wet weather flow condition. Coordinate with SCE for available fault current, location, and sizing of new transformer,

installation requirements and configuration of metering section, and service entrance switchboard.

- Anticipated maximum demand load on the SCE service when the existing pump station is operating, and the new pump station is being commissioned and recirculating the flows within the new pump station wet well.

Task 2.2.1.8 Design Memo 8 –Instrumentation and Control

CONSULTANT shall recommend instrumentation and control solutions to support this Scope of Work.

I&C Design Requirements for Existing Facilities

OCSD has established standards for Programmable Logic Controller (PLC) Programming, Operator Interface (OI) programming, a database propagation system and register addressing. The CONSULTANT shall incorporate OCSD's standards in the P&ID drawings and in all control strategies. Control logic diagrams are not required for this project. **Exhibit 12** in this Scope of Work presents an example of the Process and Instrumentation Diagrams (P&ID's).

Non-ISA standard symbology is used to depict the OCSD's standard logic templates in the P&ID. Control strategies shall call out appropriate OCSD standard logic templates and describe interconnecting and custom logic. CONSULTANT shall provide attention to the following:

- Tag Numbering System. Provide the basis for equipment tag numbers as developed from numbers provided by OCSD. CONSULTANT shall develop proposed Area Numbers for all major equipment for OCSD review and approval. The development shall follow OCSD tagging procedures. (see Design Standards, the Tagging Procedure standard)

- Process & Instrumentation Diagrams (P&ID). Each P&ID shall be coordinated with other design memos and shall show all major and most auxiliary equipment, final elements, and instrumentation. The P&IDs shall be coordinated with the operating philosophies.

- Control cabinet locations, quantity, sizes, and configuration. Cabinet sizes shall be based on the largest components available from OCSD approved manufacturers and shall conform to the OCSD's standard PLC cabinet layout for pump stations. These layout dimensions will be carried out through the final design.

- Coordinate vendor proposals for any integrated systems (including vapor-phase odor control and liquid-phase odor control).

- De-ragging controls shall be added to pumps and system description shall be included.

- Preliminary Communications Block Diagrams including data network block diagram, preliminary CCTV block diagram, and preliminary telephone block diagram. (see Engineering Design Guidelines, Appendix A, Section A.2.21 "Network Block Diagram" for requirements)

- Interim Control Plan describing how the existing and new pump stations will be controlled and will communicate with the Plant 1 Control Center when the new pump station is in RAT. Interim Control Plan shall be integrated into and become a part of the Implementation Plan.

The CONSULTANT shall evaluate the project area systems (I&C and the related systems) and the respective proposed system philosophy. E.g.:

- Control schematic requirements per OCSD Design Guidelines Appendix B including hardware interlocks, local control stations, and I/O upgrades.

- Requirements for field instrumentation.

- Control panel rack layout.

- Software requirements for manual and automatic control capabilities, control interlocking, and upgrades to full automation with unattended operation as required per OCSD Design Standards (unless otherwise determined by OCSD and CONSULTANT during the design period).

- I&C requirements due to the new Electrical distribution equipment discussed in DM 7 - Electrical.

- I&C requirements for fire protection and the HVAC system discussed in DM 6 – Mechanical and DM 10 – Fire Protection, Security and Safety.

Task 2.2.1.9 Design Memo 9 –Odor Control and Air Quality Management

CONSULTANT shall review the odor control evaluation memo and mechanical design memo provided by project 3-62. These documents evaluated multiple types of liquid and vapor phase odor control for permanent installation as well as temporary installation during construction activities. The original evaluation was done with respect to the original design intent of rehabilitating the Seal Beach Pump Station. The updates below shall incorporate the updated flow rates and changes due to the replacement of the pump station.

The CONSULTANT shall augment the existing evaluation report that investigated the site-specific issues regarding odor control, established odor control strategies, and produced design parameters for odor control facilities. Augmentation shall include:

- Calculating foul air volume and sizing the facility with the updated volume determination

- Determining and using the correct dilution factor used for foul air calculation

- Preparing a safety evaluation and discussion of risks associated with the selected treatment options

- Discussing 2 vendor options for liquid oxygen injection into the system, including a discussion of procurement options and more detailed layouts and operational philosophies.

- Comparing the options of LOx delivery versus on-site generation

- Performing a high level feasibility review to reuse the existing pump station dry well and/or wet well for odor control facilities following the decommissioning and demolition/abandonment of the existing pump station

Task 2.2.1.10 Design Memo 10 - Fire Protection, Security and Safety

CONSULTANT shall prepare a Fire Protection and Safety Requirements Report packaged in a design memo that evaluates fire protection and safety requirements for both proposed facilities and existing facilities within the project area.

Fire Protection

The Fire Protection portion of the report shall identify locations of fire hydrants and potable water piping that can be used to supply hydrants and possible sprinkler systems. The report shall also include a Field Findings Report on fire protection test results. This report shall summarize the potable water system pressure and available volume for fire protection and shall identify if a booster pumping system is required.

For purposes of the proposal, CONSULTANT shall assume that the existing potable water system has adequate pressure and volume to supply the required sprinkler systems and hydrants.

Security

Assess security issues at the pump station site. Determine what level of security is required per DHS guidelines. Interview OCSD security personnel and review internal documents and provide recommend products for interior and exterior CCTV for the site, intrusion switches that transmit alarm signals to the SCADA system on all exterior gates and panels, doors, and hatches and into any hazardous or classified areas, and cyber locks on building doors and site gates.

Provide preliminary exterior lighting schedule and layout. Bear in mind, the exterior lighting shall be balanced with architectural landscape elements and methods to prevent lighting from being a nuisance issue with local neighbors. Implement OCSD security standards and protocols.

Design Safety Requirements

The Safety Requirements portion of the memo shall identify all potential safety issues for Contractor, public, and OCSD staff affecting the construction of all equipment, process areas, and buildings. As a minimum, the CONSULTANT shall consider the following and provide respective recommendations:

- Fall hazards, pits, and confined spaces

- Excavation and trenching hazards
- Electrical hazards
- Site access
- Hazardous substances

The CONSULTANT shall identify all potential safety issues affecting the operation and maintenance of all equipment, process areas, and buildings. As a minimum, the CONSULTANT shall consider the following and provide respective recommendations:

- Floor openings and hatches
- Floor holes
- Roofs (access and equipment maintenance)
- Walking-working surfaces (buildings, stairwells, tunnels, and outdoor equipment areas)
- Noise
- Ergonomics (including equipment operation)
- Clearance and passageways (for installing devices, panels, or valves).
- Cranes and other hoisting equipment
- Barricades for protection of electrical panels or gas/water line connections
- Atmospheric alarm device for locations where there is potential for hazardous atmosphere, which includes warning lights.
- Locations of equipment that may lead to a safety issue.
- Applicable safety issues and solutions included in OCSD Safety Standards.

Task 2.2.1.11 Design Memo 11 - Hazardous Material Survey, Mitigation and Control

The CONSULTANT shall review the hazardous material surveys found in the PDR of Project No. 3-62, and otherwise provided by OCSD (OCSD SBPS Asbestos Lead Hazardous Survey Report 2015 and OCSD SBPS Asbestos Lead Hazardous Survey Report 2019). See **Exhibit 08**.

The design memo shall address how the hazardous materials mitigation and control should be handled, the estimated cost for removing the material and placing it into OCSD-furnished containers, and a separate cost for final disposal of the material in the containers by an OCSD-hired Contractor.

The hazardous material surveys and this DM shall be utilized in Task 3.1.1.3 – Technical Specifications to edit the project's specification for Hazardous Materials Mitigation and Controls.

Task 2.2.1.12 Design Memo 12 – Code, Environmental, Permits, Agency Coordination, and Traffic Control

The purpose of this Design Memo is to document the work to be completed by the CONSULTANT regarding the environmental, permitting, agency coordination, and traffic control elements of the project. This design memo shall document what requirements apply to the design and operation of the proposed facilities.

Code Requirements

Identify the following that apply to the project:

- Building codes and other regulations
- State and federal accessibility requirements (e.g. ADA)
- State and federal safety standards and regulations.
- Ventilation requirements in accordance with NFPA 820
- Seismic design criteria used based on a literature review of existing geotechnical information; evaluation of proximity to faults, seismic classification assigned to each structure, and seismic calculations.

Environmental and Regulatory Requirements

This portion of the Design Memo shall include the Mitigation, Monitoring and Reporting List required by OCSD's CEQA – Facilities Master Plan. A number of mitigation measures required by existing CEQA documentation are included in OCSD's General Requirements, which will be included in the bid documents. CONSULTANT shall provide a matrix identifying what portion of the General Requirements addresses the requirement.

Other mitigation measures necessary for this project that are not already included in OCSD's General Requirements shall be listed in a similar matrix.

Permitting Management Plan

CONSULTANT is responsible to identify all agencies that require permits to design, install, construct, maintain, and operate the new force mains or that have jurisdiction or who could place constraints on the project. Within this Design Memo, provide a Permit Management Plan in tabular form, including a list of required documents by each permitting agency, the actual permit required, applicable agency contacts, deadlines to submit completed applications, anticipated processing durations, anticipated costs, major concerns/issues, etc. The permitting management plan is to be developed by the CONSULTANT to keep track of all permits. This document shall be updated throughout the permit acquisition process.

CONSULTANT shall participate in meetings with the staff of the applicable agencies as necessary to ensure that the design of facilities is consistent with the agency requirements. Suggested attendees are the Specialist, Project Manager, and either the Principal Engineer or the Project Engineer. OCSD staff shall attend all meetings. Minutes of meetings and documentation of phone calls and other communication shall be prepared and submitted with the design submittals.

CONSULTANT is also responsible for obtaining permits required to complete the design phase of the project including permits for soil borings, surveying, geophysical testing, testing, potholing, flow monitoring and/or odor sampling. Traffic control is required when in the public right-of-way and shall be provided by the CONSULTANT.

Agency Coordination

Coordination between agencies, including but not limited to City of Seal Beach, the Navy, and OC Healthcare Agency, will be necessary throughout the project. Coordination may include but is not limited to: attending design, landscaping and architectural coordination meetings and reviewing others design plans to insure they do not conflict or restrict the use of or access to the new pump station.

Traffic Control

CONSULTANT shall prepare and submit all traffic control plans and obtain applicable encroachment permits to support investigative activities such as potholing, sampling, exploratory excavations, geophysical, geotechnical investigation, land surveying, access to manholes, and obtain approval from the governing agency/city.

Task 2.2.1.13 Design Memo 13 - Construction Phase Implementation, Constructability Issues, Cost and Schedule

This Design Memo shall address issues affecting and affected by the implementation of the proposed project. Contents of the Design Memo shall include the following issues:

Identification of Adjacent Projects

The CONSULTANT shall identify and describe projects which might impact or be impacted by this project. Adjacent projects may include OCSD and any other known non-OCSD project that might require coordination with the project. The description shall document spatial aspects of the adjacent projects, their schedule, and any other interdependencies. The Design Memo shall describe the type of coordination required to minimize negative impacts on all of the projects.

Preliminary Construction Sequencing Plan.

The plan shall include the following material:

- Description of sequencing constraints and the reasons for those constraints.
- Implementation alternatives that might expedite construction and commissioning, avoid sequencing constraints, and/or mitigate schedule and cost risks.

- A detailed narrative describing a likely sequence for how construction and commissioning would be completed. The purpose of the narrative is not to decide exactly how the project should be completed, but to demonstrate that there is at least one viable method to complete the work, and to clarify what risks may be associated with that plan. The narrative should include sequential graphics clearly describing how the work can be phased.

- A CPM construction schedule showing in the interrelationships of the elements of the project. The schedule shall be prepared using software intended for schedule projects. Examples of acceptable software packages include Microsoft Project and Primavera.

Review of Constructability Issues

The Design Memo shall describe all project-specific issues that might impact bidding, construction, and commissioning. The Design Memo shall describe the following aspects of each issue:

- The consequence of the issue occurring.

- The likelihood that the issue will occur, including what factors would cause it to occur, or not.

- Suggested mitigation measures and when mitigation measures might be implemented.

- Potential project changes and approaches that may be warranted to address the issue.

Temporary Facilities During Construction

CONSULTANT shall identify in what instances such facilities are required or reasonably warranted and present those instances with implementation plans and construction sequencing constraints to OCSD for consideration. CONSULTANT shall provide drawings and recommend specifications to be included in the Bid Documents that bidders understand what is required to provide and potentially operate the temporary facilities and that the reliability and performance of the facilities will meet OCSD's needs and reasonably mitigate construction risks. Examples of potential temporary facilities include:

- Temporary odor control facilities

- Temporary noise abatement

- Temporary connections to facilitate start-up and testing

- Temporary piping to phase the replacement of the utilities

- Temporary standby power or temporary electrical equipment to accommodate modifications to SCE incoming power feed, relocation or replacement of the existing SCE transformer, the transfer of electrical loads from existing electrical equipment to new electrical equipment and the phasing of the electrical equipment installation.

- Temporary communications

Temporary Handling of Flow

CONSULTANT shall design measures for the temporary handling of flows to be implemented by the Contractor during construction considering OCSD's goal of zero sewage spills. This design memo shall describe any pumped bypasses, gravity bypasses, diversions, plugs, shutdowns, connections/tie-ins, etc.

If existing facilities such as valves, gates, stop logs, etc. are being considered for use for shutdowns or diversions, this design memo shall include a plan for testing those facilities during Phase 3 - Design to verify that they will function adequately for the purpose. If testing cannot be performed, CONSULTANT shall identify the risks associated with using the facility for bypassing, along with contingency plans and mitigation measures to be implemented if they are found not function adequately during construction.

The design memo shall include the following information for each identified bypass:

- Bypass pipe size, material, redundancy, location, protection, traffic issues, etc.
- Bypass pump sizing requirements, redundancy, monitoring, operation, maintenance, etc.
- Plugging and flow-through plug sizing.
- Diversion requirements including manhole level monitoring requirements.
- Any other descriptions required to confirm that the proposed bypassing approach is viable and ready for further development during detailed design.

Preliminary Design Construction Cost Estimate

The CONSULTANT shall prepare an AACE International Class 3 cost estimate per OCSD's Engineering Design Guidelines, Chapter 01. A sample construction cost estimate format is provided in **Exhibit 05**.

Data used to prepare the cost estimate, including vendor quotations, shall be included as an attachment to this Design Memo.

Demolition of Equipment and Instrumentation Databases (EIDs)

CONSULTANT shall identify all equipment and instruments listed in the existing EIDs that will be demolished. The identification shall be noted in the MS Excel spreadsheets to be submitted with the PDR.

Task 2.2.1.14 Design Memo 14 - Facility Operation and Maintenance

This design memo shall include the following material:

- Sampling provisions, with references to the Process Flow Diagrams, including the proposed nature of the sampling (grab, composite, flow-weighted composite), and the

anticipated frequency of sampling. This topic will require the involvement of OCSD Operations and Environmental Compliance staff.

- Operating Philosophies which include process control descriptions with information on normal, abnormal, and emergency operating criteria including an additional operating philosophy to be used during the interim period prior to new Los Alamitos Sub Trunk Extension pipe construction. See Engineering Design Guidelines, Appendix A, Section A.3.7 “Operating Philosophy” for requirements.

- System failure mitigation analysis. This analysis shall look at different failure modes of the critical mechanical, electrical, instrumentation, and control systems. Critical systems are those systems that would prevent the pumps from pumping if they failed. For each failure mode, a strategy to respond and remedy the failure shall be proposed. This list of failure modes shall be carried into final design, updated, modified, and submitted with each submittal.

- Develop a strategy for removal and replacement of each piece of equipment and pipe segment with regards to pump room layout and crane system. Include strategy for accessing equipment safely during routine maintenance.

- Standard Operating Procedure for future planned total pump station bypass. Include list of all material and equipment necessary as well as recommendation for equipment and material purchases necessary to achieve total bypass.

- Preliminary assessment of O&M staffing requirements, consisting or identifying labor hours and types of staff (see Engineering Design Guidelines, Appendix A, Section A.3.11 “Asset Management Plan” for requirements).

    - Include list of anticipated maintenance schedules for equipment

    - Include required provisions and access areas for equipment maintenance

Task 2.2.2 Preliminary Design Drawings

Preliminary Design drawings shall be bound into a separate volume. Drawing requirements by discipline are described In **Exhibit 01**.

TASK 2.3 –VALUE ENGINEERING ASSISTANCE

CONSULTANT shall participate in a Value Engineering (VE) program as described in the EPA publication entitled “Value Engineering for Wastewater Treatment Works”, dated September 1984. The workshop will be managed primarily by an independent VE consultant hired by OCSD.

Examples of topics that may be covered in the Value Engineering Study include: project concepts, operations requirements, maintenance requirements, user friendliness and safety, possible project improvements, cost saving measures, public nuisance issues, site access, safety, and constructability.

2.3.1 Workshop Participation

The VE workshop will be held by the VE Consultant at an off-site location in or around the City of Fountain Valley, California, over a period of three (3) days as follows:

- CONSULTANT shall prepare all documentation to be reviewed at the workshop and mail the materials to all VE workshop participants at least one (1) week prior to the workshop.

- The morning of Day One (1) shall involve a detailed presentation by CONSULTANT to the VE Consultant and OCSD staff regarding the design and construction project to cover the design concepts for each project element. The presentation shall be followed by a site walk. A question and answer session shall follow and continue through lunch which will be arranged for and provided by the VE Consultant. OCSD stakeholders may also be available to answer questions.

- During the afternoon of Day One, CONSULTANT shall give a detailed presentation to the VE Consultant and OCSD staff regarding the design and construction project schedule and a history of the decisions which limit the project and its sequencing. A question and answer session for this presentation shall follow. OCSD stakeholders may also be available to answer questions.

- Day Two (2) will be a work day for the VE Consultant. At least one designated individual from the CONSULTANT shall remain to answer questions and gather additional information that the VE Consultant might need. OCSD stakeholders may also be available to answer questions.

- The morning of Day Three (3) will be reserved for the VE Consultant to formulate their recommendations in preparation of their presentation that afternoon to CONSULTANT and OCSD staff. At least one designated individual from CONSULTANT shall be available again to help the VE Consultant in their efforts. OCSD stakeholders may also be available for a discussion. The afternoon presentation by the VE Consultant will outline their recommendations that are anticipated to be the body of the VE report. A designated individual from VE Consultant will record the comments and take notes from the workshop to document the process.

Task 2.3.2 Review of Value Engineering Recommendations

CONSULTANT shall evaluate the VE Report recommendations, conduct additional engineering analyses as determined by OCSD, and meet with OCSD to discuss the results of the engineering analyses and incorporation of all additional recommendations into a Final VE Report. CONSULTANT shall assume an allowance of 200 hours for this task.

TASK 2.4 – NOT USED

TASK 2.5 - PERMITTING ASSISTANCE

CONSULTANT shall provide all the labor and services to obtain all required permits and signatures from affected agencies on OCSD's behalf prior to the bidding phase. CONSULTANT shall prepare all permit applications, including plans and exhibits required by the issuing agency, and shall furnish the required number of copies of all plans and exhibits,

and attend meetings with permitting agencies at the request of OCSD. OCSD staff will sign all applications.

CONSULTANT shall obtain the services of a Permitting/Right-of-Way Specialist (Specialist) who will be responsible for coordinating, negotiating, advising, and overseeing the entire process. Multiple Specialists for different permits are acceptable. Each Specialist must have experience in the applicable area. The Specialist will be responsible for coordinating and communicating with the granting entity, and ensuring the CONSULTANT is providing all of the required information at each phase of a submittal. The CONSULTANT shall provide full support to the Specialist and will be involved in face to face meetings during each design phase (Preliminary and Final Design Phases). The CONSULTANT's Project Manager shall be responsible for managing the Specialist. Below, the use of the word CONSULTANT also implies the Specialist. It is not required that a Specialist be a subconsultant. However, an "in house" Specialist must display extensive experience in the area of importance and should not be the Project Manager.

CONSULTANT services related to Permitting Assistance may span across Phase 2 – Preliminary Design and Phase 3 - Design. For all applicable Project Elements of this Scope of Work, CONSULTANT shall provide Bid Documents that ensure that the facility features and the facility performance, and construction procedures comply with all conditions of existing permits and permits required to construct this project.

With the exception of construction contractor-furnished permits, OCSD staff will execute all applications. All permit fees will be paid directly by the OCSD and will not be part of CONSULTANT’s fee.

Task 2.5.1 SCAQMD Permitting

CONSULTANT shall provide assistance to OCSD in obtaining the South Coast Air Quality Management District (SCAQMD) permits for the project. The CONSULTANT shall provide completed SCAQMD permit application forms and supplemental information packets for an onsite generator, a chemical dosing system, and onsite odor treatment.

2.5.1.1 Demonstration of Compliance with New Source Review for Criteria Pollutants (SCAQMD Reg. XIII)

Emissions Estimation: CONSULTANT shall estimate emissions of criteria pollutants in terms of both concentrations and mass rates to determine if there is an increase in “uncontrolled” emissions (mass rates) from the project. CONSULTANT may utilize air sampling data previously collected by OCSD. If OCSD’s data is not adequate, CONSULTANT shall perform source tests and/or conduct fate-transport modeling. CONSULTANT shall submit the emission estimates to OCSD for approval prior to proceeding with the subsequent work.

Best Available Control Technology (BACT): If there is an increase in “uncontrolled” emissions (any amount for NOx and CO and greater than 1 lb./day each for VOC, NH3, and PM10), CONSULTANT shall evaluate and determine BACT for the affected pollutant(s).

Air Dispersion Modeling: If the net increase (uncontrolled or controlled if air pollution control system is employed) in NOx, CO, and PM10 emissions are greater than the allowable emissions as established in the SCAQMD Rule 1303 Appendix A: Table A-1, CONSULTANT

shall conduct air dispersion modeling to demonstrate that the project will not exceed the ambient air quality standards as listed in the SCAQMD Rule 1303 Appendix A: Table A-2. Prior to conducting this task, CONSULTANT shall submit the proposed modeling methodology for OCSD's acceptance.

CONSULTANT shall use EPA's AERMOD dispersion software. OCSD has an existing ISCST model built for a previous odor modeling project which requires substantial revisions to correct deficiencies and to update structures built since the model was last updated. CONSULTANT may use the data in the existing model, provided CONSULTANT verifies the accuracy of the data.

2.5.1.2 Demonstration of Compliance with New Source Review for Air Toxics (SCAQMD Rule 1401)

Emissions Estimation: CONSULTANT shall estimate emissions of Toxic Air Contaminants (TACs) in terms of both concentrations and mass rates for each of the TAC listed in SCAQMD Rules 1401 and 1402 – "Proposed List of Air Toxic Target Compounds for POTW." CONSULTANT shall submit the emission estimates to OCSD for acceptance prior to proceeding with the subsequent work.

Air Dispersion Modeling and Health Risk Assessment: If there is an increase in emissions of any TAC, CONSULTANT shall conduct air dispersion modeling and health risk assessment to demonstrate that the project will not result in an increased Maximum Individual Cancer Risk (MICR) greater than one-in-one million (1.0 x 10-6). Prior to conducting this task, CONSULTANT shall submit the proposed modeling methodology for OCSD's acceptance prior to conducting the work.

Best Available Control Technology for Toxics (T-BACT): If the MICR from the project is greater than one-in-one million (1.0 x 10-6), CONSULTANT shall evaluate and determine the T-BACT.

The air dispersion modeling shall be conducted using the EPA's AERMOD dispersion software. The health risk assessment shall be conducted per SCAQMD's latest "Risk Assessment Procedures for Rule 1401 and 1402.

2.5.1.3 Demonstration of Compliance with SCAQMD Rule 1403

If the Hazardous Material Surveys determine the presence of asbestos, CONSULTANT shall adhere to AQMD Rule 1403 to limit asbestos emissions during building and demolition activities.

2.5.1.4 Demonstration of Compliance with Odor Nuisance (SCAQMD Rule 402)

The results of the foul air characterization and odor dispersion modeling conducted under this task may be used to demonstrate that the project complies with SCAQMD Rule 402.

2.5.1.5 Planning and Design Strategies for Air Pollution Control System

If an air pollution control system is required for BACT, T-BACT, and/or Odor, CONSULTANT shall be responsible for planning and design strategies to meet regulatory and OCSD

standards and perform any additional air dispersion modeling to determine the efficacy of the proposed air pollution system. All exhaust stacks, vents, and sample ports required shall meet SCAQMD's Guidelines for Construction of Sampling and Testing Facilities.

2.5.1.6 Demonstration of Compliance with SCAQMD Rule 212

If there is a K-12 school within 1,000 feet of the project, CONSULTANT shall notify OCSD for further instruction.

Task 2.5.2 Navy Permitting

CONSULTANT shall provide assistance to OCSD in obtaining the permits for the project (license for non-federal use of Dept of the Navy Real Property for survey aerial targets along Seal Beach Blvd and perhaps geotechnical borings, construction permit, right-of-entry permit for secondary security fence, groundwater management, etc.).

Task 2.5.3 City of Seal Beach Permitting

CONSULTANT shall provide assistance to OCSD in obtaining the City of Seal Beach encroachment permits for project construction, as well as permits for survey work, potholing, and geophysical investigations. The project shall be processed through the City of Seal Beach to ensure Planning, Environmental, Utilities, Landscape Maintenance, Fire, and Public Works concerns are incorporated. Obtain an encroachment permit. The CONSULTANT shall assume a minimum of four submittals. The first preliminary submittal shall be at the Draft PDR stage. Formal submittals with traffic control plans shall be at DS3.

Task 2.5.4 Coastal Commission Permitting

CONSULTANT shall provide assistance to OCSD in obtaining the Coastal Commission permit for the project. Assume submission of Coastal Commission Exemption Request including preparation of application form, cover letter and plans, and making follow up calls until permit exemption is received.

Task 2.5.5 Stormwater Permitting

CONSULTANT shall provide assistance to OCSD in obtaining the Stormwater permit for the project. CONSULTANT shall determine and specify the preliminary Risk Level and Project Type using the California State Water Resources Control Board's Storm Water Multiple Application and Report Tracking System (SMARTS) based on the R-Factor obtained from US EPA's online Rainfall Erosivity Factor Calculator for Small Construction Sites. CONSULTANT shall determine which OCSD master specification is appropriate for use.

TASK 2.6 - PROJECT MANAGEMENT

CONSULTANT shall be responsible for managing CONSULTANT's project execution, schedule, budget, subconsultants, and coordination with other projects. The following project management requirements apply to both Phase 2 – Preliminary Design and Phase 3 - Design.

Task 2.6.1 Project Management Plan

CONSULTANT shall prepare a Project Management Plan (PMP) prior to beginning technical work on the project. The purpose of the PMP is to ensure that the work is properly planned so that:

- The resources are efficiently used to complete the project scope accomplish the project objectives.
- The work is planned to meet the specified schedule while providing appropriate opportunities for OCSD input.
- Quality control and quality assurance measures are planned and implemented to meet OCSD's expectations.

The PMP shall focus on project-specific information and be as concise as possible to document the required information. Where CONSULTANT has a standard procedure for some activity, that procedure shall be referenced, and not repeated in detail.

Task 2.6.2 Project Management Progress Meetings

CONSULTANT shall conduct monthly project management meetings with OCSD's Project Manager and the CONSULTANT's Project Manager. The purpose of the meetings will be to review CONSULTANT's Progress Report. Meetings should be arranged so that the most recent Progress Report is available for the meeting. Other meetings shall be scheduled on an as-needed basis.

Task 2.6.3 Project Schedule

CONSULTANT shall create a detailed project schedule using a Critical Path Method approved by OCSD Project Manager. The schedule shall be cost loaded and capable of calculating earned value. The schedule shall include milestones for all dates listed in Section III – Project Schedule. The schedule shall be based on the same work breakdown structure used for estimating earned value as described in Progress Reports. Schedule updates shall be submitted with the monthly Progress Report.

At a minimum, the schedule shall indicate the following:

- Projected start date and finish date for each activity
- Each project task and subtask in the WBS with predecessors and successors
- Major meetings and workshops
- Physical percent complete for each activity in the WBS and percent complete by Phase

CONSULTANT shall prepare planned, actual and earned value curves for the Baseline Schedule and for monthly updates. Monthly updates shall also include Cost Performance Index (CPI) and Schedule Performance Index (SPI) calculations.

Task 2.6.4 Project Logs

CONSULTANT shall produce and maintain the following logs through the course of the project:

Project Decision Log. The project decision log shall track decisions made during workshops and meetings, and as a result of OCSD review of deliverables. The log shall include the date of the decision, the title of the meeting where it was made (if applicable), a description of the decision, and a brief summary of the impacts.

Action Item Log. The action item log is used to track action items generated during meetings. Action items may only be assigned to members of the OCSD or CONSULTANT teams. If action is required by a different party, the action item shall be assigned to the person on the team to track who will track the action item with that person. The action item log is not intended to include normal CONSULTANT tasks, nor to include comments on deliverables. The Action Item log shall include a tracking number coded to the date, a date it was created, a description of the action required, the lead person, and the date it was resolved. If action is required by more than one person, the person who will be asked to coordinate that action shall be listed.

Design Issues Log. The Design Issues log shall list general comments and concerns raised by OCSD staff during project meetings. An example of a design issues would be a request raised during Preliminary Design for a particular type of hose bibb to be used during construction. Such detail is not usually provided during Preliminary Design, so the comment would be tracked on the Design Issues Log to be verified prior to completion of the detailed design. This log is not intended to track OCSD comments on submittals. The log shall include a very short description of how the design issue will be addressed. The Design Issues log will be used during review of major submittals to confirm that the issue has been appropriately addressed.

Meeting Log. See Task 2.8 Workshops and Meetings, Workshop and Meeting Planning.

Risk Management Log. See Task 2.7 – Risk Management, Risk Mitigation Measure Log

Task 2.6.5 Progress Reports

CONSULTANT shall submit monthly progress reports at the same time as monthly invoices that include the following contents:

- Work activities completed to date, in the current reporting period, and projected for the coming month.
- A brief description of outstanding issues and their potential for impact on scope, schedule (design and construction), budget (design and construction) and quality.
- Potential changes in the project scope or design scope.
- Budget status including estimates of actual costs to date, earned value, costs to complete, and costs at completion. The budget status over time shall be presented on a graph with associated tabular data indicating for each month the actual costs incurred, earned value, and planned value.

- A discussion of corrective actions to be taken to avoid or mitigate cases where estimated costs at completion exceed budgets.

- Schedule status, including an updated project schedule as a color hardcopy and as a native format electronic file.

- A discussion of corrective actions to be taken to avoid or mitigate cases where the project schedule is expected to be delayed.

- Updated Project Decision Log

- Updated Action Item Log

- Updated Design Issues Log

- Updated Meeting Log

- Updated Risk Management Log

- Summary of the status of CONSULTANT invoices, including identification of invoices not yet submitted and submitted but unpaid invoices.

- Overall project budget and schedule completion in graphical format on the same graph. Show actual budget used, original schedule completion, and actual estimated project completion on the graph.

- The approved WBS shall form the basis for reporting the status of each Scope of Work task in the monthly project Progress Report and the project Invoices.

All calculations of earned value and estimates to complete shall be made at the same level of detail as included in the Cost Matrix and Summary submitted with CONSULTANT's proposal. Furthermore, for estimating earned value, tasks shall be further broken down to subtasks as approved by the Project Manager. Progress reports shall include the basis for estimating earned value for each task and subtask.

Task 2.6.6 Project Invoices

CONSULTANT shall prepare and submit monthly invoices to OCSD no later than the first Wednesday of the following month. Invoices shall be submitted for every month that work is being performed, unless OCSD's Project Manager has provided prior approval for combining the work of two months into a single invoice.

The invoices shall document the man-hours and billing rate for each person that works on the project. Overhead, profit and any direct costs shall also be shown for each task. As part of the summary section of the invoice, CONSULTANT shall also include the following information:

- Budget

- Current billing period invoicing

- Previous billing period “total invoiced to date”
- Budget Amount Remaining
- Current billing period “total percent invoiced to date”

Although CONSULTANT is required to track costs at the same level of detail as in the Cost Matrix and Summary for monthly Progress Reports, costs for invoicing shall be grouped into the following work packages.

Work Package	Description	Tasks
3146	Preliminary Design	All Phase 2 tasks, except those listed above.
3158	Environmental Documentation	Task 2.2.1.12
3250	CONSULTANT Services During Design	Tasks 3.6 through 3.10
3251	Design Submittal 1	Tasks 3.1 through 3.4, divided into effort by design submittal. FDS is charged against DS3.
3252	Design Submittal 2	
3253	Design Submittal 3	
3254	Bid Support Services	Task 3.5

Approval of an invoice by OCSD requires a Progress Report for the period covered by the invoice. Payment of an invoice will be delayed until the Progress Report is submitted.

OCSD will provide a sample invoice structure to CONSULTANT at the beginning of the project.

Task 2.6.7 Management of Subconsultants

The CONSULTANT shall be responsible for managing all subconsultants, including the assignment of scope, management of deliverables and schedules, reporting of progress, invoicing, and quality control.

Task 2.6.8 Coordination with Other Projects

The project shall be a complete and fully functional facility that is integrated with existing facilities and coordinated with other construction projects. CONSULTANT shall review reports, plans and specifications to identify potential conflicts with the following adjacent projects.

The following projects may impact or require coordination with this project:

- 3-62 Westminster Blvd Force Main Replacement Project. This project established some basis for design of the Seal Beach Pump Station, including peak wet weather

design flow, architectural style, liquid and vapor phase odor control, and establishing that the new SBPS will be built on the existing site, and the existing SBPS will remain in use for the duration of construction.

- J-120 Process Control Systems Upgrades. This future project will upgrade the existing Supervisory Control and Data Acquisition (SCADA) Systems for the treatment plants and pump stations which includes Human Machine Interface (HMI) hardware and software, SCADA servers, historian, and a select number of Programmable Logic Controllers (PLCs).

TASK 2.7 - RISK MANAGEMENT

OCSD staff will develop a project-specific Risk Management Plan (RMP) and update the plan at key points in the project. CONSULTANT shall assist OCSD in managing risks per the tasks described below. The RMP is intended to cover preliminary design phase, design, and construction phase risks.

OCSD staff will prepare and manage the RMP documents. CONSULTANT's responsibilities for preparing the RMP consist of participation in the risk Workshops, maintaining a log of risk mitigation measures, and providing risk updates in monthly progress reports.

Task 2.7.1 Risk Mitigation Measure Log

Following OCSD's completion of the RMP, CONSULTANT shall prepare a log of all the mitigation measures recommended in the plan to be implemented. The log is likely to include measures to be taken during preliminary and final design, as well as during bid phase and construction. The log is not intended to track mitigation measures that would be implemented only if and when a particular risk occurs.

The log shall include the following information for each recommended mitigation measure:

- A brief description of the mitigation measure and the risk it is intended to address.
- A description of who has the lead to implement the measure.
- What components of the project design, specification, plans and other documents would need to incorporate or address the measure.
- The time frame for completing the measure.
- A brief summary of the status of the measure, to be used in on-going updates.

The Risk Mitigation Measure Log will be used for on-going risk management and as a basis of reviewing CONSULTANT submittals.

Task 2.7.2 Risk Monitoring Updates

Prior to monthly Project Management Meetings, CONSULTANT shall review the RMP and update the Risk Mitigation Measure Log. The monthly Progress Report shall include a discussion of the following risk issues:

- Identification of all risks included in the RMP that have occurred since the last monthly report

- Identification of all risks included in the RMP that have been resolved or are no longer a risk

- Identification of new risks that have occurred or been identified since the last progress report.

- An update of the Risk Mitigation Measure Log reflecting the status of each recommended mitigation measure.

The risk discussion in the monthly progress report shall be included in the agenda of the monthly project management progress meeting.

TASK 2.8 – PRELIMINARY DESIGN PHASE WORKSHOPS AND MEETINGS

CONSULTANT shall hold meetings and workshops throughout the project to keep OCSD appraised of the job, review work-in-progress, share information, discuss project submittals, present findings of technical analyses, receive and resolve comments, and obtain decisions and direction by OCSD staff. This task defines the major meetings and workshops to be held by the CONSULTANT in accordance with the requirements of OCSD's Engineering Design Guidelines. CONSULTANT shall also hold additional meetings as required to keep OCSD apprised of the job, to review work-in-progress, and to receive and resolve comments.

When informal meetings or conference calls are held during the course of the project, the CONSULTANT shall document all conclusions reached in those meetings by an email to the OCSD Project Manager and Project Engineer describing the context of the meeting, the discussions, and the conclusions. The email shall be sent within three workdays of the information meeting or conference call. Discussions and decisions made without documentation from an email will not be recognized as having occurred.

Workshop and Meeting Planning

Due to limited OCSD staff availability, some meetings may need to be scheduled up to four weeks in advance to find a time when all the required OCSD team members are available. On projects with many meetings, there is also a potential that a meeting will not be held until it is too late. To prevent this, the CONSULTANT Project Manager shall create and maintain a log of all anticipated meetings. The log shall also be used to track submission, review and finalization of agendas and minutes.

The log shall include, as a minimum, the following information for each meeting:

- Subject of meeting. If the meeting is specifically included in the scope, use that title. Provide enough of a description that no two meetings have the same exact subject description.

- Scheduling Reference. Examples might include "four weeks after Kickoff Meeting", "Upon submittal of DM 5", or "one week after receipt of the draft DM."

- Date. If the meeting is too far in the future to schedule, indicate that this date is tentative.

- Date Minutes Drafted. This should be the date that the draft minutes were transmitted to OCSD.

- Date Minutes Reviewed. This should be the date that OCSD transmitted its comments on the minutes or indicated that there were no comments on the minutes.

Workshop and Meeting Agendas

CONSULTANT shall submit an agenda to OCSD for review at least one week prior to each meeting and workshop. The agenda shall include the following:

- Topics: A listing of each topic to be covered with sufficient detail so that OCSD attendees can reasonably determine if their participation is needed or not. A one-line description is not typically sufficient for the purpose. The topic description shall include what information will be presented, and what decisions will be needed.

- Timing: The proposed timing of each topic on the agenda including the projected start and stop time for the subject. The purpose of this item is to allow OCSD staff who cannot attend the entire meeting to attend the portions where they are needed.

- Attendees. The agenda shall include both OCSD and CONSULTANT team members. The OCSD Project Manager will add the OCSD staff attendees to the agenda prepared by the CONSULTANT, based on the CONSULTANT's Agenda and the CONSULTANT's recommendation of which OCSD staff members should attend.

- Meeting time and place. The CONSULTANT shall work with the OCSD PM to set the meeting date and time. Most meetings will be held at OCSD offices. The OCSD PM will reserve the conference room.

- A preliminary list of material to be provided at the meeting.

Materials to be used by the meeting attendees to prepare for the meeting shall be sent with the meeting agenda.

The CONSULTANT shall transmit to the OCSD Project Manager the following by the time of the meeting:

- Hard copies of the agenda, one for each attendee

- One sign-in sheet with the names of attendees pre-listed.

- Native electronic files used for the presentation. With the exceptions noted below, hard copies of presentation materials will generally not be required. The OCSD Project Manager will make the electronic files available to the OCSD project team internally.

- Hardcopies of all materials that cannot be easily viewed when projected on a screen. Examples might include design drawings and spreadsheets.

Meeting Minutes

CONSULTANT shall transmit the minutes to the OCSD Project Manager within three business days of the meeting in MS Word format using OCSD's template, or an approved substitution. CONSULTANT shall also update and transmit the Action Item Log, Decision Log, and Design Issues Log with the minutes.

The OCSD Project Manager will distribute the minutes for internal review. If there are no OCSD comments on the minutes, they will be considered final. If there are comments, the OCSD Project Manager incorporate all appropriate OCSD comments on the MS Word file with changes tracked. The updated MS Word file will be transmitted back to CONSULTANT. If CONSULTANT has no comments on the OCSD edits, the minutes will be considered final. If CONSULTANT has further comments on the OCSD edits, those comments should be discussed with the OCSD Project Manager.

Informal Meeting Requirements

Informal meetings such as office meetings shall be recorded as follows:

- CONSULTANT shall notify the OCSD Project Manager/ Project Engineer prior to the meeting.
- CONSULTANT shall prepare minutes for the meeting.
- The minutes shall be submitted to the OCSD Project Manager/Project Engineer.
- After review and modification, the minutes will be filed as a formal record of the meeting.
- Meetings that do not follow this procedure will not be recognized as having occurred

CONSULTANT shall prepare for all telephone and teleconferencing meetings in the same manner as outlined above.

A copy of all comments on project issues obtained by CONSULTANT from OCSD staff without direct OCSD Engineering Project Manager's involvement shall be submitted for the Project Manager's approval within three business days of receipt.

Task 2.8.1 PDR Production Workshops

Task 2.8.1.1 Predesign Kickoff Workshop

A four-hour project kick-off meeting shall be held with OCSD staff to introduce principal members of OCSD and CONSULTANT's teams. The discussion topics shall include: OCSD responsibilities, CONSULTANT's responsibilities, invoice procedures, personnel badges, parking, site access, CONSULTANT's Scope of Work, detailed project schedule with milestones, Work Breakdown Structure requirements, and OCSD confined space and other safety policy training.

CONSULTANT shall also establish contact with OCSD Project Team participating in this project. CONSULTANT shall work in partnership with the Project Team which shall provide the information and input the CONSULTANT shall use to perform the engineering services per the Scope of Work.

Task 2.8.1.2 – Preliminary Design Risk Management Workshop

A Preliminary Design Risk Management Workshop will be held at least 4 weeks prior to submittal of the Draft Preliminary Design Report. The Workshop will be utilized to:

- Identify key project-specific risks
- Characterize the nature of the impact of each risk should it occur
- Characterize how likely the risk is to occur
- Identify potential mitigation strategies that should be implemented or be ready to be implemented to address each risk.

The Workshop shall be planned and scheduled for a duration of four hours and will be held at OCSD offices. CONSULTANT or Moderator shall prepare the agenda, all appropriate presentation materials, and minutes for the Workshop. The minutes shall include sufficient information for OCSD to populate the project risk register to be included in the RMP.

Task 2.8.1.3 PDR Constructability Workshop

A constructability workshop shall be held prior to the submittal of the draft PDR to identify any fatal flaws in the design relative to constructability. Some of the subjects that shall be covered in this workshop include the following: conflicts between design disciplines, geotechnical considerations, construction sequencing, power outages, equipment shutdowns, viability of equipment relocation, safety, operational requirements, access for maintenance, size-critical equipment requirements and constraints, permitting, public nuisance issues, other local conditions and constraints.

This workshop shall be held at OCSD facilities and shall generally be four to six hours in length. OCSD and CONSULTANT staff shall attend this workshop.

CONSULTANT shall be responsible for completing the following tasks relative to the workshop:

- Prepare package for constructability review workshop participants. The package shall consist of detailed plans and specifications and other information selected by CONSULTANT.
- Prepare presentation on the project.
- Summarize the constructability review workshop comments and action taken on each comment in a memorandum.

- All comments and recommendations of the workshop shall be incorporated into Design Memo 13 - Pump Station Construction Phase Implementation, Constructability Issues, Cost and Schedule and the Bid Documents at no additional cost to OCSD.

Task 2.8.1.4 PDR Review Workshops

The following workshops will be held to review the draft Preliminary Design Report

Draft PDR Presentation Workshop

This workshop shall be held immediately following delivery of the Draft PDR. The purpose of the meeting is for the CONSULTANT to describe the various findings in the report, with a particular emphasis on the organization of the PDR, and anything that is new or has changed from earlier submittals and meetings.

The CONSULTANT staff required at this workshop shall include:

- Project Manager
- Project Engineer
- Lead Mechanical Engineer
- Lead Electrical
- I&C Engineer
- Lead Structural Engineer

PDR Validation Workshop

This workshop shall be held after OCSD has transmitted its comments on the Draft PDR and the CONSULTANT has had sufficient time to prepare preliminary responses to each comment. The workshop shall cover all comments where:

- The CONSULTANT needs additional direction.
- The comment was a question requiring an answer.
- The CONSULTANT does not recommend making the revision suggested by the comment.
- The comment would impact the project's or CONSULTANT's scope or schedule.

Following the PDR Validation Workshop, the CONSULTANT shall input their responses to OCSD comments and submit to OCSD.

Task 2.8.2 Preliminary Design Phase Meetings

Task 2.8.2.1 Technical Progress Meetings

Technical Progress Meetings shall be held via conference call every two weeks to review various issues with OCSD's project team. The CONSULTANT shall prepare an agenda and email it along with the updated Action Log and Decision Log prior to each meeting. Assume each meeting shall be 1 hour in duration.

Task 2.8.2.2 Project Management Progress Meetings

Refer to Task 2.6.2.

Task 2.8.2.3 PDR Phase Focused Meetings

Focused meetings shall be held throughout preliminary design to discuss specific issues in detail and generate comments and direction from OCSD staff. For bidding purposes, assume four 2-hour PDR Phase Focused Meetings.

Meeting lengths shall be as required to cover the topic in question. Depending on subject matter and attendees, one meeting may cover multiple subjects. CONSULTANT shall determine how many meetings will be needed to cover these topics. CONSULTANT may suggest additional topics as necessary. Supplementary meetings may be scheduled with OCSD staff, as necessary to allow coordination between CONSULTANT and OCSD staff.

Task 2.8.2.4 Stormwater Compliance Meeting

A formal meeting shall be held with OCSD's stormwater compliance staff to review the project scope and identify all issues during and after construction affecting compliance with stormwater regulatory requirements and OCSD's policies and practices. Assume one 1-hour meeting.

Task 2.8.2.5 Project Coordination Meeting

A formal meeting shall be held with OCSD's project teams associated with projects 3-62, 3-64 and J-120, to review and identify all issues in which the other projects may impact how this one is designed. Assume one 4-hour meeting.

Task 2.8.2.6 Permit Agency Coordination Meetings

Meetings shall be held with OCSD's project team and various permitting agencies on an as-needed basis. Assume four meetings at one hour each.

TASK 2.9 - QUALITY CONTROL

Quality control activities during Design should be budgeted for and charged to the Phase 3 quality control budget.

Submittals that contain gross deficiencies or errors requiring a significant amount of OCSD staff time for checking will be returned without review until OCSD is satisfied that a thorough

CONSULTANT's review, checking and correction for coherence, consistency, spelling, etc. has been performed.

Quality Control Requirements

The CONSULTANT shall develop a Quality Assurance/Quality Control (QA/QC) Plan for implementation of the Scope of Work. The CONSULTANT's QA/QC Plan shall be reviewed and approved by OCSD Project Manager and shall include or reference all the controls necessary for implementation. As a minimum, the QA/QC Plan shall include the following:

1. Purpose and objective
2. QA/QC Team – Roles and Responsibilities
3. Independent Quality Control (IQC) Team – Roles and Responsibilities
4. The In-house Quality Process
5. QC coordination with OCSD
6. Technical Memo QC process
7. Design submittal QC process
8. Final design documents QC process

QA/QC documentation shall include, but not be limited to, the following:

1. Design Guidelines
2. Calculation Log
3. IQC Comments
4. Discipline Drawing IQC Checklists
5. QC Validation Forms

On a periodic basis, OCSD will conduct an audit of CONSULTANT's work to ensure conformance with the QA/QC Plan. OCSD shall notify CONSULTANT when these audits will occur. CONSULTANT shall respond to any OCSD comments made during the audit within two weeks. If comments are extensive, OCSD may schedule a follow-up audit after the comments are received.

Acceptance of CONSULTANT professional services shall be based on the result of audits conducted on the elements of the approved QA/QC Plan and the incorporation or resolution of comments resulting from these audits. Major elements of the QA/QC Plan shall include the following:

- CONSULTANT shall be responsible for the technical adequacy and quality control of his or her work.

- CONSULTANT controls shall assure that planning and design inputs are correctly translated into planning and design documents such as drawings, procedures, specifications, reports, and calculations.

- CONSULTANT shall be responsible for the physical control, security, and distribution of controlled documents required for performance of the Scope of Work.

- CONSULTANT's planning and design activities shall be controlled through the review workshop process, including discipline checks, inter-discipline cross-checks, and multidiscipline review workshops by an Independent Project Review Team.

TASK 2.10 – COMMUNITY OUTREACH

CONSULTANT shall support OCSD staff during preliminary design utility research (potholing, geophysical investigations and surveying). Assist with providing graphics, tables and PowerPoint slides for Community Outreach efforts.

PHASE 3 – DESIGN

All changes in OCSD's Engineering Standards, OCSD's Design Guidelines, and/or changes in design concepts and facility layouts as a result of OCSD comments that may occur up to transmittal of OCSD comments on Design Submittal 1, shall be incorporated into the Design by CONSULTANT with no increase in CONSULTANT's not-to-exceed upper limit on fees. Current OCSD Design Standards can be found through the following link: http://www.ocsd.com/about-us/engineeringstandards

TASK 3.1 - BID DOCUMENTS

CONSULTANT shall provide engineering services to prepare biddable plans, technical specifications, and other Bid Documents as required based on the design concepts and criteria developed during Phase 2 - Preliminary Design. In this Scope of Work, construction documents include specifications; drawings; cable, conduit and cable tray schedules; commissioning plan materials; equipment and instrumentation databases (EIDs); SCADA access tables (SATs); and bypassing plans

Task 3.1.1 Specifications

Task 3.1.1.1 Contract Agreement, General Conditions and Special Provisions

CONSULTANT shall review OCSD's standard Contract Agreement, General Conditions, and Special Provisions, and General Contractor warranty requirements. The CONSULTANT shall prepare the initial draft of the Bid Submittal Forms – Attachment A Schedule of Prices, and the Special Provisions, Appendix A Work Completion schedule including the definition of contract milestones, the number of calendar days to be allowed for each, and a recommended amount of liquidated damage for not meeting the schedule requirements.

CONSULTANT shall identify all proposed changes or additions to OCSD's standard warranty requirements. Any proposed changes and additional warranties will be allowed only upon review and acceptance by OCSD.

Task 3.1.1.2 General Requirements and Additional General Requirements

OCSD will prepare the General Requirements (GRs) for the project, which will be updated by OCSD throughout the project. The CONSULTANT shall prepare the Additional GRs which take the form of Division 01 technical specifications. CONSULTANT shall be responsible for preparing the Additional GRs and all other technical specifications so that they are consistent with the GRs provided by OCSD.

In addition, CONSULTANT shall review OCSD's standard GRs and propose revisions via Additional GRs. OCSD's standard Contract Agreement sets the order of precedence in which plans and specifications in Divisions 01 through 17 supersede the GRs. Where minor changes to and deletions of certain GRs are warranted due to particular needs of the project, CONSULTANT may propose specific revisions to the GRs, subject to acceptance by OCSD's Engineering and Construction Division Manager.

Specific requirements in OCSD's GRs shall not be duplicated in Additional GRs Specifications. Only deviations from the GRs and project-specific requirements not addressed in OCSD's standard GRs shall be included in Additional GRs.

Additional GRs Specifications shall be developed by the CONSULTANT for specific project requirements and the numbering convention shall be per OCSD's template project Table of Contents. The following are the minimum Additional GRs topics required for this project:

- Summary of the Work
- Work Restrictions
- Environmental Restrictions and Controls
- Sequence of the Work
- Permits
- Measurement and Payment
- Seismic Design Criteria (for those restraints, supports, etc. to be design by the Contractor)
- Temporary Facilities
- Site Access
- Mobilization/Demobilization
- Construction photographs and videos

- Equipment Shipping, Storage, and Handling
- Hazardous Materials Mitigation and Mold Removal

Task 3.1.1.3 Technical Specifications

CONSULTANT shall be responsible for contents of all technical specifications (Divisions 01 through 17), including edited OCSD Master technical specifications. OCSD's master technical specifications shall be reviewed in detail, and changes, deletions and additions required by the project shall be provided by CONSULTANT. CONSULTANT shall be responsible for developing specifications required by the project that are not found in OCSD's Master Specifications.

Refer to the "Procurement Alternatives" portion of this Scope of Work regarding sole-source specification requirements.

Task 3.1.2 Drawings

The CONSULTANT shall prepare construction drawings per OCSD Design Standards including CAD Manual, Design Guidelines, Master Specifications, and Tagging Procedures.

Task 3.1.3 Building Information Model (BIM)

CONSULTANT shall provide survey and CADD services as required to provide three-dimensional (3D) building information model (LOD 300) for the drywell that is below ground and the room directly above the drywell, valve vault if external to the drywell, wetwell, and electrical room and other areas that are congested with conduits, ductwork and pipes, and other obstructions. In these areas show all equipment and systems that have a diameter or minimum cross-sectional dimension of one inch or larger including the mechanical, electrical, lighting, HVAC, conduits and cable trays, instrumentation, piping, and fire alarm equipment along with other systems. Show all systems to scale. Three dimensional demonstrations shall be performed at Workshops. Demonstrations will be for maintenance personnel to display that all equipment is accessible, operable, serviceable and removable.

Task 3.1.4 Commissioning Plan Materials

The CONSULTANT shall edit OCSD's commissioning specification (Master Specification section 01810) and prepare the following material to be included in the Bid Documents:

- Operational Readiness Testing (ORT) procedures using OCSD's Commissioning Procedures Tool (CPT)
- Functional Acceptance Testing (FAT) procedures testing Remote and local automatic operation
- Reliability Acceptance Testing (RAT) procedures

The CONSULTANT shall also estimate in detail the durations required for pre-commissioning and commissioning activities.

Task 3.1.4.1 ORT Procedures

ORT forms are required for every piece of equipment and instrument to be provided on the project to test Local and Remote Manual operation. OCSD has developed an automated process to generate ORT procedures using a Commissioning Procedures Tool (CPT). CPT uses three different documents SAT, Commissioning Design Spreadsheet (CDS) and OCSD Equipment ORT Templates to produce the ORT procedures. The CDS is an Excel spreadsheet listing all major equipment and their associated I/O signals, instruments and ORT templates. During the one-hour training session on the use of SAT which will be provided by OCSD, OCSD will also train on the use of CDS. **Exhibit 09** includes examples of a final ORT procedure, final CDS and a list of OCSD Equipment ORT Templates.

The CONSULTANT shall complete the SAT and CDS. The finalized documents will be used by OCSD to generate the ORTs need in FDS. If there is no OCSD Equipment ORT Template for a unique piece of equipment or instrument, a unique ORT procedure shall be developed by the CONSULTANT. The unique ORT form shall include the step-by-step procedures for completing the testing and including indication of what the result of each test should be. These shall include electrical, communication, security, mechanical, HVAC, Fire Protection, network, and process equipment testing.

Task 3.1.4.2 FAT Procedures

The CONSULTANT shall develop detailed FAT procedures to be conducted during commissioning. Development of FAT procedures may require the use of temporary equipment and / or piping. The design of such facilities shall be prepared by the CONSULTANT and included in the construction drawings and specifications (as P&ID mark-ups, flowing conditions) identified per commissioning package.

FAT procedures shall be developed for each system impacted by the project to test Remote and local automatic operation. FAT testing shall be broken into separate procedures based on the configuration of the system as commissioning packages.

The breakdown and grouping of FAT procedures shall be planned so that all aspects of a single system can be tested,

- Each step-in procedure shall include required results and sign-off areas.
- Procedures shall include breakdown into systems and sub-systems.
- Include setup requirements for each procedure including valve/gate positions.
- Include text description of each test and check-off forms developed for each test.
- Include description of clean water testing requirements.
- Include temporary equipment required for testing (generators, bypass pumping, pipes, valves, etc.)
- Include temporary chemicals required for testing.

- Include description of where and how the Contractor is to obtain and discharge clean water.

- Include failure mode testing.

- Systems and sub-systems shall include electrical, air, plant water, plumbing, drains, telephone, intrusion, fire alarm, CCTV, lighting, etc.

- Include minimum time required for each test.

A sample FAT procedure has been included in **Exhibit 10**.

Specific tag numbers, process values, and ranges, and expected numeric outcomes shall be included in the FAT procedures. Each step in the procedures shall include required results, actual results and sign-off areas.

Task 3.1.4.3 RAT Procedure Specification

The RAT procedures shall include Contractor requirements for supporting the RAT. Procedures shall include all possible operating modes. Procedure shall include failure mode testing and fail-over testing. Each step-in procedure shall include required results, actual results, and sign-off areas. Include text description of each test. Include temporary equipment required for testing (generators, bypass pumping, pipes, valves, etc.). Include temporary chemicals required for testing and specify which party (OCSD or Contractor) will provide any chemicals that might be required.

A sample RAT procedure has been included in **Exhibit 11**.

Task 3.1.5 Equipment and Instrumentation Databases (EIDs)

OCSD will provide a truncated copy of the EID database for CONSULTANT to begin populating by completing the CONSULTANT-furnished fields for each device. The database shall identify all new equipment and instruments and all existing equipment and instruments to be deleted and/or modified under this project. CONSULTANT shall submit the EID database for the project with information that is typically included in equipment data sheets. (see Engineering Design Guidelines, Appendix A for Equipment and Instrument Database (EID) requirements.

Task 3.1.6 SCADA Access Tables (SAT)

OCSD uses SAT files to list all analog and discrete monitoring points on the project, filed by PLC. When existing PLCs are to be modified on a project, the CONSULTANT shall modify a copy of the database provided by OCSD to reflect the new equipment and demolition of existing facilities. (see Engineering Design Guidelines, Appendix A, Section A.3.14 “SCADA Administration Tool (SAT)” for requirements). A one-hour training session on the use of SAT will be provided by OCSD.

TASK 3.2 - DESIGN SUPPORT DOCUMENTATION

Task 3.2.1 Design Information

CONSULTANT shall include the following material with each Design Submittal:

- CONSULTANT shall maintain the Project Logs specified under Phase 2 Project Management through Phase 3 as well. Current copies of all logs shall be included with each Design Submittal.
- Written response log to OCSD comments on the previous submittal.
- CEQA and Regulatory Compliance Matrix. This matrix shall list each applicable CEQA mitigation requirement and all known permit requirements with the corresponding description of how each requirement is to be satisfied. Measures to satisfy requirements might be in the GRs, Additional GRs, particular specification requirements, or actions taken separately from the construction contract.
- Calculations
- Draft or final Geotechnical Reports not submitted in the previous submittal and those revised since the previous submittal.
- Proposed list of suppliers to be named in the specifications for major equipment
- Draft or final Fire Protection Reports not submitted in the previous submittal and those revised since the previous submittal.
- Draft or final Field Findings Reports not submitted in the previous submittal and those revised since the previous submittal.
- Equipment data sheets
- Instrument data sheets
- Equipment catalog cuts and vendor quotations.
- All memos that may be been prepared since the previous submittal was delivered.
- The CONSULTANT shall develop language in the Division 11 Technical Specifications that requires the pump manufacturers to utilize computerize analysis to validate that their proposed pumps operate within an acceptable harmonic frequency range, prior to fabrication.

Task 3.2.2 Facility Operation and Maintenance

The CONSULTANT shall update operating philosophies as the design progresses. Operating philosophies are anticipated to be utilized for the electronic Operations and Maintenance Manuals to be prepared during construction. See Engineering Design Guidelines, Appendix A, Section A.3.7 “Operating Philosophy” for requirements.

The CONSULTANT shall update estimates of Operations and Maintenance staffing requirements per Engineering Design Guidelines, Appendix A, Section A.3.11 " Asset Management Plan."

The CONSULTANT shall prepare sketches of the proposed graphic screens for each process area. OCSD will develop the SCADA screens from these sketches at a later date.

Task 3.2.3 Electrical Design Documentation

CONSULTANT shall provide the following electrical design information:

- OCSD will update the calculations for the short circuit analysis, load flow/voltage drop study, motor starting study, preliminary settings for the protection device and coordination study, and preliminary arc flash analysis and approach recommendations. The CONSULTANT shall provide OCSD with any revisions to the SCE incoming short-circuit information, single line diagram, circuit breaker ratings, and cable sizes and lengths.

- Updated Load List for all equipment.

- For all motor control centers and switchgear include documentation from at least three suppliers clearly showing each manufacturer's space requirements for their equipment. The purpose of this requirement is to confirm that sufficient space has been provided in electrical rooms for the largest equipment that might be supplied. If the largest equipment cannot be accommodated in the available space, CONSULTANT shall specify space restrictions in the technical specifications, provided the space restriction does not unduly limit the number of suppliers who can supply the required equipment.

- Lighting calculations.

- Standby generator sizing calculations.

- Duct bank cable pulling tension, derating and cable tray fill calculations.

- Plans that show electrical, electronic, alarm, and telephone conduit and cables that pass through an existing area to be demolished but serve facilities which remain in service after the project is completed.

Task 3.2.4 Instrumentation and Controls

The Process and Instrumentation Diagrams (P&IDs) are to act as a "master document" in that the P&ID is assumed to be correct and all other documents are synchronized to them. (see **Exhibit 01** - Engineering Design Guidelines, Appendix A, Section A.2.18 "Process and Instrumentation Diagrams (P&IDs)" for requirements). Example P&IDs are presented in **Exhibit 12** of this Scope of Work.

Process control strategies shall be written and revised to match the latest P&IDs. An example Control Strategy is provided in **Exhibit 13**. Control strategies/operating levels shall be determined for standard PLC control, and for occasions when PLC control is lost.

Datasheets for major instruments, final control elements & safety critical instrumentation shall be provided. Typical datasheets with tables for all other instrumentation shall be included with the associated instrument specifications.

Task 3.2.5 Construction Cost Estimates

CONSULTANT shall provide Construction Cost Estimates with each Design Submittal starting with Design Submittal 2 per OCSD's Engineering Design Guidelines, Chapter 01, Section 01.4.6 "Construction Cost Estimate."

Task 3.2.6 Construction Schedule

The CONSULTANT shall provide a Preliminary Construction Schedule in Gantt chart format using scheduling software such as Primavera Project Planner (P3) or Microsoft Project.

For DS1, the construction schedule prepared for the Preliminary Design Report may be updated based on changes since the PDR, but at the same level of detail.

For DS2 and later submittals, more information shall be included in the schedule. The goal is to develop a realistic schedule based on project information, not a "rule of thumb". The construction schedule shall be based on the commissioning documents prepared for the project as well. CONSULTANT shall engage the services of a least one construction individual to review the quantity takeoffs from CONSULTANT staff and use this information to assist in the development of the detailed construction schedule. CONSULTANT may use their own staff if they are qualified or hire a Subconsultant to assist in this activity.

Task 3.2.7 Procurement Alternatives

Specifications shall comply with state law concerning limiting product sources for all equipment and material to be procured for construction of this project. Unless indicated otherwise in the Engineering Design Guidelines or in OCSD's Master Specifications, the Project Specifications shall not be written in a manner that limits a Contractor to a sole source. This shall mean that, unless indicated otherwise in the Engineering Design Guidelines, in OCSD's Master Specifications or in Section V of this Scope of Work "Project-Specific Deviations…" , CONSULTANT shall specify for each product "EITHER" no specific manufacturer "OR" at least two supplier's products and an "or equal". CONSULTANT shall provide recommendations regarding the items that should be base bid (e.g., selected pieces of equipment and materials).

When a single manufacturer is known and there is no known "equal", it shall be so stated in the design documents.

OCSD may elect to obtain equipment from a sole-source supplier. CONSULTANT shall develop a scope of supply for the sole-source equipment and obtain a not-to-exceed price from the equipment supplier. This information shall be included in the Bid Documents.

Equipment that may be needed to be obtained from a sole source supplier for this project includes:

- Pumps

- Access card readers
- Cyber key lock systems
- Composite manhole lids
- Wet well and manhole liner
- Cisco networking equipment
- Programmable logic controllers (PLCs)
- Power monitoring equipment
- Network routers

OCSD may elect to pre-quality key equipment which is essential to the project. CONSULTANT shall delineate any products that need to be pre-qualified or pre-purchased and provide the following services to assist with the pre-qualification process:

- Research and prepare a list of known suppliers.
- Prepare a Request for Qualifications to be mailed by OCSD to all known suppliers.
- Evaluate qualifications received by OCSD for conformance with project specifications.
- Advise OCSD of suppliers who meet the qualifications.
- Assist OCSD staff in preparing materials to be presented to OCSD Board of Directors.
- Prepare a draft letter to be sent by OCSD to advise all suppliers of their qualification status.
- Assist the OCSD with response to protests by equipment vendors in the form of providing project documentation and responding to OCSD's questions.

Task 3.2.8 Final Design Report

A Final Design Report shall be added as an addendum to the PDR, addressing significant changes made during Phase 3 Final Design from that which was proposed in the finalized PDR. This Final Design Report shall include all final calculations, an updated Executive Summary and Transmittal letter.

TASK 3.3 - SPECIALTY SERVICES

Specialty services shall be provided by the CONSULTANT or an appropriately qualified subconsultant. In any case, the CONSULTANT shall be responsible for managing all subconsultants, including reviewing their work products prior to submission to OCSD.

Task 3.3.1 Topographic Survey Services

The CONSULTANT shall prepare topographical survey for the work required during the beginning of the preliminary design phase. Limits of the survey shall include at least Westside Pump Station property, 120-foot wide swatch extending along the gravity sewer and force main alignment from Westside PS to Seal Beach PS, where it crosses Old Ranch Parkway, private property, and CA-22/405, the entire ROW of North Gate Road and Seal Beach Blvd to the south edge of Westminster Blvd, Seal Beach PS property and eastward 50-feet into the Naval Weapons Station property and along Westminster Blvd, and 50-feet north of Seal Beach PS property into the Naval Weapons Station property.

CONSULTANT shall conduct field and aerial surveys as required. Topographic information used on the construction plans shall be generated from a field survey and an aerial mapping process. OCSD will not provide the aerial survey information to the CONSULTANT for use on the project.

Prior to beginning design, CONSULTANT shall prepare the scope of work for field and aerial surveys required for all applicable project elements. OCSD will establish both vertical and horizontal control for the project. The field survey shall be used to establish both horizontal and vertical alignment of the facilities and shall note all survey monuments, topographic features, property lines, and elevations. The basis of bearings and benchmarks shall be indicated on the drawings. Control shall meet or exceed NGVD 88 requirements and shall be based on the Plant Local Coordinate System and datum. CONSULTANT's project schedule shall account for the above.

The aerial topography shall be required to meet the following criteria:

- The final product shall be delivered in AutoCAD.
- The CAD file shall adhere to the CAD Manual. OCSD shall be given the opportunity to review and comment on the compliance to the CAD Manual.
- Site contours shall be in 0.5-foot intervals.
- Contour and spot elevations shall be 3D; all other features shall be 2D.

CONSULTANT shall include the survey-related documents with the Design Support Documentation portion of the Design Submittals as specified in the Engineering Design Guidelines, Appendix A, Section A.3.19 "Project Support Documentation (PSD)".

Control Surveys for Collection Systems

General: Topographical information used on the construction plans shall be generated from an aerial mapping process. CONSULTANT shall provide for the aerial and field surveys necessary for the mapping process for all applicable Project Elements of the project Scope of Work and shall provide for the aerial mapping. Providing for the process includes paying for, coordinating and designing the aerial and horizontal/vertical control surveying for the preliminary and final design. CONSULTANT's responsibilities for the surveys include generating any subconsultant scopes of work, data interpretation and preliminary design. All

survey work is to be done under the direction and control of a Professional Land Surveyor, licensed by the State of California.

Aerial Survey: The aerial photography shall have sufficient coverage for the digital topographic mapping. The photo scale of the aerial photography shall not be more than 100 feet per inch for pipeline work or 20-feet per inch for pump stations. Stereo pairs of photographs shall be furnished to OCSD. *However, due to probable restrictions, which will be imposed by the US Navy facility, photo scales maybe adjusted accordingly.*

Phasing of Work: Other than the aerial and topographic survey work, the balance of the survey work shall not commence until the design phase of the project has been authorized or concurred to by OCSD.

Field Survey Aerial: A field survey shall be used to establish both horizontal and vertical control for the project. Control shall meet or exceed NGVD 88 requirements and shall be based on California State Plan Coordinates (NAD 83) including the 1995 O.C. surveyor's adjustments. A sufficient number of points shall be used to accurately complete the digital topographic modeling. No less than five control points per stereo model shall be used.

Aerial Field Survey Inclusions: The field survey shall include all survey monuments, topographic features, easements, property lines, city boundaries, culture, and elevations on the plan and profile sheets. All covers, including the existing sewer manholes, storm drain manholes, and utility and valve vaults shall be identified and marked in the field.

OCSD Review Aerial Survey Line: The general location and alignment of the survey line shall be submitted to OCSD prior to performing the field survey. Survey work shall not commence until authorized or concurred to by OCSD. CONSULTANT shall be responsible for obtaining and paying for the field survey services.

Field Survey Base Line: The field survey shall establish a base line for construction purposes for pipeline work equal to or greater than 500-feet in length. The line will be used to define the proposed design, in terms of station and offset, and to establish the bearings for right-of-way. The survey line shall be set on 100-foot stations and shall be tied to the established aerial control. The field survey shall tie in all controlling monuments within the map limits and all street centerline intersections. The ties shall be express in both State Plane Coordinates and as station and offset.

Manhole Information: The field survey shall also include the measurement of the invert and manhole rim elevations of all existing sewers within the project reach. The size, orientation and invert of any pipe connections shall also be recorded.

Base Map: The base map index contours shall be spaced at five feet (5') vertically and the immediate contours shall be spaced at one-foot (1') contour intervals. The mapping shall include digital topographic mapping. The digital format shall be compatible with OCSD Graphic Information System. All surface features, including those hidden from aerial view shall be incorporated into the digital mapping.

Plan and Profile Sheets: CONSULTANT shall prepare plan and profile sheets based upon the aerial mapping. The scale for plan and profile sheets shall be one-inch equals forty feet (1" = 40') horizontal and one-inch equals four feet (1" = 4') vertical. An aerial photographic (photo

strip) with the alignment shall be included. The plan view shall be separate from the photo strip. Intersections shall be adequately detailed at a scale of one-inch equals ten feet (1" = 10') or one-inch equals twenty feet (1" = 20'). Manholes and other details shall be drawn at a scale that is adequate to provide clarity and sufficient detail for construction. The pump station construction drawings shall be drafted at scales of 1/8" = 1' to 1" = 20', as adequate, to allow for sufficient detail to be shown. The basis of bearings and benchmarks shall be indicated on the drawings,

Survey Note Submittal: CONSULTANT shall submit two bound copies of all survey notes and data used to establish vertical and horizontal control. The information submitted shall be suitable for use to establish construction controls. If additional property and/or right-of-way are required, CONSULTANT shall identify property and/or rights-of-way to be acquired. CONSULTANT shall prepare legal descriptions and plats for easements and property to be acquired during the final design phase of the project.

Task 3.3.2 Fire Protection Services

CONSULTANT shall secure the services of a Subconsultant to determine the fire protection requirements, prepare final plans and specifications for the selected plan and assist OCSD in obtaining approval from the fire authority.

Task 3.3.3 Utility Survey and Coordination Services

CONSULTANT shall determine all utilities impacted by the work for all applicable Project Elements of this Scope of Work. Utilities include all utility company-owned, and public agency-owned piping, duct banks, and other interferences. All utilities encountered during the preliminary design shall be shown on the plans. Project work that requires other agencies to relocate existing utilities shall be coordinated during the design by CONSULTANT. The CONSULTANT shall prepare all easement documents including field investigations. Field investigations include visiting the project work site and each utility to verify the location of all interferences.

CONSULTANT shall secure the services of a licensed survey subcontractor to field locate potholes as necessary. Survey locations of potholes shall be tied to the sample controls as used for the Control Survey.

CONSULTANT shall also secure the services of a subcontractor to perform the pothole work. CONSULTANT shall be responsible for identifying locations where potholing will be critical to the design effort to identify the location of existing piping, duct banks, and foul air ducts. The results of potholing efforts will be summarized in a field finding report. "Soft" excavation methods (vacuum extraction or sift drilling) will be used where feasible.

An allowance shall be included in the proposal for this effort including number of borings and unit price per boring as follows:

1. An allowance shall be included in the proposal for potholing including number of potholes and unit price per pothole.

2. An allowance shall be included in the proposal for geophysical investigation including total square feet and unit price per square foot.

Task 3.3.4 Landscape Architecture

CONSULTANT shall secure the services of a Subconsultant to determine landscaping requirements, develop three landscape alternatives for review by OCSD staff and prepare final plans and specifications for the selected alternative.

Task 3.3.5 Noise Evaluation Services

CONSULTANT shall secure the services of a Subconsultant to prepare a field finding Noise Report. This report shall include the following:

- Visit site and conduct ambient noise measurements to establish baseline.
- Identify external sources of noise.
- Identify potential methods for defining noise impacts.
- Develop noise model consistent with noise impact assessment methods.
- Determine exterior noise levels and compliance with assessment standards.
- If required, develop mitigation measures to meet design standards.
- Determine compliance with OSHA's regulations.
- If needed, determine mitigation measures to meet OSHA's requirements.
- Prepare written report on findings and recommendations.

Task 3.3.6 Traffic Control Services

CONSULTANT shall secure the services of a Traffic Control Subconsultant to determine traffic control requirements and prepare plans and specifications for all investigative and construction activities performed within or adjacent to the public ROW. This includes the preparation of Traffic Control Plans for activities such as potholing, surveying (manhole dipping and field survey), geotechnical and geophysical activities. Additionally, the Traffic Control Subconsultant shall attend City, Navy, and OCSD Submittal review meetings as needed.

Task 3.3.7 Additional Shoring Design

CONSULTANT shall provide a detailed prescriptive shoring design for the pump station and related facilities. The detailed design although prescriptive shall have flexibility to allow the CONTRACTOR to exercise their means and methods, subject to the approval of the Engineer. The design as a minimum will include the following:

- *Develop drawings to be included in the contract documents that illustrate a constructible shoring system (perimeter shoring wall, bottom plug and internal bracing).*
- *Shoring plans, which are developed for a specific sequence of structure and piping construction. This sequence would be spelled out clearly on the contract documents.*

- *CONTRACTOR will be required to submit shop drawings with engineering seal providing full details of the perimeter shoring wall construction, bottom plug construction (including tie-down anchors if used), and for bracing fabrication and installation. The submittal shall be in compliance with the limitations shown in the design drawings and subject to the approval of the Engineer.*

- *CONTRACTOR will be able to submit proven alternate means to achieve an equivalent result. As follows:*

    - *Although Contract Documents could be prepared for a "soil mix" perimeter wall, the CONTRACTOR will be allowed the choice of using either DSM or CSM as a methodology.*

    - *The design will also leave the option open for the CONTRACTOR to use secant piles or a slurry wall provided that the alternative wall is deemed equivalent to the soil-mix wall in terms of strength and water tightness.*

    - *Bottom plug shown on the Contract Documents could be shown generically as "soil-cement" with the CONTRACTOR given the option of using DSM or jet grouting to form the soil-cement plug, provided the prescriptive parameters are satisfactorily addressed.*

    - *Tiedown anchor lengths for bond capacity would be left as a contractor-design item (subject to a minimum that the CONSULTANT has specified in the Contract Documents).*

    - *Bracing sizes and layout for the specified construction sequence will be prescriptive.*

    - *CONTRACTOR would be permitted to submit an alternative construction sequence together with modifications to the shoring plans that are required based on their alternate sequence.*

    - *CONTRACTOR would be permitted to submit a complete alternate shoring design subject to a set of specified performance requirements and limitations on certain means and methods, without additional cost to the DISTRICT and in full compliance with the detailed design parameters shown in the Contract Documents.*

- *Specifications for perimeter shoring wall and bottom plug will still have "performance" components such as maximum water infiltration rates through the walls and plug and minimum strengths of the wall and plug materials.*

Task 3.3.8 Groundwater Monitoring Design

CONSULTANT shall design a comprehensive groundwater monitoring program in the vicinity of the project site that will be required to confirm that the pump station and deep sewer

construction is not impacting the piezometric levels in the various aquifers that underlie the site. The design all install piezometers at multiple elevations to make sure any response is captured in near real time. In addition, the design shall include inclinometers (to monitor lateral ground movement with depth) and ground surface, structure, and utility survey points, which will be parts of the monitoring program for this project.

TASK 3.4 - DESIGN SUBMITTALS

Design Submittals shall be submitted for OCSD review as indicated in the Section III - Project Schedule. The contents of each submittal shall be as described in **Exhibit 01**.

CONSULTANT is expected to **continue design** work on the project while OCSD staff reviews Design Submittal 1 and Design Submittal 2. For Design Submittal 3, CONSULTANT shall stop all design work until receipt of OCSD comments on that submittal.

Design Submittals shall be delivered in hard copy, PDF format (see section "Submittal Review using Bluebeam" in Part V General Requirements), and native files. The number of hard copies is indicated in **Exhibit 04**. The following requirements apply to the labeling and organization of the PDF and native:

- Specifications shall be compiled into a single PDF file. When the specification exceeds approximately 700 pages, the specifications shall be broken into separate volumes. Divisions 16 and 17 should be kept in the same volume.

- Drawings shall be submitted as a single compiled file with size limitations defined in **Exhibit 17**. If file size exceeds the defined limits, separate files by discipline. If the file for one discipline is more than the file size limits, the file may be divided into multiple files.

- In no case may drawings be submitted as separate PDF files for each drawing. The order of drawings in the PDF file shall match the list of drawings. Bluebeam Revu provides a mechanism for reducing the size of some PDFs. This tool works by compressing bitmap images and removing non-visible document data. It does not affect vector content (see section "Submittal Review using Bluebeam" in Part V General Requirements).

- The PDF files shall be named per **Exhibit 17**.

- These requirements do not affect the organization, naming, and submittal of native files for CAD or MS Office files specified elsewhere in this Scope of Work and OCSD Design Standards.

- These requirements do not affect the organization, naming, and submittal of native files for CAD or MS Office files specified elsewhere in this Scope of Work and OCSD Design Standards.

- All native Word files used for specifications shall be submitted, combined into a single folder with the number of the specification section in the file name so that the files are

listed in the same order they would appear in a hard copy print. Attachments to specification sections should be named so that they also fall in the correct order on the file list.

- Specification sections based on OCSD master specifications shall be edited using tracked changes so changes made to the OCSD master can be readily viewed. For more information see OCSD Engineering Design Guidelines, Chapter 01, paragraph "Master Specifications."

- Native CAD files shall be submitted per the OCSD CAD Standards Manual.

The OCSD Project Manager may request that CONSULTANT submit an electronic proof set of the Draft PDR and Final PDR prior to hard copy production in order to initially confirm that the submittal is ready for printing.

The Design Submittals shall be organized per the following structure. CONSULTANT may propose an alternative organization of the submittal for approval by the OCSD Project Manager.

Volume 1 - Submittal Documentation
- Memo to Reviewers
- Responses to Comments on Previous Submittal
- Design Information
- Facility Operations and Maintenance
- Electrical Design Documentation
- Instrumentation and Control Documentation
- Construction Cost Estimate
- Construction Schedule
- Procurement Alternatives
- CEQA & Regulatory Compliance Matrix

Volume 2 - Specifications

Volume 3 - Drawings

Volume 4 - Project Support Documentation
- Geotechnical Report
- Noise Report
- Fire Protection Report
- Hazardous Materials Survey Report
- Topographic Survey Data
- Design Period Memos as needed to document specific design issues and their resolutions.
- Calculations
- Equipment Selection (organized by Specification Section)
- Equipment Data Sheets
- Catalog Cuts
- Vendor Quotes

Volume 5 – Electronic Files and Databases

The Memo to Reviewers included at the beginning of Volume 1 shall describe how the submittal is organized, include a table of contents, and list any significant changes that have

been made to the design since the last submittal, or the last time a particular issue was discussed.

TASK 3.5 - BID SUPPORT SERVICES

Task 3.5.1 Bid Phase Activities

CONSULTANT shall provide the following bid period services:

- Participate in the pre-bid meeting.
- Prepare project drawing set and project specification addenda to provide clarification and resolve errors and omissions identified prior to bid opening.

Task 3.5.2 Bid Evaluation Assistance

- Participate in reviewing alternate equipment proposals from the Contractor, if applicable.
- Participate in the evaluation of the submitted bids, furnish consultation and advice to OCSD staff and assist with all the related equipment, cost, and other analyses as required to finalize the award decision.

Task 3.5.3 Conformed Document Preparation

- Within two weeks of the bid date, prepare conformed documents set (drawings, databases, specifications and other required materials) that incorporates the addenda. See Engineering Design Guidelines, Chapter 01, Design Guidelines – General Requirements, Section 01.4 “Preparation of Project Deliverables” for requirements as modified in Section V of this Scope of Work, “Project-Specific Deviations from OCSD Design Guidelines” and the requirements of the CAD Manual).

TASK 3.6 - PROJECT MANAGEMENT

CONSULTANT Project Management responsibilities during Phase 3 - Design shall be as specified for Phase 2 – Preliminary Design.

TASK 3.7 - RISK MANAGEMENT ASSISTANCE

The CONSULTANT’s responsibilities for risk management assistance during Phase 3 - Design shall be as specified for Phase 2 – Preliminary Design. Specific Phase 3 risk management tasks shall include the following.

Task 3.7.1 Risk Management Plan

Maintaining the Risk Management Plan and providing risk updates in monthly progress reports are required for Phase 2 shall be continued through submission of the Final Design Submittal.

TASK 3.8 - WORKSHOPS AND MEETINGS

The requirements specified in Task 2.8 – Workshops and Meetings specified for Phase 2 – Preliminary Design related to Workshop and Meeting Planning and Workshop and Meeting Agendas shall also apply for Phase 3 - Design.

Task 3.8.1 Design Phase Workshops

The focus of workshops is to review project progress to date and the technical decisions that have been made in focused meetings. CONSULTANT shall conduct the following workshops in Phase 3 – Design.

During final design, workshops shall be held after each design submittal. A constructability workshop shall also be held.

Task 3.8.1.1 Design Submittal 1 Workshops

DS1 Review Kickoff Workshop

The DS1 Review Kickoff Workshop shall be held immediately after DS1 is submitted. The objectives of this meeting include the following:

- Review how the submittal is organized, what material is included, and what material is not included, and how complete the various portions of the design are.
- Review significant design changes made since the previous submittal, and the reasons for those changes.
- Present key features of the submittal that OCSD staff should pay particular attention to when reviewing the submittal after the workshop.

CONSULTANT shall include at the Workshop staff members needed to present the material and directly address questions that may arise on the material. For this project, OCSD would anticipate the following CONSULTANT staff members would need to be physically present. In certain cases, CONSULTANT may propose that other team members participate by teleconference.

- Project Manager
- Project Engineer
- Lead Mechanical Engineer
- Lead Electrical
- I&C Engineer
- Architect/Subconsultant
- Geotechnical Engineer/Subconsultant

This workshop shall be two hours in length.

Immediately following the full workshop, the CONSULTANT Project Manager and Project Engineer shall present to OCSD's core engineering team the documentation of the quality control process implemented prior to delivery of the design submittal. If the quality control process does not appear to have been implemented per OCSD or CONSULTANT's quality control standards, the OCSD Project Manager may reject the submittal.

DS1 Validation Workshop

The DS1 Validation workshop shall be held to review and validate the CONSULTANT's responses to OCSD's DS1 comments. This workshop shall be held after CONSULTANT has reviewed OCSD's comments on DS1 and developed suggested resolutions to the comments. The same OCSD and CONSULTANT staff that attended the kick-off workshop and design submittal review meetings should attend this workshop. The primary focus of this workshop is to resolve differences between the CONSULTANT and OCSD staff on how the comments should addressed.

This workshop shall be four hours in length.

Task 3.8.1.2 Design Submittal 2 Workshops

DS2 Review Kickoff Workshop

The DS2 Kickoff Workshop shall be held immediately after DS2 is submitted and shall be conducted as specified for the DS1 Kickoff Workshop, including the review of the CONSULTANT's quality control documentation.

This workshop shall be two hours in length.

DS2 Validation Workshop

The DS2 Validation Workshop shall be conducted as specified for the DS1 Validation Workshop.

This workshop shall be two to four hours in length.

Task 3.8.1.3 Design Submittal 3 Workshops

DS3 Review Kickoff Workshop

The DS3 Kickoff Workshop shall be held immediately after DS3 is submitted and shall be conducted as specified for the DS1 Kickoff Workshop, including the review of the CONSULTANT's quality control documentation.

This workshop shall be two hours in length.

DS3 Validation Workshop

The DS3 Validation Workshop shall be conducted as specified for the DS1 Validation Workshop.

This workshop shall be four hours in length.

Task 3.8.1.4 Final Design Submittal Workshops

FDS Review Kickoff Workshop

The FDS Kickoff Workshop shall be held immediately after FDS is submitted and shall be conducted as specified for the DS1 Kickoff Workshop, including the review of the CONSULTANT's quality control documentation.

This workshop shall be two hours in length.

FDS Validation Workshop

The DS3 Validation Workshop shall be conducted as specified for the DS1 Validation Workshop.

This workshop shall be four hours in length.

Task 3.8.1.5 Constructability Workshop

A constructability workshop shall be held following the DS3 submittal and shall be a two-day workshop. The constructability review is intended to provide OCSD with an objective third party review of the Bid Documents for effectiveness in communicating information to prospective bidders. The review shall determine if the Bid Documents have sufficient information needed to bid and construct the project and avoid misunderstandings and misinterpretations that may lead to conflict, confusion or claims during construction. This review is not a comprehensive plan check, a dimensional check or a value engineering assignment. Further, it is recognized that comments may only be given on the level of detail provided at this level of design.

Constructability review participants shall include highly experienced individuals from construction companies, OCSD construction management staff and CONSULTANT design staff. Specialty Consultants and discipline engineers may also be included.

Each constructability review participant shall receive a package at least two weeks in advance. The package shall include plans and specifications, general conditions, the CPM schedule, the construction cost estimate, permits, and other pertinent information via Bluebeam Studio Session. The confirmation statements regarding the size-critical equipment as required in the Engineering Design Guidelines, Chapter 01, Design Guidelines – General Requirements, Section 01.2.15.2 "Size-Critical Equipment" shall also be included in the review package.

To avoid disturbances, the constructability review may be held on-site or off-site.

Day 1 shall start with a site visit, for the reviewers to acquaint themselves with the site conditions. After the site visit, the CONSULTANT shall make a short presentation, followed by

a question and answer period. This is anticipated to take about 1/2 day. The second half of Day 1, and the first half of day two shall be individual workdays for the Constructability Review Team. The CONSULTANT shall not attend, although one designated individual from the CONSULTANT's Design Team shall remain to answers questions and gather additional information that the constructability review team might need.

On the afternoon of Day 2, the CONSULTANT shall return and listen to comments from the Constructability Review Team. A designated individual shall record the comments, and take notes from the workshop, to document the process.

Topics the Constructability Review Team must consider shall include:

- Project consistency, discrepancies, and constructability issues
- Contradictions, bid package strategies, and biddability issues
- Power outages and equipment shutdowns
- Size critical equipment requirements and constraints
- Utility company requirements
- Construction methods and mitigating impacts
- Viability of equipment relocation
- Operational requirements
- Interim Control Plan
- Access for maintenance
- Access to make proper connections
- User-friendliness and safety
- Coordination with other projects
- Draft Commissioning Plan
- Public nuisance issues
- Risk sharing
- Construction sequencing and schedule, materials storage and work zone accessibility
- Clarity of the scope of work, and interface activities
- Impacts on existing operation
- Access

- Cost control
- Partnering with contractor
- Other local conditions and constraints

The Constructability Review Team shall provide comments in Bluebeam and the CONSULTANT shall respond to each comment, selecting those comments to be included in the final plans and specifications.

To facilitate the Constructability Review Workshop, CONSULTANT shall complete the following tasks:

- Prepare package for constructability review participants. The package shall consist of detailed plans and specifications and other information selected by CONSULTANT. The package shall be mailed to participants at least one week prior to the workshop.
- Prepare presentation on the project for the Constructability Review Team.
- Meet with Constructability Review Team to receive comments.
- Provide listing of constructability review comments and action taken on each comment. (The summary report of constructability review comments shall be prepared by the Constructability Review Team.)

All comments and recommendations of the workshop shall be incorporated into the Bid Documents at no additional cost to OCSD.

Prior to DS3, the Commissioning Team shall also conduct an additional constructability review of the final Bid Documents to review clarity of the bid package, project completeness, and other issues, as necessary.

Task 3.8.2 Design Phase Meetings

Task 3.8.2.1 Technical Progress Meetings

Technical Progress Meetings shall be held via conference call every two weeks to review various issues with OCSD's project team. The CONSULTANT shall prepare and agenda and email it along with the updated Action Log and Decision Log prior to each meeting. Assume each meeting shall be 90-minutes in duration.

Task 3.8.2.2 Focused Meetings

Focused meetings shall be held throughout preliminary design to discuss specific issues in detail and generate comments and direction from OCSD staff. CONSULTANT shall assume 8 focused meetings.

Each focus meeting shall generally be 1one to two hours in length. Supplementary meetings may be scheduled with OCSD staff, as necessary to allow coordination between the CONSULTANT and OCSD staff.

Task 3.8.2.3 Commissioning Team Meetings

A total of four commissioning team meetings shall be held after completion of OCSD's review of DS1.

Meetings will be two hours in length. CONSULTANT may suggest additional topics as necessary. Supplementary meetings may be scheduled with OCSD staff, as necessary, to allow coordination between CONSULTANT and OCSD staff.

The Commissioning Team meetings shall cover the following subjects:

- Provide a detailed review of the proposed construction sequencing plan and make recommendations for improvements. These recommendations shall be incorporated into the plans and specifications as appropriate. Possible incentives for the Contractor to finish the project early shall be explored.
- Identify procedures, testing requirements and sequencing for commissioning.
- Develop a detailed outline of a commissioning plan based on the results of the recommended construction sequencing plan.
- Prepare testing requirements and plan to prove process performance relative to design criteria developed in the PDR. Testing shall be performed after the RAT and supervised by the CONSULTANT.
- Identify timing within the construction contract schedule when commissioning activities are required, including hold points for testing and inspection.
- Identify roles and responsibilities of the Project Manager, Resident Engineer, Inspector, Project Engineer, PCI, Engineering support, Design CONSULTANT and Contractor.
- Develop a timeline of commissioning
- Develop a commissioning specification
- Develop standard forms for testing and commissioning documentation
- Electrical, mechanical and process tie-ins
- Startup requirements and testing
- Record drawings
- O&M training
- OMaP documentation and coordination of same with O&M Training

Task 3.8.2.4 Safety and Risk Meeting

Meet with OCSD Safety and Risk Management personnel, and OCIP (Owner Controlled Insurance Program) safety representatives, between DS2 and DS3 to review the plans and specifications in accordance with OCSD safety policies and OCSD Risk Management goals.

The design phase risk meeting shall be held per the following table:

Meeting Name	Timing	Duration
Safety and Risk Meeting	~4 weeks prior to submittal of DS3.	3 hours

The purposes of the workshops are to:

- Review the existing Risk Management Plan (RMP)
- Identify new key project-specific risks,
- Update the nature of the impact of each risk should it occur
- Update how likely the risk is to occur
- Update mitigation strategies that should be implemented or be ready to be implemented to address each risk.

The workshops will be held at OCSD offices. CONSULTANT shall prepare the agenda, any appropriate presentation materials, and minutes for the Workshop. The minutes shall include sufficient information for OCSD to update the RMP and for CONSULTANT to update the Risk Mitigation Measure Log.

Task 3.8.2.5 CONSULTANT Office Technical Meetings (COTMs)

OCSD has found it mutually beneficial to visit the CONSULTANT offices from time to time to observe the detailed design in process, answer detailed technical questions, and establish lines of communications with CONSULTANT staff. During the Design Phase, CONSULTANT shall arrange for OCSD staff to meet in CONSULTANT's work center and audit "over the shoulder" design reviews with CONSULTANT's staff. The reviews will be monitored by a member of CONSULTANT's Management Team. Signification decisions will be reported to CONSULTANT's Project Manager and OCSD's Project Manager and logged into the Decision Log. Action items will be identified.

The CONSULTANT shall schedule, at a minimum, the following CONSULTANT Office Technical Meetings (COTMs):

- One two-hour visit to review the QA/QC process.

- One four-hour visit to review CONSULTANT Loop Tag Number scheme and control documentation, P&ID tag extraction, basic control panel design, and Conduit, Tray and Cable Schedules.

- One two-hour visit to review the first few P&ID drawings, early Control Strategies, and the first elementary diagrams.

- One two-hour visit to review each of the SAT and EID products, including P&ID, SAT and EID coordination.

The CONSULTANT shall schedule each of the above COTMs and shall coordinate with OCSD's Project Manager to be sure the correct personnel participate in the meetings. The CONSULTANT may propose additional, eliminate, or combine COTMs as needed to support the detailed design.

OCSD may also request additional "over the shoulder" design review meetings to audit the design in other areas not listed above.

TASK 3.9 - QUALITY CONTROL

The following Quality Control requirements apply both to Phase 2 – Preliminary Design and Phase 3 - Design. Quality control activities during Design should be budgeted for and charged to the Phase 3 quality control budget.

Quality Control Requirements

Acceptance of CONSULTANT professional services shall be based on the result of audits conducted on the elements of the approved QA/QC Plan and the incorporation or resolution of comments resulting from these audits.

Periodic Visits: OCSD may make periodic visits to the CONSULTANT's offices to review the progress of the technical work. These visits may include talking to CONSULTANT's personnel, reviewing drawings (both hardcopy and electronic), discussing QA/QC techniques that will be employed by OCSD in reviewing I/C drawings and assisting CONSULTANT's staff with understanding I/C requirements for such project elements as P&ID's.

Signed Affidavits: Prior to the submittal to OCSD, each Design Memo and Design Submittal identified in the Scope of Work shall be thoroughly reviewed and corrected by a member of the QC Team and the following affidavits submitted, testifying the completion of QA/QC review.

- The lead reviewer shall attest to their review in the form of a written affidavit outlining the submittal subject and identifying the corrected deficiencies.

- Each discipline reviewer shall provide an affidavit attesting to the details of the review, listing the drawings and specification sections he or she reviewed.

- Each Interdisciplinary reviewer shall provide an affidavit stating which documents he or she cross-checked for coordination between disciplines.

Discipline Internal Check

CONSULTANT shall perform discipline check and review all drawings, specifications, studies, reports, calculations, and any other deliverable required by the Scope of Work. These requirements shall be implemented by those Project Team members responsible for the specific planning or design activity.

Discipline Integrity Check

Immediately prior to the submittal of DS1, the CONSULTANT shall perform a drawing integrity check (plan check) for all disciplines. The DS1 submittal shall also have a coordination check between the P&IDs and Mechanical Drawings. The mechanical lead engineer shall attest to the accuracy of each P&ID and the respective mechanical drawings.

Interdisciplinary Coordination Check

CONSULTANT shall perform an inter-discipline coordination cross-check immediately before each design submittal to correct discrepancies among the process and demolition plans; mechanical, structural, electrical, and instrumentation and controls drawings, and databases. Within each submittal, all documents shall have inter-discipline coordination checked and shall agree with each other.

Independent Multi-Discipline Design Review

CONSULTANT shall identify an Independent Quality Control (IQC) Team consisting of qualified individuals not directly involved in the design or supervision of the work. This Team shall conduct a multi-discipline design review (check and inter-discipline cross-check) immediately before submittal of the DS3 to check discipline accuracy, provide coordination, and eliminate conflicts. A DS3 IQC workshop shall take place at OCSD. The workshop shall have a minimum duration of four days. OCSD project Team shall be invited and encouraged to attend and observe the early morning briefings.

The IQC Team shall have completed their independent review of their discipline prior to the DS3 IQC workshop. At the workshop, the IQC Team shall continue with the interdisciplinary review and cross-checking, comment generation and discussion. The comments resulting from the IQC Team review shall be documented in Bluebeam during the review process and will be reviewed by the entire IQC Team in the beginning of each subsequent day of the workshop. In terms of participation, these morning review sessions will be the most beneficial time for OCSD Staff to be in attendance. The CONSULTANT shall provide an open forum to OCSD to allow observation by OCSD Staff and a transparent QC process. The finalized IQC logs generated during the workshop will be incorporated into the QC documentation for the project and CONSULTANT shall track resolution of these comments using Bluebeam.

Each drawing shall have its own IQC checklist or drawing markup that shall be maintained throughout the workshop. These pre-prepared IQC checklists and drawing markups shall be used in addition to the IQC logs. Each discipline lead shall sign off on each drawing checklist or drawing markup to certify that the drawing was properly checked and cross-checked.

At the end of the IQC workshop, the IQC Team shall meet with CONSULTANT’s QC Manager to provide insights and feedback.

After the DS3 IQC workshop, the design team shall provide responses to the IQC review comments. The IQC Team shall validate the responses to the comments prior to the DS3 submittal Using Bluebeam.

Print of the final markup list showing the status of each comment that all reviews performed, and all comments resolved, incorporated and back checked will be recorded on a QC Validation Form and submitted to OCSD for acceptance when the Design Submittal is delivered.

All submittals shall be accompanied by a transmittal letter signed by CONSULTANT's principal-in-charge or Project Manager, if appropriate, indicating that the submitted documents have been checked, and identifying the reviewer's name. Signatures of the respective checkers shall be included where appropriate. All submittals shall be checked with a goal of insuring accuracy and consistency.

Documentation of Level of Effort for QA/QC

CONSULTANT shall include man-hours for all QA/QC activities related to Preliminary Design in this task, including the development of the QA/QC Plan and review of Bid Documents either by CONSULTANT, or by the CONSULTANT in conjunction with OCSD staff in meetings and workshops.

TASK 3.10 – PERMITTING ASSISTANCE

CONSULTANT services related to Permitting Assistance on the project are specified in Phase 2 – Preliminary Design and those services shall continue during Phase 3 - Design. The CONSULTANT shall allocate the budgeted hours between the Permitting Assistance services in Phase 2 and Phase 3 based on when these services will be required.

PHASE 4 – CONSTRUCTION AND INSTALLATION SERVICES

Not in this Scope of Work.

PHASE 5 – COMMISSIONING SERVICES

Not in this Scope of Work.

PHASE 6 – CLOSE OUT

Not in this Scope of Work.

V. GENERAL REQUIREMENTS

GENERAL

OCSD ENGINEERING DESIGN GUIDELINES AND STRATEGIC PLAN

The Engineering Guidelines define what design concepts/tools/methods and project management requirements shall be adhered to and in what manner they shall be

used/provided by CONSULTANTs, e.g., requirements regarding design concepts, submittals, documentation details, use of OCSD Master Specifications, and other related OCSD Standards, etc.

Refer also to Section “CONSULTANT’s Responsibilities” in OCSD Engineering Design Guidelines Chapter 01. Refer to “Master Specifications Instructions for Use” that mandates rules and conventions to be used in all OCSD project specifications.

The project Scope of Work defines whether or not each specific deliverable described in the Guidelines shall be part of the project and when each task shall take place.

The project Scope of Work also includes requirements that supplement and/or modify the Guidelines requirements for this project.

The project Scope of Work and OCSD Engineering Design Guidelines impact CONSULTANT’s project cost.

Except as specified in this Scope of Work, design of all facilities shall conform to the recommendations of the currently approved Master Plan for OCSD facilities. The project shall also incorporate all applicable mitigation measures included in associated environmental documents and site-specific local requirements.

In addition, OCSD will require the CONSULTANT to follow subsequent revisions of OCSD Safety Standards, OCSD Engineering Design Guidelines and other OCSD Design Standards up to transmittal by OCSD of comments on Design Submittal 2 (DS2).

OCSD may update OCSD’s Master Specifications and/or add new OCSD Master Specifications up to transmittal by OCSD of comments on Design Submittal 2. The CONSULTANT shall utilize the new and/or modified Master Specifications for the DS3 submittal.

The CONSULTANT shall not begin editing the project specifications until the project team meets with OCSD’s Design Standards Custodian to discuss and receive comments regarding the CONSULTANT’s proposed list of project specifications. This meeting will be used to determine which specifications are to use OCSD’s master specifications, and where other sources will be utilized.

Project Phases and Tasks

Project tasks and deliverables shall include the requirements described in this Scope of Work. CONSULTANT shall also refer to Appendix A of OCSD Engineering Design Guidelines for the level of detail requirements for individual deliverables in each Phase of the project not covered in the Scope of Work.

Construction Sequencing and Constraints

CONSULTANT shall develop with OCSD staff and include in the Bid Documents detailed requirements for construction sequencing and constraints. These shall ensure safe and reliable operation and maintenance of OCSD facilities. The facilities must be kept on-line and fully operational with minimal interruptions throughout construction.

Working Hours

Meetings with OCSD staff shall be scheduled from Monday through Thursday between the hours of 8:00 AM and 4:00 PM.

Standard Drawings and Typical Details

All the details used in the project (OCSD's Standard Drawings and CONSULTANT-developed typical details) shall be shown on the Plans.

Software

The CONSULTANT is expected to develop and provide the deliverables using the standard software currently approved for use by OCSD. The standard OCSD software includes, but is not limited to, the following:

- AutoCAD Plant 3D ver 2018 (for P&ID drawings only)
- Autodesk software 2018 (AutoCAD, AutoCAD Map3D or compatible dwg file format)
- Bluebeam Revu eXtreme (version 2018.2)
- Primavera P6 for scheduling
- Microsoft Office 365

Bluebeam collaboration tools will be used on this project. The CONSULTANT shall have the proper software and licenses to collaborate with OCSD through Bluebeam Revu and Revu Studio. All submittals shall be in formats compatible with Bluebeam. CONSULTANT shall supply an external site that can be utilized by OCSD staff to access and save back all design submittal review comments. This will allow easier collaboration between OCSD and the CONSULTANT.

Any software that the CONSULTANT needs to comply with these standards shall be purchased and maintained by the CONSULTANT at no additional cost to OCSD. In the event OCSD provides the CONSULTANT with access to OCSD software and hardware at an OCSD facility in order to facilitate performance of their work, all software shall remain the property of OCSD. Only software licensed to OCSD shall be installed on OCSD equipment. In addition, only OCSD IT Department staff will perform the installation of this software.

Refer to Chapters 10 and 11 and Appendix A of OCSD Engineering Design Guidelines for requirements on preparation of Criticality Tables and ETAP, SAT, and EID databases. Refer to OCSD CAD Manual and to Chapter 11 and Appendix A of OCSD Engineering Design Guidelines for requirements regarding P&ID drawings.

Submittal Review using Bluebeam

OCSD has standardized on the use of Bluebeam Revu for reviewing and providing comments to PDF files. Prior to submitting electronic PDF files, format them as indicated below

(underlined text refers to commands or functions within the Bluebeam software). See “**Exhibit 17** Designer Training for Submission” and “OCSD CAD Standards Manual” prior to submission.

1. Flatten file with Document\Flatten
2. Reduce file size with Document\Process\Reduce File Size
3. Make PDF searchable with Document\OCR
4. Create page labels with Thumbnails Toolbar\Create Page Labels
5. Create bookmarks with Create Bookmarks\Page Labels
6. Enable hyperlinks with File\Batch\Link\New

PDF files will be hosted in a Bluebeam cloud-based studio session for review. See “SOW **Exhibit 18** Designer User Training” for a detailed explanation on how Bluebeam will be used to provide, validate, and close submittal review comments.

1. The purpose of the studio session is to provide review and collaboration. The session provides multiple attendees, despite location, the opportunity to review and comment on the same PDFs in real time. All review actions are tracked and recorded.
2. OCSD staff will create the Bluebeam studio session, invite attendees, configure, and manage the Studio session.
3. Bluebeam provides reviewers with tools for annotating PDFs called a markup. OCSD provides two toolboxes for annotating PDFs: "OCSD Drawings Review" and "OCSD Report Review."
4. Markups are both graphical and tabular. When the graphic markup is placed, corresponding tabular data are created. The collection of tabular data is considered the markup list.
5. The markup is automatically populated with various properties including author, sheet number, comment, markup type, etc. to make reviewing consistent. The tabular data within the markup list are hyperlinked to the graphical markup for back-and-forth viewing.
6. The markup list may be sorted or filtered. For example, filtering markups by author makes that attendee's markups more prominent on the page by dimming everyone else's markups.
7. Within a studio session, markups may only be modified by the markup author except for the Status data field using the "Set Status" command. OCSD has customized this field for the reconciliation of comments and backcheck. Session attendees may "Reply" to the markup of other reviewers. Replying to a markup provides the responder the opportunity to explain how the markup will be incorporated.

8. The comment reconciliation steps are summarized below:
    a. Reply – respond to OCSD provided review comment with: **Agree, Disagree,** or **Flag for Discussion**.
    b. Direct – meet with OCSD to reconcile the non-agrees with either an **Incorporate** or **Do Not Incorporate** response. OCSD will work with CONSULTANT to ensure clear direction is provided.
    c. QC Check – CONSULTANT tells OCSD that the comment has been addressed in the next submittal by responding with **Incorporated** or **Not incorporated**.
    d. Backcheck – reconciliation of open and incorporated comments by OCSD with an **Open** or **Closed** response.
9. A one-hour training session on the use of Bluebeam and custom status menu will be provided by OCSD. All CONSULTANT team members responsible for quality control and reconciliation of submittal comments shall attend.

Word Track Changes

1. Below are guidelines for the review and incorporation of MS-Word comments and revisions. Use MS-Word Track Changes to show edits to all project specifications and other MS-Word files.
2. Submit the marked-up electronic files for OCSD review, as required by the Scope of Work. OCSD's review will consist of comments and (in-text) revisions. OCSD comments and revisions shall remain visible in Track Changes throughout design.
3. OCSD will return the MS-Word files or host them in a central location.
    a. If the files are returned, CONSULTANT will check the files back into their document management system (i.e., replace the old files with the returned files) and resume their design and review of OCSD comments using the returned files. This insures that in-text revision by OCSD are preserved.
    b. Hosting files in a central repository is preferred because it eliminates file transfer and the potential for multiple copies. Hosted files are also protected by version control.
4. OCSD comments shall be addressed using MS-Word "Reply" and "Resolve." The CONSULTANT shall "Reply" to each OCSD comment describing how the comment will be addressed and revise the specification, as needed, to address the comment.
5. "Resolve" will be used by the reviewer or designee to confirm their comment has been addressed. "Resolve" greys out the comment showing it is closed.
6. Revisions may be "Rejected" with the concurrence of the Project Engineer or reviewing party. Concurrence is necessary because once a revision is "rejected," it is removed from MS-Word Track Changes and no longer visible.

    After final design, all MS-Word comments and revisions shall be Track Changes accepted, rejected, resolved, or deleted prior to bid. The MS-Word commands to "Accept All Changes" and "Delete All Comment in Document" shall be performed just prior to preparing the IFB set. No unaddressed comments or revisions shall remain in the Bid Documents.

GIS Submittals

CONSULTANT shall provide the following GIS deliverables propagated from approved design submittals after the design submittal is accepted. These GIS submittals will not be reviewed or presented by CONSULTANT. The purpose is to provide project specific GIS layers that could be used to visualize interproject dependencies and conflicts.

1. Electronic Submittal
    a. Kmz files for use with Google Earth
2. Final PDR
    a. Single project boundary (Polygon)
        i. Boundary to encompass all new facilities and existing to be modified including:
            1. Buildings\Structures
            2. Tunnels
            3. Utilities
            4. Pavement
            5. Street boundary (ROW to ROW) of possible alignment
    b. Structures (Polygon)
        i. New structure outline
        ii. Additions to existing structures
        iii. Structure label
3. DS1
    a. Project boundary - *updated from PDR*
    b. Structures - *updated from PDR*
    c. Utilities (Polyline)
        i. Utility alignment
    d. Manholes (Point)
    e. Excavation of pits (Polygon)
        i. Pits that will stay open for extended duration
        ii. CIPP
        iii. Tunnel - jacking and receiving
        iv. All pits should be labeled
4. DS2, DS3, and FDS
    a. Project boundary - *updated from previous DS*
    b. Structures - *updated from previous DS*
    c. Utilities - *updated from previous DS*
    d. Manholes - *updated from previous DS*
    e. Excavation of pits - *updated from previous DS*
    f. Critical (as defined by Dig Alert) utility crossings (Point)
        i. Crossing of Dig Alert critical utilities
        ii. Critical utility label
            1. Natural gas
            2. Fuel pipeline
            3. 12 kV Electrical
    g. Asphalt (Polygon)
        i. Asphalt to be replaced

PROJECT SPECIFIC DEVIATIONS FROM OCSD DESIGN GUIDELINES

ENGINEERING DESIGN GUIDELINES, CHAPTER 11, "INSTRUMENTATION AND CONTROL"

a. Section 11.3.1 "Requirements Study"

b. Section 11.3.2 "Requirements Study Report"

The Requirements Study shall not be part of the Scope of Work.

ADDITIONAL DESIGN CRITERIA

In addition to meeting the design criteria required in the Engineering Design Guidelines (EDG), the CONSULTANT shall design the pump station to meet the following criteria.

1. The station must be able to pump the peak (1-hour average, 10-year storm, 2040) wet weather flow with one of the pumps out of service.

2. The station shall be able to pump peak (1-hour average) dry weather flows with one of its pumps out of service.

3. The frequency range of the Variable Frequency Drives shall be maximized during average daily dry weather flow operation.

4. The pumps shall be capable of passing rags and fibrous materials and shall be capable of passing a 3-inch diameter non-compressible solid.

5. Pump station shall reliably meet design flow requirements even if flooded. All sources of flooding shall be identified and mitigated. Flooding is defined as in-flow larger than what the sump pump can handle. Electrical and control elements in the flood zone shall be able to function even after an extended amount of time under water.

6. All electrical, instrumentation, and control equipment not required to be in the pump room or wet well shall be located in a completely separate room without any connection to a classified area.

7. The pumps shall be designed to operate without cavitation or excessive vibration through all operating ranges.

8. The VFD operating range must be continuous and shall not skip any frequencies to avoid ranges where vibration resonance may occur.

9. Pump shall be designed to utilize the full frequency range of operation (typically between 30Hz to 60Hz). Range to be established and agreed upon prior to final PDR.

10. Sump Pumps shall be provided with chopper blades.

11. Ductwork between wet wells and air scrubber facility shall be buried where crossing pavement or other open areas.

12. Design ventilation systems to minimize short circuiting.

13. Mount blowers over 5 hp on vibration isolators.

14. Minimum air exchanges in pumping station shall be the largest of either 10 per hour or as required to keep the motors cool.

15. Air in the electrical room(s) shall be cleaned and kept between manufacturer's recommended temperatures.

16. Air conditioners will be required to cool the air in the electrical rooms. Air exchanges in the electrical room(s) shall be either a) six per hour; b) whatever is needed to control heat buildup; or c) as required by the equipment manufacturers whichever is greater.

VI. STAFF ASSISTANCE

OCSD staff member or designee assigned to work with CONSULTANT on the design of this project is Justin Fenton at (714) 593-7386, e-mail to: jfenton@ocsd.com.

EXHIBITS:

Exhibit 01 **Design Submittal Requirements Matrix**

Exhibit 02 **Project Schedule Calculation**

Exhibit 03 **Project Reference Material**

- **3-12 Record Dwg Set**
- **3-62 Amendment 3 Docs**
- **3-62 Final PDR Complete**
- **3-62 GW Impacts Near SBPS TM**
- **Rehabilitation of Outlying Pump Stations Ch. VII – Seal Beach**
- **Selecting a Pump v3**

Exhibit 04 **Deliverable Quantities**

Exhibit 05 **Sample Construction Cost Estimate Format**

- **Sample 1**
- **Samples 2 - 4**

Exhibit 06 **Sample Full Project Safety Review Plan**

Exhibit 07 **Sample Risk Management Check List**

Exhibit 08 **SBPS Asbestos Lead Hazardous Material Survey**

- **2015**
- **2019**

Exhibit 09 **Commissioning Docs**

- **Commissioning Design Spreadsheet**
- **Commissioning templates**
- **Sample ORT 1 of 2**
- **Sample ORT 2 of 2**

Exhibit 10 **Sample FAT**

Exhibit 11 **Sample RAT**

Exhibit 12 **Sample PnID Rocky Point**

Exhibit 13 **Sample Control Strategy**

Exhibit 14 **NOT USED**

Exhibit 15 **Navy Security Fence Documents**

Exhibit 16 **NOT USED**

Exhibit 17 **Designer Training for Submission (2018)**

Exhibit 18 **Designer User Training Document (2018)**

Exhibit 19 3-62 Geotechnical Data Report

Exhibit 20 3-62 Evaluation Memorandum No. 2

Exhibit 21 3-62 Evaluation Memo 3

Exhibit 22 Latest 3-62 DRAWING NO. C5001

JGD:MK:dm

ATTACHMENT “D”

ALLOWABLE DIRECT COSTS

ATTACHMENT "D"
ALLOWABLE DIRECT COSTS

LONG DISTANCE TELEPHONE CHARGES	All long distance telephone charges incurred will be reimbursed as direct costs. Telephone charges to area codes serving Los Angeles, Orange, Riverside, and San Bernardino Counties will not be reimbursed.
FACSIMILE TRANSMISSION CHARGES	Facsimile transmission charges will not be reimbursed, except the long distance toll charges, as described above.
REPRODUCTION AND PRINTING CHARGES	In-house reproduction of records and documents will not be reimbursed by the SANITATION DISTRICT. Use of an outside copy service for specialty items and volume reproduction will be reimbursed at direct cost. Use of a professional printing service will be reimbursed at actual cost.
OVERNIGHT MAIL DELIVER AND MESSENGER SERVICE	Use of Federal Express, Express Mail, UPS, or such similarly-related service, as well as a messenger service, will be reimbursed at direct cost only when necessary.
POSTAGE	Incidental postage will not be reimbursed by the SANITATION DISTRICT.
FILM PROCESSING	Film processing will be reimbursed at actual cost.
COMPUTER USAGE	Computer use by Consultant and/or support staff will not be reimbursed.
MILEAGE	Per mile reimbursement will be at the current rate set by the Internal Revenue Service.
TEMPORARY STAFF	The use of outside temporary support staff will be reimbursed at direct cost with prior approval of the SANITATION DISTRICT.
OFFICE SUPPLIES	The purchase of office supplies by Consultant will not be reimbursed.
LODGING	The cost of lodging including room and all applicable taxes will be reimbursed on a per diem basis as an allowable maximum as established by U.S. General Service Administration. Lodging incidentals as defined by IRS are included in the per diem rates. Lodging personal incidentals including movies, internet, laundry service, valet service, room service, etc., will not be reimbursed. Receipts must be provided for the actual incurred cost. Cancellations of the hotel reservations by the Consultant must be per the hotel policy. Late cancellations, early or late departure will not be reimbursed by the SANITATION DISTRICT.
GROUND TRANSPORTATION	The cost of ground transportation for taxi, shuttle, train, etc., will be reimbursed. Limousine service will not be reimbursed. The Consultant shall use the most economic and practical mode of transportation that is reasonably available.

AIRFARE	Airline ticket cost including one bag will be reimbursed only if pre-approved by the SANITATION DISTRICT. First class tickets will not be reimbursed unless pre-approved by the SANITATION DISTRICT. Membership dues for corporate card frequent user programs or the cost of airline club membership will not be reimbursed.
AUTO RENTAL	Rental car cost for intermediate or standard model, mid-size car (Class "C") or the smaller car compatible with the specific need and rental car gas will be reimbursed. Receipts must be provided to substantiate requested reimbursements.
PARKING FEE	Parking fees for hotel, airport, rail station, etc. will be reimbursed. Consultant shall use the most economic and practical parking location as reasonably available. Excessive parking fees that are deemed unreasonable by the SANITATION DISTRICT will not be reimbursed.
TRAVEL MEALS	Travel meals will be reimbursed on a per diem basis as established by U.S. General Service Administration. Per diem rates include gratuities (tips) and will not be separately reimbursed by the SANITATION DISTRICT. Personal expenses such as cost of alcoholic beverages will not be reimbursed. No receipts are required for the approved meals. The daily total reimbursement for meals shall not exceed the SANITATION DISTRICT per diem rate which is available upon request.
PER DIEM DAILY RATE FOR LODGING AND MEALS	The SANITATION DISTRICT may utilize per diem daily rate that includes lodging, meals and incidentals (M&IE) as established by IRS and U.S. General Service administration for pre-approved travel when reasonable.
RENTAL EQUIPMENT	Consultant will be reimbursed at actual cost, no mark-up.
OTHER DIRECT COSTS	OCSD may authorize other items that may be necessitated due to modifications in scope of work resulting from field investigations and field work required by Contract. These items may include special equipment, test equipment and tooling and other materials and services not previously identified. These items will be reimbursed based on actual cost incurred. A one-time mark-up of 15% for additional equipment rentals, materials and outside services required for field work and investigations may be allowed, as applicable, if justified. No additional markup is allowed by Consultant on other direct costs resulting from work performed by its Contractors.
MISCELLANEOUS	Cost of miscellaneous personal items such as, but not limited to newspapers, toiletries, shoeshine, tobacco products, pay TV, movies, valet services, health club charges, in-room mini bars, clothing and footwear will not be reimbursed. ATM/bank fees incurred by Consultant while traveling will not be reimbursed. Costs for project team lunches will not be reimbursed unless pre-approved by the SANITATION DISTRICT.

ATTACHMENT “E”

FEE PROPOSAL FORM

ATTACHMENT "E"
FEE PROPOSAL FORM

Submitted by: LEE & RO, Inc.
(Name of Firm)

Consultant Name:		LEE & RO, Inc.			
Raw Labor		$ 1,392,067			
Fringe Costs	31.00%	$ 431,541			
		Burdened Labor (Raw Labor + Fringe)		$ 1,823,608	
		Overhead	110.00%	$ 2,005,969	
				Subtotal (Burdened labor + OH)	**$ 3,829,577**
Note: Round all values to nearest dollar.				Profit (% of Subtotal) 5.00%	$ 191,479
				Total Direct Costs, not to exceed	$ 24,200
TOTAL - "Consultant" Not to Exceed					**$ 4,045,256**

Major Subconsultant A Name:		Atkins			
Raw Labor		$ 81,700			
Fringe Costs	34.43%	$ 28,129			
		Burdened Labor (Raw Labor + Fringe)		$ 109,829	
		Overhead	103.28%	$ 113,432	
				Subtotal (Burdened labor + OH)	**$ 223,261**
Note: Round all values to nearest dollar.				Profit (% of Subtotal) 10.00%	$ 22,326
				Total Direct Costs, not to exceed	$ 1,100
TOTAL - Major Subconsultant A Not to Exceed					**$ 246,688**

ATTACHMENT "E"
FEE PROPOSAL FORM

Submitted by: LEE & RO, Inc.
(Name of Firm)

Major Subconsultant B Name:		Brierley and Associates			
Raw Labor		$ 170,650			
Fringe Costs	74.06%	$ 126,383			
		Burdened Labor (Raw Labor + Fringe)		$ 297,033	
		Overhead	38.64%	$ 114,773	
				Subtotal (Burdened labor + OH)	**$ 411,806**
Note: Round all values to nearest dollar.				Profit (% of Subtotal) 9.64%	$ 39,698
				Total Direct Costs, not to exceed	$ 5,000
TOTAL - Major Subconsultant B Not to Exceed					**$ 456,504**

Major Subconsultant C Name:		T2 UES, Inc. (Cardno)			
Raw Labor		$ 42,436			
Fringe Costs	61.22%	$ 25,979			
		Burdened Labor (Raw Labor + Fringe)		$ 68,415	
		Overhead	118.26%	$ 80,909	
				Subtotal (Burdened labor + OH)	**$ 149,324**
Note: Round all values to nearest dollar.				Profit (% of Subtotal) 10.00%	$ 14,932
				Total Direct Costs, not to exceed	$ 62,000
TOTAL - Major Subconsultant C Not to Exceed					**$ 226,256**

ATTACHMENT "E"
FEE PROPOSAL FORM

Submitted by: LEE & RO, Inc.
(Name of Firm)

Major Subconsultant D Name:		NHC			
Raw Labor		$ 64,735			
Fringe Costs	59.98%	$ 38,828			
		Burdened Labor (Raw Labor + Fringe)		$ 103,563	
		Overhead	81.12%	$ 84,010	
				Subtotal (Burdened labor + OH)	**$ 187,573**
Note: Round all values to nearest dollar.				Profit (% of Subtotal) 10.00%	$ 18,757
				Total Direct Costs, not to exceed	$ 48,241
TOTAL - Major Subconsultant D Not to Exceed					**$ 254,571**

Major Subconsultant E Name:		Swift Lee Architects (SLO)			
Raw Labor		$ 56,827			
Fringe Costs	9.50%	$ 5,399			
		Burdened Labor (Raw Labor + Fringe)		$ 62,226	
		Overhead	130.00%	$ 80,894	
				Subtotal (Burdened labor + OH)	**$ 143,120**
Note: Round all values to nearest dollar.				Profit (% of Subtotal) 10.00%	$ 14,312
				Total Direct Costs, not to exceed	$ 3,000
TOTAL - Major Subconsultant E Not to Exceed					**$ 160,432**

Subconsultants Under $100,000		
Subconsultant 1	Bluescape	$ 39,130
Subconsultant 2	Collings	$ 38,960
Subconsultant 3	Diaz Yourman	$ 69,783
Subconsultant 4	GSI Environmental	$ 61,405

ATTACHMENT "E"
FEE PROPOSAL FORM

Submitted by: LEE & RO, Inc.
(Name of Firm)

Subconsultant 5	KW Communications	$	75,000
Subconsultant 6	NUVIS Landscape Architecture	$	40,330
Subconsultant 7	Spec Services	$	98,500
Subconsultant 8	Traffic Control Engineering	$	80,400
Subconsultant 9	The Prizm Group	$	29,205
Subconsultant 10	Venklasen	$	25,430
TOTAL - Subconsultants Under $100,000		**$**	**558,143**

SUMMARY		
Consultant	$	4,045,256
Major Subconsultant A	$	246,688
Major Subconsultant B	$	456,504
Major Subconsultant C	$	226,256
Major Subconsultant D	$	254,571
Major Subconsultant E	$	160,432
Subconsultants Under $100,000	$	558,143
GRAND TOTAL - Not to Exceed	**$**	**5,947,850**

ATTACHMENT “I”

COST MATRIX AND SUMMARY

Seal Beach Pump Station Replacement, Project No. 3-67

Attachment I - Cost Matrix

Task Item		Labor hours: Project Manager	Project Engineer	Lead Electrical	Lead I&C Eng.	Engineer	Associate Engineer	Assistant Engineer	Sr. CAD Designer	Assoc. CAD Designer	Adm. Assistant	Total Hours	Raw Labor	Fringe Costs	Burdened Labor	Overhead	Burdened Labor & Overhead	Profit	Total Subs	Allowable Direct Costs	Total Fees
Average Actual Salary		99.28	89.53	99.28	89.53	70.99	63.91	55.18	75.14	55.18	33.33			31.00%		110.00%		5.00%			
Fully Burdened Hourly Rate (includes payroll costs, OH, and Profit)																					
PHASE 2 - PRELIMINARY DESIGN																					
2.1	**Not Used**																				
2.2	**Preliminary Design Production**																		220,000.28		
2.2.1	Design Memos																		0.00		
2.2.1.1	Design Memo 1 - Trunk Sewer Alignment and PS Base Map	24	40			40	60	80	120	80	16	460	31,017.00	9,615.27	40,632.27	44,695.50	85,327.77	4,266.39	255,461.38	1,000.00	346,055.54
2.2.1.2	Design Memo 2 - Pump Station Alternatives and Basis of Design	80	80	80	40	80	80	120	80	120	16	776	57,208.08	17,734.50	74,942.58	82,436.84	157,379.43	7,868.97	254,571.00	6,000.00	425,819.40
2.2.1.3	Design Memo 3 - Geotechnical and Groundwater Management Study	12	24			24	16	24	24	24	8	156	10,785.04	3,343.36	14,128.40	15,541.24	29,669.65	1,483.48	98,558.00	100.00	129,811.13
2.2.1.4	Design Memo 4 - Structural and Architectural	8	24	4		60	40	8	60	80	12	296	19,920.08	6,175.22	26,095.30	28,704.84	54,800.14	2,740.01	24,622.85	100.00	82,263.00
2.2.1.5	Design Memo 5 - Civil, Landscaping, Irrigation, Noise and Utilities	8	16	8	12	16	16	24	40	40	12	192	13,190.80	4,089.15	17,279.95	19,007.94	36,287.89	1,814.39	31,450.00	100.00	69,652.29
2.2.1.6	Design Memo 6 - Mechanical	16	40	8	4	40	40	40	40	40	4	272	19,271.36	5,974.12	25,245.48	27,770.03	53,015.51	2,650.78	0.00	100.00	55,766.29
2.2.1.7	Design Memo 7 - Electrical and Standby Power	12	16	80	8	16	40	80	24	40	4	320	23,533.00	7,295.23	30,828.23	33,911.05	64,739.28	3,236.96	7,241.00	100.00	75,317.25
2.2.1.8	Design Memo 8 - Instrumentation and Control	8	4	8	80	24	8	40	40	40	4	256	18,877.36	5,851.98	24,729.34	27,202.28	51,931.62	2,596.58	0.00	100.00	54,628.20
2.2.1.9	Design Memo 9 - Odor Control and Air Quality Management	8	24	4	4	16	16	24	24	24	8	152	10,575.24	3,278.32	13,853.56	15,238.92	29,092.49	1,454.62	29,415.55	100.00	60,062.66
2.2.1.10	Design Memo 10 - Fire Protection, Security and Safety	8	12	4	12	12	12	24	24	24	8	140	9,677.52	3,000.03	12,677.55	13,945.31	26,622.86	1,331.14	15,600.00	100.00	43,654.00
2.2.1.11	Design Memo 11 - Hazardous Material Survey, Mitigation and Control	8	16			40	24			16	4	108	7,616.36	2,361.07	9,977.43	10,975.17	20,952.61	1,047.63	0.00	100.00	22,100.24
2.2.1.12	Design Memo 12 - Code, Environmental, Permits, Agency Coordination and Traffic Control	24	24	8	8	40	60	60	40	40	8	312	21,506.36	6,666.97	28,173.33	30,990.66	59,164.00	2,958.20	30,000.00	100.00	92,222.20
2.2.1.13	Design Memo 13 - Construction Phase Implementation, Constructability Issues, Cost and Schedule	40	40	16	16	40	16	16	8	16	8	216	17,069.04	5,291.40	22,360.44	24,596.49	46,956.93	2,347.85	0.00	100.00	49,404.78
2.2.1.14	Design Memo 14 - Facility Operations and Maintenance	24	40	40	40	40	12	12			24	232	18,584.92	5,761.33	24,346.25	26,780.87	51,127.11	2,556.36	0.00	100.00	53,783.47
2.2.2	Preliminary Design Drawings	40	40	24	24	40	80	80	40	80		448	31,870.64	9,879.90	41,750.54	45,925.59	87,676.13	4,383.81	0.00	1,000.00	93,059.94
2.3	**Value Engineering Assistance**																		8,651.76		
2.3.1	Workshop Participation	16	16	16	8	8						64	5,893.60	1,827.02	7,720.62	8,492.68	16,213.29	810.66	27,048.67	100.00	44,172.63
2.3.2	Review of Value Engineering Recommendations (200 hrs allowance)	60	60	40	20	20						200	18,510.20	5,738.16	24,248.36	26,673.20	50,921.56	2,546.08	0.00		53,467.64
2.4	**Not Used**																		0.00		
2.5	**Permitting Assistance**																		0.00		
2.5.1	SCAQMD Permitting																		6,140.00		
2.5.1.1	Demonstration of Compliance with New Source Review for Criteria Pollutants (SCAQMD Reg. XIII)	16	16			40	16				8	96	7,149.76	2,216.43	9,366.19	10,302.80	19,668.99	983.45	7,980.00		28,632.44
2.5.1.2	Demonstration of Compliance with New Source Review for Air Toxics (SCAQMD Rule 1401)	16	16			40	16				8	96	7,149.76	2,216.43	9,366.19	10,302.80	19,668.99	983.45	7,600.00		28,252.44
2.5.1.3	Demonstration of Compliance with SCAQMD Rule 1403	8	8			16	4				4	40	3,035.28	940.94	3,976.22	4,373.84	8,350.06	417.50	1,640.00		10,407.56
2.5.1.4	Demonsration of Compliance with Odor Nuisance (SCAQMD Rule 402)	4	4			8	8				4	28	1,967.76	610.01	2,577.77	2,835.54	5,413.31	270.67	6,240.00		11,923.97
2.5.1.5	Planning and Design Strategies for Air Pollution Control System	24	24			40	40				16	144	10,460.72	3,242.82	13,703.54	15,073.90	28,777.44	1,438.87	6,540.00		36,756.31
2.5.1.6	Demonstration of Compliance with SCAQMD Rule 212	1	1			2		2			1	7	474.48	147.09	621.57	683.73	1,305.29	65.26	2,990.00		4,360.56
2.5.2	Navy Permitting	8	12			24	24				4	72	5,239.52	1,624.25	6,863.77	7,550.15	14,413.92	720.70	0.00	100.00	15,234.62
2.5.3	City of Seal Beach Permitting	8	12			24	24				4	72	5,239.52	1,624.25	6,863.77	7,550.15	14,413.92	720.70	400.00	100.00	15,634.62
2.5.4	Coastal Commission Permitting	8	12			24	24				4	72	5,239.52	1,624.25	6,863.77	7,550.15	14,413.92	720.70	3,935.87	100.00	19,170.48
2.5.5	Stormwater Permitting	4	4			40	20				4	72	5,006.36	1,551.97	6,558.33	7,214.16	13,772.50	688.62	0.00	100.00	14,561.12
2.6	**Project Management**																		9,770.40		
2.6.1	Project Management Plan	24	24	8	8	24					12	100	8,145.64	2,525.15	10,670.79	11,737.87	22,408.66	1,120.43	0.00		23,529.09
2.6.2	Project Management Progress Meetings	24	24			24					24	96	7,035.12	2,180.89	9,216.01	10,137.61	19,353.62	967.68	17,310.25		37,631.54
2.6.3	Project Schedule	24	24			24					4	76	6,368.52	1,974.24	8,342.76	9,177.04	17,519.80	875.99	0.00		18,395.79
2.6.4	Project Logs	24	24			40					8	96	7,637.68	2,367.68	10,005.36	11,005.90	21,011.26	1,050.56	0.00		22,061.82
2.6.5	Progress Reports	16	16			16					8	56	4,423.44	1,371.27	5,794.71	6,374.18	12,168.88	608.44	0.00		12,777.33
2.6.6	Project Invoices	12	12								12	36	2,665.68	826.36	3,492.04	3,841.24	7,333.29	366.66	0.00		7,699.95
2.6.7	Management of Subconsultants	40	40	24		40					40	184	14,107.92	4,373.46	18,481.38	20,329.51	38,810.89	1,940.54	0.00		40,751.43
2.6.8	Coordination with Other Projects	24	24	12		24	12					96	8,193.48	2,539.98	10,733.46	11,806.80	22,540.26	1,127.01	0.00		23,667.28
2.7	**Risk Management**																		7,799.81		
2.7.1	Risk Mitigation Measure Log	16	16			16					8	56	4,423.44	1,371.27	5,794.71	6,374.18	12,168.88	608.44	0.00		12,777.33
2.7.2	Risk Monitoring Updates	24	24			24					8	80	6,501.84	2,015.57	8,517.41	9,369.15	17,886.56	894.33	0.00		18,780.89
2.8	**PDR Production Workshops and Meetings**																		13,535.68		
2.8.1	PDR Production Workshops																		58,836.54		
2.8.1.1	Predesign Kickoff Workshop	8	12	8	8	12	8				4	60	4,875.56	1,511.42	6,386.98	7,025.68	13,412.67	670.63	0.00	100.00	14,183.30
2.8.1.2	Preliminary Design Risk Management Workshop	8	8	4	4	12	4				4	44	3,506.56	1,087.03	4,593.59	5,052.95	9,646.55	482.33	0.00	100.00	10,228.87
2.8.1.3	PDR Constructability Workshop	16	16	16	16	16	16				4	100	8,333.64	2,583.43	10,917.07	12,008.78	22,925.84	1,146.29	0.00	100.00	24,172.14
2.8.1.4	PDR Review Workshops	16	32	16	16	16					8	104	8,876.88	2,751.83	11,628.71	12,791.58	24,420.30	1,221.01	0.00	100.00	25,741.31
2.8.2	Preliminary Design Phase Meetings																		0.00		
2.8.2.1	Technical Progress Meetings	20	20	12	12	20	8				12	104	8,372.96	2,595.62	10,968.58	12,065.44	23,034.01	1,151.70	0.00		24,185.71
2.8.2.2	Project Management Progress Meetings			included in 2.6.2								0	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
2.8.2.3	PDR Phase Focused Meetings	4	4	4	4	4	4				2	26	2,116.74	656.19	2,772.93	3,050.22	5,823.15	291.16	0.00	100.00	6,214.31

Seal Beach Pump Station Replacement, Project No. 3-67

Attachment I - Cost Matrix

	Task Item	Labor hours										Total Hours	Raw Labor	Fringe Costs	Burdened Labor	Overhead	Burdened Labor & Overhead	Profit	Total Subs	Allowable Direct Costs	Total Fees
		Project Manager	Project Engineer	Lead Electrical	Lead I&C Eng.	Engineer	Associate Engineer	Assistant Engineer	Sr. CAD Designer	Assoc. CAD Designer	Adm. Assistant										
2.8.2.4	Stormwater Compliance Meeting	1	1			1	1				1	5	357.04	110.68	467.72	514.49	982.22	49.11	0.00	100.00	1,131.33
2.8.2.5	Project Coordination Meeting	16	24	8	8	16	32				8	112	8,695.28	2,695.54	11,390.82	12,529.90	23,920.72	1,196.04	0.00	100.00	25,216.75
2.8.2.6	Permit Agency Coordination Meetings	2	4			8					2	16	1,191.26	369.29	1,560.55	1,716.61	3,277.16	163.86	10,460.00	100.00	14,001.01
2.9	**Quality Control**	80	40	40	40							200	19,076.00	5,913.56	24,989.56	27,488.52	52,478.08	2,623.90	25,174.94		80,276.92
2.10	**Community Outreach**	8	8			8					4	28	2,211.72	685.63	2,897.35	3,187.09	6,084.44	304.22	13,277.59	100.00	19,766.25
Subtotal - Phase 2 - Preliminary Design		**900**	**1,022**	**492**	**392**	**1,159**	**781**	**634**	**564**	**664**	**366**	**6974**	**523,185.68**	**162,187.56**	**685,373.24**	**753,910.56**	**1,439,283.81**	**71,964.19**	**1,202,251.57**	**10,600.00**	**2,724,099.56**
PHASE 3 - FINAL DESIGN																					
3.1	**Bid Documents**																		141,965.69		
3.1.1	Specifications																		0.00		
3.1.1.1	Contract Agreement, General Conditions and Special Provisions	16	16			12	12				8	64	4,906.40	1,520.98	6,427.38	7,070.12	13,497.51	674.88	0.00		14,172.38
3.1.1.2	General Requirements and Additional General Requirements	12	12			8	12				2	46	3,667.22	1,136.84	4,804.06	5,284.46	10,088.52	504.43	0.00		10,592.95
3.1.1.3	Technical Specifications	120	120	120	120	160	240	240			120	1240	89,254.00	27,668.74	116,922.74	128,615.01	245,537.75	12,276.89	0.00		257,814.64
3.1.2	Drawings	116	320	140	140	464	564	584	760	896		3984	274,356.88	85,050.63	359,407.51	395,348.26	754,755.78	37,737.79	53,812.74	5,000.00	851,306.31
3.1.3	Building Information Model (BIM)	24	24	24	16	24	40	200	160	240		752	48,908.40	15,161.60	64,070.00	70,477.00	134,547.01	6,727.35	0.00		141,274.36
3.1.4	Commissioning Plan Materials																		31,849.00		
3.1.4.1	ORT Procedures	8	8	12	16	24	16				4	88	6,993.96	2,168.13	9,162.09	10,078.30	19,240.38	962.02	0.00		20,202.40
3.1.4.2	FAT Procedures	8	8	12	16	24	16				4	88	6,993.96	2,168.13	9,162.09	10,078.30	19,240.38	962.02	0.00		20,202.40
3.1.4.3	RAT Procedure Specification	8	8	12	16	24	16				4	88	6,993.96	2,168.13	9,162.09	10,078.30	19,240.38	962.02	0.00		20,202.40
3.1.5	Equipment and Instrumentation Databases (EIDs)	4	8	8	8	24	40	40			8	140	9,357.84	2,900.93	12,258.77	13,484.65	25,743.42	1,287.17	0.00		27,030.59
3.1.6	SCADA Access Tables (SAT)	8	8	16	40	40					16	128	10,053.04	3,116.44	13,169.48	14,486.43	27,655.91	1,382.80	0.00		29,038.71
3.2	**Design Support Documentation**																		93,925.80		
3.2.1	Design Information	40	40	16	16	40	40				24	216	16,769.28	5,198.48	21,967.76	24,164.53	46,132.29	2,306.61	17,843.40		66,282.30
3.2.2	Facility Operation and Maintenance	8	12	12	12	24	12				8	88	6,871.64	2,130.21	9,001.85	9,902.03	18,903.88	945.19	0.00		19,849.08
3.2.3	Electrical Design Documentation	12	4	40				16			8	80	6,670.20	2,067.76	8,737.96	9,611.76	18,349.72	917.49	0.00		19,267.21
3.2.4	Instrumentation and Controls	12	4		40			16			8	80	6,280.20	1,946.86	8,227.06	9,049.77	17,276.83	863.84	0.00		18,140.67
3.2.5	Construction Cost Estimates	16	24	12	12	40	40	40			8	192	13,872.76	4,300.56	18,173.32	19,990.65	38,163.96	1,908.20	0.00		40,072.16
3.2.6	Construction Schedule	40	40	16	16	40	40				8	200	16,236.00	5,033.16	21,269.16	23,396.08	44,665.24	2,233.26	0.00		46,898.50
3.2.7	Procurement Alternatives	24	24	16	16	40	40	40			8	208	15,422.24	4,780.89	20,203.13	22,223.45	42,426.58	2,121.33	0.00		44,547.91
3.2.8	Final Design Report	8	16	4	4	16	8				6	62	4,829.06	1,497.01	6,326.07	6,958.68	13,284.74	664.24	0.00		13,948.98
3.3	**Specialty Services**																		0.00		
3.3.1	Topographic Survey Services		Included in Task 2.2.1.1 Design Memo 1 - Trunk Sewer Alignment and PS Base Map																0.00		
3.3.2	Fire Protection Services	8	4	4	4	4	2			4		30	2,540.10	787.43	3,327.53	3,660.28	6,987.82	349.39	23,360.00		30,697.21
3.3.3	Utility Survey and Coordination Services		Included in 2.2.1.5 Design Memo 5 - Civil, Landscaping, Irrigation, Noise and Utilities																0.00		
3.3.4	Landscape Architecture	2	4			8	8	16		8		46	2,960.20	917.66	3,877.86	4,265.65	8,143.51	407.18	28,760.00		37,310.69
3.3.5	Noise Evaluation Services	2	4			8	8	16		8		46	2,960.20	917.66	3,877.86	4,265.65	8,143.51	407.18	5,550.00		14,100.69
3.3.6	Traffic Control Services	2	2			4	4	4		16		32	2,020.82	626.45	2,647.27	2,912.00	5,559.28	277.96	40,000.00		45,837.24
3.3.7	Additional Shoring Design	40	80			40	40	40		40		280	20,944.00	6,492.64	27,436.64	30,180.30	57,616.94	2,880.85	0.00	500.00	60,997.79
3.3.8	Groundwater Monitoring Design	4	12			4	16	16		16	4	72	4,677.08	1,449.89	6,126.97	6,739.67	12,866.65	643.33	32,630.00	500.00	46,639.98
3.4	**Design Submittals**	8	24			24	24	24	80	80	40	304	19,263.68	5,971.74	25,235.42	27,758.96	52,994.38	2,649.72	44,907.52	5,000.00	105,551.62
3.5	**Bid Support Services**																		21,801.37		
3.5.1	Bid Phase Activities	8	12	4	4	24	12		8	8	8	88	6,403.72	1,985.15	8,388.87	9,227.76	17,616.63	880.83	10,142.43		28,639.89
3.5.2	Bid Evaluation Assistance	4	4	2	2	8					2	22	1,767.44	547.91	2,315.35	2,546.88	4,862.23	243.11	0.00		5,105.34
3.5.3	Conformed Document Preparation	4	4	2	2	8	8	24	40	40	16	148	9,282.46	2,877.56	12,160.02	13,376.02	25,536.05	1,276.80	0.00		26,812.85
3.6	**Project Management**																		9,770.40		
3.6.1	Project Management Plan	Same as 2.6.1										0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00	100.00
3.6.2	Project Management Progress Meetings	40	40			40					40	160	11,725.20	3,634.81	15,360.01	16,896.01	32,256.03	1,612.80	12,156.65	100.00	46,125.48
3.6.3	Project Schedule	24	40			40					8	112	9,070.16	2,811.75	11,881.91	13,070.10	24,952.01	1,247.60	0.00	100.00	26,299.61
3.6.4	Project Logs	40	40			80					24	184	14,031.52	4,349.77	18,381.29	20,219.42	38,600.71	1,930.04	0.00	100.00	40,630.75
3.6.5	Progress Reports	24	24			48					24	120	8,738.88	2,709.05	11,447.93	12,592.73	24,040.66	1,202.03	0.00	100.00	25,342.69
3.6.6	Project Invoices	24	24								24	72	5,331.36	1,652.72	6,984.08	7,682.49	14,666.57	733.33	0.00	100.00	15,499.90
3.6.7	Management of Subconsultants	40	40	24		40					40	184	14,107.92	4,373.46	18,481.38	20,329.51	38,810.89	1,940.54	0.00	100.00	40,851.43
3.6.8	Coordination with Other Projects	24	24	12		24	12					96	8,193.48	2,539.98	10,733.46	11,806.80	22,540.26	1,127.01	0.00	100.00	23,767.28
3.7	**Risk Management Assistance**																		7,799.81		
3.7.1	Risk Management Plan	24	24			12	12				8	80	6,416.88	1,989.23	8,406.11	9,246.72	17,652.84	882.64	0.00	100.00	18,635.48
3.7.2	Risk Mitigation Measure Log	16	16			24	24				8	88	6,525.20	2,022.81	8,548.01	9,402.81	17,950.83	897.54	0.00	100.00	18,948.37
3.7.3	Risk Monitoring Updates	24	24			16	16				8	88	6,956.48	2,156.51	9,112.99	10,024.29	19,137.28	956.86	0.00	100.00	20,194.14
3.8	**Workshops and Meetings**																		14,535.68		
3.8.1	Design Phase Workshops																		1,422.82		
3.8.1.1	Design Submittal 1 Workshops																		0.00		
3.8.1.1.1	DS1 Review Kickoff Workshop	8	8	8	8	8	8				2	50	4,166.82	1,291.71	5,458.53	6,004.39	11,462.92	573.15	0.00	100.00	12,136.07
3.8.1.1.2	DS1 Validation Workshop	8	8	8	8	8	8				2	50	4,166.82	1,291.71	5,458.53	6,004.39	11,462.92	573.15	0.00	100.00	12,136.07
3.8.1.2	Design Submittal 2 Workshops																		0.00		
3.8.1.2.1	DS2 Review Kickoff Workshop	8	8	8	8	8	8				2	50	4,166.82	1,291.71	5,458.53	6,004.39	11,462.92	573.15	0.00	100.00	12,136.07

Seal Beach Pump Station Replacement, Project No. 3-67

Attachment I - Cost Matrix

Task Item		Labor hours: Project Manager	Project Engineer	Lead Electrical	Lead I&C Eng.	Engineer	Associate Engineer	Assistant Engineer	Sr. CAD Designer	Assoc. CAD Designer	Adm. Assistant	Total Hours	Raw Labor	Fringe Costs	Burdened Labor	Overhead	Burdened Labor & Overhead	Profit	Total Subs	Allowable Direct Costs	Total Fees
3.8.1.2.2	DS2 Validation Workshop	8	8	8	8	8	8				2	50	4,166.82	1,291.71	5,458.53	6,004.39	11,462.92	573.15	0.00	100.00	12,136.07
3.8.1.3	Design Submittal 3 Workshops																		0.00		
3.8.1.3.1	DS3 Review Kickoff Workshop	8	8	8	8	8	8				2	50	4,166.82	1,291.71	5,458.53	6,004.39	11,462.92	573.15	0.00	100.00	12,136.07
3.8.1.3.2	DS3 Validation Workshop	8	8	8	8	8	8				2	50	4,166.82	1,291.71	5,458.53	6,004.39	11,462.92	573.15	0.00	100.00	12,136.07
3.8.1.4	Final Design Submittal Workshops																		0.00		
3.8.1.4.1	FDS Review Kickoff Workshop	8	8	8	8	8	8				2	50	4,166.82	1,291.71	5,458.53	6,004.39	11,462.92	573.15	5,000.00	100.00	17,136.07
3.8.1.4.2	FDS Validation Workshop	8	8	8	8	8	8				2	50	4,166.82	1,291.71	5,458.53	6,004.39	11,462.92	573.15	0.00	100.00	12,136.07
3.8.1.5	Constructability Workshop	24	24	24	24	24	24				4	148	12,433.80	3,854.48	16,288.28	17,917.11	34,205.38	1,710.27	5,000.00	100.00	41,015.65
3.8.2	Design Phase Meetings																		0.00		
3.8.2.1	Technical Progress Meetings	24	24	12	12	40	16				8	136	10,925.96	3,387.05	14,313.01	15,744.31	30,057.32	1,502.87	0.00	100.00	31,660.18
3.8.2.2	Focussed Meetings	16	16	8	8	24					4	76	6,368.52	1,974.24	8,342.76	9,177.04	17,519.80	875.99	0.00	100.00	18,495.79
3.8.2.3	Commissioning Team Meetings	16	16	16	16	16	16				4	100	8,333.64	2,583.43	10,917.07	12,008.78	22,925.84	1,146.29	0.00	100.00	24,172.14
3.8.2.4	Safety and Risk Meeting	4	4	3	3	4	4				1	23	1,894.60	587.33	2,481.93	2,730.12	5,212.04	260.60	0.00	100.00	5,572.65
3.8.2.5	Consultant Office Technical Meetings (COTMs)	8	8	4	4	12					2	38	3,184.26	987.12	4,171.38	4,588.52	8,759.90	437.99	0.00	100.00	9,297.89
3.9	**Quality Control**	320	200	120	120							760	72,332.80	22,423.17	94,755.97	104,231.56	198,987.53	9,949.38	28,959.43	50.00	237,946.34
3.10	**Permitting Assistance**	8	12			24	40	24			8	116	7,719.72	2,393.11	10,112.83	11,124.12	21,236.95	1,061.85	69,149.89	50.00	91,498.68
Subtotal - Phase 3 Final Design		**1,330**	**1,510**	**759**	**751**	**1,668**	**1,486**	**1,340**	**1,048**	**1,356**	**545**	**11793**	**868,881.68**	**269,353.32**	**1,138,235.00**	**1,252,058.50**	**2,390,293.50**	**119,514.68**	**700,342.62**	**13,600.00**	**3,223,750.80**
TOTAL - PHASES 2 AND 3		**2,230**	**2,532**	**1,251**	**1,143**	**2,827**	**2,267**	**1,974**	**1,612**	**2,020**	**911**	**18767**	**1,392,067.36**	**431,540.88**	**1,823,608.24**	**2,005,969.07**	**3,829,577.31**	**191,478.87**	**1,902,594.19**	**24,200.00**	**5,947,850.36**
Rounded - Use for Attach E - Fee Proposal Form													**1,392,067.00**	**431,541.00**	**1,823,608.00**	**2,005,969.00**	**3,829,577.00**	**191,479.00**	**1,902,594.00**	**24,200.00**	**5,947,850.00**

Seal Beach Pump Station Replacement, Project No. 3-67
Professional Design Services Agreement - Brierley & Associates
Attachment I - Cost Matrix

Task Item	Labor hours: Principal or Senior Consultant II	Senior Associate or Senior Consultant I	Associate or Senior Project Manager	Senior Professional II	Senior Professional I	Professional II	Professional I	Staff Professional II	Staff Professional I	BIM/VDC Manager	Senior BIM/VDC Designer	BIM Technican or Drafter	Admin	Total Hours	Raw Labor	Fringe Costs	Burdened Labor	Overhead Cost	Burdened Labor & Overhead	Profit	Total Subs	Allowable Direct Costs	Total Fees
Average Actual Salary Fully Burdened Hourly Rate (includes payroll costs, OH, and Profit)	109.00	92.00	82.00	67.00	57.00	51.00	45.00	42.00	34.00	61.00	40.00	38.00	25.10			74.06%		38.64%		9.64%			
PHASE 2 - PRELIMINARY DESIGN																							
2.1 Not Used														0	0.00	0.00	0.00	0.00	0.00	0.00			0.00
2.2 Preliminary Design Production	120		120			120				60	120	120		660	42,060.00	31,149.64	73,209.64	28,288.20	101,497.84	9,784.39			111,282.23
2.3 Value Engineering Assistance	30													30	3,270.00	2,421.76	5,691.76	2,199.30	7,891.06	760.70			8,651.76
2.4 Not Used														0	0.00	0.00	0.00	0.00	0.00	0.00			0.00
2.5 Permitting Assistance														0	0.00	0.00	0.00	0.00	0.00	0.00			0.00
2.6 Project Management	20		16										8	44	3,692.80	2,734.89	6,427.69	2,483.66	8,911.35	859.05			9,770.40
2.7 Risk Management	12		20											32	2,948.00	2,183.29	5,131.29	1,982.73	7,114.02	685.79			7,799.81
2.8 PDR Production Workshops and Meetings	40													40	4,360.00	3,229.02	7,589.02	2,932.40	10,521.41	1,014.26		2,000.00	13,535.68
2.9 Quality Control	32				40					40				112	8,208.00	6,078.84	14,286.84	5,520.44	19,807.28	1,909.42			21,716.70
2.10 Community Outreach														0	0.00	0.00	0.00	0.00	0.00	0.00			0.00
Subtotal - Phase 2 - Preliminary Design	**254**	**0**	**156**	**0**	**40**	**120**	**0**	**0**	**0**	**100**	**120**	**120**	**8**	**918**	**64,538.80**	**47,797.44**	**112,336.24**	**43,406.72**	**155,742.96**	**15,013.62**	**0.00**	**2,000.00**	**172,756.58**
PHASE 3 - FINAL DESIGN																							
3.1 Bid Documents	120		80			60				40	80	160		540	34,420.00	25,491.45	59,911.45	23,149.79	83,061.24	8,007.10			91,068.34
3.2 Design Support Documentation	120		120			160				20	80			500	35,500.00	26,291.30	61,791.30	23,876.16	85,667.46	8,258.34			93,925.80
3.3 Specialty Services														0	0.00	0.00	0.00	0.00	0.00	0.00			0.00
3.4 Design Submittals	20		40							20	20	20	20	140	8,742.00	6,474.33	15,216.33	5,879.59	21,095.91	2,033.65			23,129.56
3.5 Bid Support Services	20		40							20	20	20		120	8,240.00	6,102.54	14,342.54	5,541.96	19,884.50	1,916.87			21,801.37
3.6 Project Management	20		16										8	44	3,692.80	2,734.89	6,427.69	2,483.66	8,911.35	859.05			9,770.40
3.7 Risk Management	12		20											32	2,948.00	2,183.29	5,131.29	1,982.73	7,114.02	685.79			7,799.81
3.8 Workshops and Meetings	40													40	4,360.00	3,229.02	7,589.02	2,932.40	10,521.41	1,014.26		3,000.00	14,535.68
3.9 Quality Control	32				40					40				112	8,208.00	6,078.84	14,286.84	5,520.44	19,807.28	1,909.42			21,716.70
3.10 Permitting Assistance														0	0.00	0.00	0.00	0.00	0.00	0.00			0.00
Subtotal - Phase 3 Final Design	**384**	**0**	**316**	**0**	**40**	**220**	**0**	**0**	**0**	**140**	**200**	**200**	**28**	**1528**	**106,110.80**	**78,585.66**	**184,696.46**	**71,366.71**	**256,063.17**	**24,684.49**	**0.00**	**3,000.00**	**283,747.66**
TOTAL - PHASES 2 AND 3	**638**	**0**	**472**	**0**	**80**	**340**	**0**	**0**	**0**	**240**	**320**	**320**	**36**	**2446**	**170,649.60**	**126,383.09**	**297,032.69**	**114,773.43**	**411,806.13**	**39,698.11**	**0.00**	**5,000.00**	**456,504.24**
Rounded - Use for Attach E - Fee Proposal Form															**170,650.00**	**126,383.00**	**297,033.00**	**114,773.00**	**411,806.00**	**39,698.00**	**0.00**	**5,000.00**	**456,504.00**

Profit Calculations		
Min Threshold	250,000	10%
Max Threshold	2,500,000	5%
Proposed Burdened Labor & Overhead	411,806.13	9.64%

0.1

0.0964

Seal Beach Pump Station Replacement, Project No. 3-67
Professional Design Services Agreement - Atkins
Attachment I - Cost Matrix

Task Item	Labor hours							Total Hours	Raw Labor	Fringe Costs	Burdened Labor	Overhead Cost	Burdened Labor & Overhead	Profit	Total Subs	Allowable Direct Costs	Total Fees
	Project Manager	QA/QC	Senior Engineer	Project engineer	Engineer III	CAD/BIM	Support										
Average Actual Salary	108.02	70.20	79.49	52.85	45.71	52.67	33.34			34.43%		103.28%		10.00%			
Fully Burdened Hourly Rate (includes payroll costs, OH, and Profit)																	
PHASE 2 - PRELIMINARY DESIGN																	
2.1 Not Used								0	0.00	0.00	0.00	0.00	0.00	0.00		0.00	0.00
2.2 Preliminary Design Production	24	106	198	100	128	160	16	732	45,870.04	15,793.15	61,663.18	63,685.80	125,348.98	12,534.90		250.00	138,133.87
2.3 Value Engineering Assistance	40	0	0	16	0	0	0	56	5,166.41	1,778.81	6,945.22	7,173.03	14,118.24	1,411.82		0.00	15,530.06
2.4 Not Used								0	0.00	0.00	0.00	0.00	0.00	0.00			0.00
2.5 Permitting Assistance	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00			0.00
2.6 Project Management	30	0	0	0	0	0	0	30	3,240.65	1,115.76	4,356.41	4,499.31	8,855.72	885.57			9,741.29
2.7 Risk Management	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00			0.00
2.8 PDR Production Workshops and Meetings	40	0	32	40	16	0	0	128	9,709.88	3,343.13	13,053.01	13,481.16	26,534.18	2,653.42		500.00	29,687.59
2.9 Quality Control								0	0.00	0.00	0.00	0.00	0.00	0.00			0.00
2.10 Community Outreach	0							0	0.00	0.00	0.00	0.00	0.00	0.00			0.00
Subtotal - Phase 2 - Preliminary Design	**134**	**106**	**230**	**156**	**144**	**160**	**16**	**946**	**63,986.98**	**22,030.84**	**86,017.82**	**88,839.29**	**174,857.11**	**17,485.71**	**0.00**	**750.00**	**193,092.82**
PHASE 3 - FINAL DESIGN																	
3.1 Bid Documents	8	30	88	36	26	72	0	260	16,848.96	5,801.13	22,650.10	23,393.04	46,043.14	4,604.31		250.00	50,897.45
3.2 Design Support Documentation								0	0.00	0.00	0.00	0.00	0.00	0.00			0.00
3.3 Specialty Services								0	0.00	0.00	0.00	0.00	0.00	0.00			0.00
3.4 Design Submittals								0	0.00	0.00	0.00	0.00	0.00	0.00			0.00
3.5 Bid Support Services								0	0.00	0.00	0.00	0.00	0.00	0.00			0.00
3.6 Project Management	8	0	0	0	0	0	0	8	864.17	297.54	1,161.71	1,199.82	2,361.52	236.15		100.00	2,697.68
3.7 Risk Management								0	0.00	0.00	0.00	0.00	0.00	0.00			0.00
3.8 Workshops and Meetings								0	0.00	0.00	0.00	0.00	0.00	0.00			0.00
3.9 Quality Control								0	0.00	0.00	0.00	0.00	0.00	0.00			0.00
3.10 Permitting Assistance	0	0	0	0	0	0	0	0	0.00	0.00	0.00	0.00	0.00	0.00			0.00
Subtotal - Phase 3 Final Design	**16**	**30**	**88**	**36**	**26**	**72**	**0**	**268**	**17,713.14**	**6,098.67**	**23,811.81**	**24,592.86**	**48,404.66**	**4,840.47**	**0.00**	**350.00**	**53,595.13**
TOTAL - PHASES 2 AND 3	**150**	**136**	**318**	**192**	**170**	**232**	**16**	**1214**	**81,700.11**	**28,129.51**	**109,829.63**	**113,432.15**	**223,261.77**	**22,326.18**	**0.00**	**1,100.00**	**246,687.95**
Rounded - Use for Attach E - Fee Proposal Form									**81,700.00**	**28,130.00**	**109,830.00**	**113,432.00**	**223,262.00**	**22,326.00**	**0.00**	**1,100.00**	**246,688.00**

Profit Calculations		
Min Threshold	250,000	10%
Max Threshold	2,500,000	5%
Proposed Burdened Labor & Overhead	223,261.77	10.00%

Seal Beach Pump Station Replacement, Project No. 3-67
Professional Design Services Agreement - Northwest Hydraulic Consultants
Attachment I - Cost Matrix

Task Item	Labor hours: Principal	Principal T3	Sr. Engineer 2	Project Engineer 2	Jr. Engineer	Sr. Engineering Technician	GIS Analyst 2	Sr. Laboratory Technician	Sr. Document Production /Finance		Total Hours	Raw Labor	Fringe Costs	Burdened Labor	Overhead Cost	Burdened Labor & Overhead	Profit	Total Subs	Allowable Direct Costs	Total Fees
Average Actual Salary Fully Burdened Hourly Rate (includes payroll costs, OH, and Profit)	71.86	66.99	47.39	35.02	31.48	40.33	30.46	31.00	31.57				59.98%		81.12%		10.00%			
PHASE 2 - PRELIMINARY DESIGN	Axworthy, Demlow, Fehlman , Christison	Hurtig	Blezy	Lewis	Gombert, Houston	Sampson , Reynolds	Ho	Diaz, Jomal, Moon, Lemaire, Co-op	Nissim											
2.1 Not Used											0	0.00	0.00	0.00	0.00	0.00	0.00			0.00
2.2 Preliminary Design Production											0	0.00	0.00	0.00	0.00	0.00	0.00			0.00
Physical Modeling of Pump Station	10	45			188	136	58	438	1		876	30,512.52	18,301.41	48,813.93	39,597.86	88,411.79	8,841.18		21,258.00	118,510.97
Conceptual Design Review of Pump Station (Optional)	12	6	32				6				56	2,963.50	1,777.51	4,741.01	3,845.91	8,586.91	858.69			9,445.60
Surge Analysis	34			60	90				2		186	7,440.78	4,462.98	11,903.76	9,656.33	21,560.09	2,156.01		325.00	24,041.10
Physical Modeling of Junction Box	7	41			171	112	50	294	1		676	23,818.22	14,286.17	38,104.39	30,910.28	69,014.67	6,901.47		26,658.00	102,574.14
2.3 Value Engineering Assistance											0	0.00	0.00	0.00	0.00	0.00	0.00			0.00
2.4 Not Used											0	0.00	0.00	0.00	0.00	0.00	0.00			0.00
2.5 Permitting Assistance											0	0.00	0.00	0.00	0.00	0.00	0.00			0.00
2.6 Project Management											0	0.00	0.00	0.00	0.00	0.00	0.00			0.00
2.7 Risk Management											0	0.00	0.00	0.00	0.00	0.00	0.00			0.00
2.8 PDR Production Workshops and Meetings											0	0.00	0.00	0.00	0.00	0.00	0.00			0.00
2.9 Quality Control											0	0.00	0.00	0.00	0.00	0.00	0.00			0.00
2.10 Community Outreach											0	0.00	0.00	0.00	0.00	0.00	0.00			0.00
Subtotal - Phase 2 - Preliminary Design	**63**	**92**	**32**	**60**	**449**	**248**	**114**	**732**	**4**	**0**	**1794**	**64,735.02**	**38,828.06**	**103,563.08**	**84,010.37**	**187,573.46**	**18,757.35**	**0.00**	**48,241.00**	**254,571.81**
PHASE 3 - FINAL DESIGN																				
3.1 Bid Documents											11	0.00	0.00	0.00	0.00	0.00	0.00			0.00
3.2 Design Support Documentation											12	0.00	0.00	0.00	0.00	0.00	0.00			0.00
3.3 Specialty Services											13	0.00	0.00	0.00	0.00	0.00	0.00			0.00
3.4 Design Submittals											14	0.00	0.00	0.00	0.00	0.00	0.00			0.00
3.5 Bid Support Services											15	0.00	0.00	0.00	0.00	0.00	0.00			0.00
3.6 Project Management											16	0.00	0.00	0.00	0.00	0.00	0.00			0.00
3.7 Risk Management											17	0.00	0.00	0.00	0.00	0.00	0.00			0.00
3.8 Workshops and Meetings											18	0.00	0.00	0.00	0.00	0.00	0.00			0.00
3.9 Quality Control											19	0.00	0.00	0.00	0.00	0.00	0.00			0.00
3.10 Permitting Assistance											20	0.00	0.00	0.00	0.00	0.00	0.00			0.00
Subtotal - Phase 3 Final Design	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
TOTAL - PHASES 2 AND 3	**63**	**92**	**32**	**60**	**449**	**248**	**114**	**732**	**4**	**0**	**1794**	**64,735.02**	**38,828.06**	**103,563.08**	**84,010.37**	**187,573.46**	**18,757.35**	**0.00**	**48,241.00**	**254,571.81**
Rounded - Use for Attach E - Fee Proposal Form												**64,735.00**	**38,828.00**	**103,563.00**	**84,010.00**	**187,573.00**	**18,757.00**	**0.00**	**48,241.00**	**254,571.00**

Profit Calculations		
Min Threshold	250,000	10%
Max Threshold	2,500,000	5%
Proposed Burdened Labor & Overhead	187,573.46	10.00%

Seal Beach Pump Station Replacement, Project No. 3-67
Professional Design Services Agreement - SwiftLEE Office
Attachment I - Cost Matrix

Task Item	Labor hours: Principal	Project Manager	Project Architect	Project Designer	JR. DESIGNER/ CADD	Office Manager	Administrative Support	Total Hours	Raw Labor	Fringe Costs	Burdened Labor	Overhead Cost	Burdened Labor & Overhead	Profit	Total Subs	Allowable Direct Costs	Total Fees
Average Actual Salary	70.00	63.00	61.00	35.25	31.00	45.00	31.95			9.50%		130.00%		10.00%			
Fully Burdened Hourly Rate (includes payroll costs, OH, and Profit)																	
PHASE 2 - PRELIMINARY DESIGN																	
2.1 Not Used								0	0.00	0.00	0.00	0.00	0.00	0.00			0.00
2.2 Preliminary Design Production		20	60	60	60			200	8,894.52	844.98	9,739.50	12,661.35	22,400.85	2,240.08		500.00	25,140.93
2.3 Value Engineering Assistance		16	20	20	40			96	4,172.78	396.41	4,569.19	5,939.95	10,509.15	1,050.91		250.00	11,810.06
2.4 Not Used								0	0.00	0.00	0.00	0.00	0.00	0.00			0.00
2.5 Permitting Assistance			16		16			32	1,471.95	139.84	1,611.79	2,095.32	3,707.11	370.71			4,077.82
2.6 Project Management		40						40	2,520.00	239.40	2,759.40	3,587.22	6,346.62	634.66			6,981.28
2.7 Risk Management								0	0.00	0.00	0.00	0.00	0.00	0.00			0.00
2.8 PDR Production Workshops and Meetings		20	8	8			20	56	2,669.04	253.56	2,922.60	3,799.38	6,721.98	672.20		500.00	7,894.17
2.9 Quality Control			20					20	1,220.00	115.90	1,335.90	1,736.67	3,072.57	307.26			3,379.83
2.10 Community Outreach		16						16	1,008.00	95.76	1,103.76	1,434.89	2,538.65	253.86		250.00	3,042.51
Subtotal - Phase 2 - Preliminary Design	**0**	**112**	**124**	**88**	**116**	**0**	**20**	**460**	**21,956.29**	**2,085.85**	**24,042.14**	**31,254.78**	**55,296.92**	**5,529.69**	**0.00**	**1,500.00**	**62,326.61**
PHASE 3 - FINAL DESIGN																	
3.1 Bid Documents		20	40	40	40		8	148	6,605.31	627.50	7,232.82	9,402.66	16,635.48	1,663.55			18,299.03
3.2 Design Support Documentation		20	40	40	40			140	6,349.68	603.22	6,952.90	9,038.77	15,991.67	1,599.17		500.00	18,090.84
3.3 Specialty Services								0	0.00	0.00	0.00	0.00	0.00	0.00			0.00
3.4 Design Submittals		20	40	60	60		8	188	7,930.15	753.36	8,683.52	11,288.57	19,972.09	1,997.21		500.00	22,469.30
3.5 Bid Support Services		12	32		32			76	3,699.90	351.49	4,051.39	5,266.81	9,318.21	931.82			10,250.03
3.6 Project Management		40						40	2,520.00	239.40	2,759.40	3,587.22	6,346.62	634.66			6,981.28
3.7 Risk Management								0	0.00	0.00	0.00	0.00	0.00	0.00			0.00
3.8 Workshops and Meetings		24	24	24				72	3,821.88	363.08	4,184.96	5,440.45	9,625.40	962.54		500.00	11,087.95
3.9 Quality Control		20	20					40	2,480.00	235.60	2,715.60	3,530.28	6,245.88	624.59			6,870.47
3.10 Permitting Assistance			24					24	1,464.00	139.08	1,603.08	2,084.00	3,687.08	368.71			4,055.79
Subtotal - Phase 3 Final Design	**0**	**156**	**220**	**164**	**172**	**0**	**16**	**728**	**34,870.93**	**3,312.74**	**38,183.67**	**49,638.77**	**87,822.43**	**8,782.24**	**0.00**	**1,500.00**	**98,104.68**
TOTAL - PHASES 2 AND 3	**0**	**268**	**344**	**252**	**288**	**0**	**36**	**1188**	**56,827.22**	**5,398.59**	**62,225.81**	**80,893.55**	**143,119.35**	**14,311.94**	**0.00**	**3,000.00**	**160,431.29**
Rounded - Use for Attach E - Fee Proposal Form									**56,827.00**	**5,399.00**	**62,226.00**	**80,894.00**	**143,120.00**	**14,312.00**	**0.00**	**3,000.00**	**160,432.00**

Profit Calculations		
Min Threshold	250,000	10%
Max Threshold	2,500,000	5%
Proposed Burdened Labor & Overhead	143,119.35	10.00%

Seal Beach Pump Station Replacement, Project No. 3-67
Professional Design Services Agreement - T2 UES, Inc. (Cardno)
Attachment I - Cost Matrix

Task Item	Labor hours: Project Engineer	Sr. Project Manager	Project Manager	CAD Supervisor	CAD Tech	SUE Tech (PW)	Survey Party Chief (PW)	Survey Chainman (PW)	Project Surveyor	Admin Support	SUE Manager	Total Hours	Raw Labor	Fringe Costs	Burdened Labor	Overhead	Burdened Labor & Overhead	Profit	Total Subs	Allowable Direct Costs	Total Fees
Average Actual Salary	60.00	75.00	55.00	45.00	35.00	36.89	48.86	45.78	55.00	30.00	50.00			61.22%		118.26%		10.00%			
Fully Burdened Hourly Rate (includes payroll costs, OH, and Profit)																					
PHASE 2 - PRELIMINARY DESIGN																					
2.1 Not Used												0	0.00	0.00	0.00	0.00	0.00	0.00			0.00
2.2 Preliminary Design Production	40	20	32	80	80	500	80	80	16	16	60	1004	42,436.20	25,979.53	68,415.73	80,908.44	149,324.16	14,932.42	44,000.00	18,000.00	226,256.58
2.3 Value Engineering Assistance												0	0.00	0.00	0.00	0.00	0.00	0.00			0.00
2.4 Not Used												0	0.00	0.00	0.00	0.00	0.00	0.00			0.00
2.5 Permitting Assistance												0	0.00	0.00	0.00	0.00	0.00	0.00			0.00
2.6 Project Management												0	0.00	0.00	0.00	0.00	0.00	0.00			0.00
2.7 Risk Management												0	0.00	0.00	0.00	0.00	0.00	0.00			0.00
2.8 PDR Production Workshops and Meetings												0	0.00	0.00	0.00	0.00	0.00	0.00			0.00
2.9 Quality Control												0	0.00	0.00	0.00	0.00	0.00	0.00			0.00
2.10 Community Outreach												0	0.00	0.00	0.00	0.00	0.00	0.00			0.00
Subtotal - Phase 2 - Preliminary Design	**40**	**20**	**32**	**80**	**80**	**500**	**80**	**80**	**16**	**16**	**60**	**1004**	**42,436.20**	**25,979.53**	**68,415.73**	**80,908.44**	**149,324.16**	**14,932.42**	**44,000.00**	**18,000.00**	**226,256.58**
PHASE 3 - FINAL DESIGN																					
3.1 Bid Documents												0	0.00	0.00	0.00	0.00	0.00	0.00			0.00
3.2 Design Support Documentation												0	0.00	0.00	0.00	0.00	0.00	0.00			0.00
3.3 Specialty Services												0	0.00	0.00	0.00	0.00	0.00	0.00			0.00
3.4 Design Submittals												0	0.00	0.00	0.00	0.00	0.00	0.00			0.00
3.5 Bid Support Services												0	0.00	0.00	0.00	0.00	0.00	0.00			0.00
3.6 Project Management												0	0.00	0.00	0.00	0.00	0.00	0.00			0.00
3.7 Risk Management												0	0.00	0.00	0.00	0.00	0.00	0.00			0.00
3.8 Workshops and Meetings												0	0.00	0.00	0.00	0.00	0.00	0.00			0.00
3.9 Quality Control												0	0.00	0.00	0.00	0.00	0.00	0.00			0.00
3.10 Permitting Assistance												0	0.00	0.00	0.00	0.00	0.00	0.00			0.00
Subtotal - Phase 3 Final Design	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
TOTAL - PHASES 2 AND 3	**40**	**20**	**32**	**80**	**80**	**500**	**80**	**80**	**16**	**16**	**60**	**1004**	**42,436.20**	**25,979.53**	**68,415.73**	**80,908.44**	**149,324.16**	**14,932.42**	**44,000.00**	**18,000.00**	**226,256.58**
Rounded - Use for Attach E - Fee Proposal Form													**42,436.00**	**25,980.00**	**68,416.00**	**80,908.00**	**149,324.00**	**14,932.00**	**44,000.00**	**18,000.00**	**226,256.00**

Profit Calculations		
Min Threshold	250,000	10%
Max Threshold	2,500,000	5%
Proposed Burdened Labor & Overhead	149,324.16	10.00%

ATTACHMENT “K”

MINOR SUBCONSULTANT

HOURLY RATE SCHEDULE

ATTACHMENT "K"

MINOR SUBCONSULTANT HOURLY RATE SCHEDULE

(Submit with Proposal)

Submitted By: Bluescape
(Name of Firm)

Labor Category	Hourly Rate $/hr
Senior Project Engineer/Scientist	$135
Project Manager	$175
Principal	$200

In-House Non-Labor Services	Units	Billing Rate $/unit

Instructions

1. Include one schedule per Minor Subconsultant.
2. For labor charges, list all categories that might be used on the projects, whether such hours are budgeted or not. This schedule will be the only basis for compensation of labor charges during project execution.
3. In-House Non-Labor Services are for services provided by the Minor Subconsultant, but not suitable for an hour labor rate. Examples include laboratory tests and equipment rental.
4. All charges are subject to the Allowable Direct Costs requirements included as Attachment D to the RFP.
5. Allowable Direct Costs will be compensation at actual costs incurred.

ATTACHMENT "K"

MINOR SUBCONSULTANT HOURLY RATE SCHEDULE

(Submit with Proposal)

Submitted By: Collings & Associates
(Name of Firm)

Labor Category	Hourly Rate $/hr
Principal Engineer	195
Sr. Engineer	140
Staff Engineer	115
CADD	95
Administrative / Clerical	65

In-House Non-Labor Services	Units	Billing Rate $/unit
Mileage	Per mile	0.58

Instructions

1. Include one schedule per Minor Subconsultant.
2. For labor charges, list all categories that might be used on the projects, whether such hours are budgeted or not. This schedule will be the only basis for compensation of labor charges during project execution.
3. In-House Non-Labor Services are for services provided by the Minor Subconsultant, but not suitable for an hour labor rate. Examples include laboratory tests and equipment rental.
4. All charges are subject to the Allowable Direct Costs requirements included as Attachment D to the RFP.
5. Allowable Direct Costs will be compensation at actual costs incurred.

ATTACHMENT "K"

MINOR SUBCONSULTANT HOURLY RATE SCHEDULE

(Submit with Proposal)

Submitted By: Diaz-Yourman & Associates
(Name of Firm)

Labor Category	Hourly Rate $/hr
Principal	$270
Associate II	$242
Staff II	$155
Staff I	$134
CADD	$93
Word Processor Technical Editor	$117

In-House Non-Labor Services	Units	Billing Rate $/unit
(Not Applicable)		

Instructions

1. Include one schedule per Minor Subconsultant.
2. For labor charges, list all categories that might be used on the projects, whether such hours are budgeted or not. This schedule will be the only basis for compensation of labor charges during project execution.
3. In-House Non-Labor Services are for services provided by the Minor Subconsultant, but not suitable for an hour labor rate. Examples include laboratory tests and equipment rental.
4. All charges are subject to the Allowable Direct Costs requirements included as Attachment D to the RFP.
5. Allowable Direct Costs will be compensation at actual costs incurred.

ATTACHMENT "K"

MINOR SUBCONSULTANT HOURLY RATE SCHEDULE

(Submit with Proposal)

Submitted By: GSI Environmental
(Name of Firm)

Labor Category	Hourly Rate $/hr
Project Assistant	85
Accounting Specialist	125
Researcher	150
Environmental Technician	80
Sr. Environmental Technician	95
CADD / Graphics Specialist	105
Computer Programmer	130
Data Scientist	140
GIS Specialist / Sr. Data Scientist / Sr. Programmer / Sr. Researcher	165
Engineer / Scientist / Geologist I	115
Engineer / Scientist / Geologist II	125
Engineer / Scientist / Geologist III	145
Engineer / Scientist / Geologist IV	175
Sr. Engineer / Scientist / Geologist I	185
Sr. Engineer / Scientist / Geologist II	215
Senior Associate	230
Principal	275

In-House Non-Labor Services	Units	Billing Rate $/unit
Field Vehicle	Day	120
Std. Sampling and Field Equipment	Day	80
Photoionization Detector	Day	100
Portable Generator	Day	80
Air Sampling Equipment	Day	100
Low Flow Sampling Instrumentation	Day	100
Submersible Pump	Day	200

Sampling Pumps	Day	55
Trimble T10/R1	Day	150
Level C PPE	Per Person /Day	35
Level D PPE	Day	20
HAPSITE GC/MS	Day	1000

Instructions

1. Include one schedule per Minor Subconsultant.
2. For labor charges, list all categories that might be used on the projects, whether such hours are budgeted or not. This schedule will be the only basis for compensation of labor charges during project execution.
3. In-House Non-Labor Services are for services provided by the Minor Subconsultant, but not suitable for an hour labor rate. Examples include laboratory tests and equipment rental.
4. All charges are subject to the Allowable Direct Costs requirements included as Attachment D to the RFP.
5. Allowable Direct Costs will be compensation at actual costs incurred.

ATTACHMENT "K"

MINOR SUBCONSULTANT HOURLY RATE SCHEDULE

(Submit with Proposal)

Submitted By: KW Communications
(Name of Firm)

Labor Category	Hourly Rate $/hr
Principal	$177.00
Associate	$151.00

In-House Non-Labor Services	Units	Billing Rate $/unit
Other Direct Costs	Printing, Distribution, Supplies, Etc.	Cost
Project Hotline	Monthly	$250.00

Instructions

1. Include one schedule per Minor Subconsultant.
2. For labor charges, list all categories that might be used on the projects, whether such hours are budgeted or not. This schedule will be the only basis for compensation of labor charges during project execution.
3. In-House Non-Labor Services are for services provided by the Minor Subconsultant, but not suitable for an hour labor rate. Examples include laboratory tests and equipment rental.
4. All charges are subject to the Allowable Direct Costs requirements included as Attachment D to the RFP.
5. Allowable Direct Costs will be compensation at actual costs incurred.

ATTACHMENT "K"

MINOR SUBCONSULTANT HOURLY RATE SCHEDULE

(Submit with Proposal)

Submitted By: NUVIS
(Name of Firm)

Labor Category	Hourly Rate $/hr
Senior Principal	$200
Principal	$170
Senior Associate	$155
Associate	$140
CADD Tech I	$130
CADD Tech II	$120
Administrative	$85

In-House Non-Labor Services	Units	Billing Rate $/unit

Instructions

1. Include one schedule per Minor Subconsultant.
2. For labor charges, list all categories that might be used on the projects, whether such hours are budgeted or not. This schedule will be the only basis for compensation of labor charges during project execution.
3. In-House Non-Labor Services are for services provided by the Minor Subconsultant, but not suitable for an hour labor rate. Examples include laboratory tests and equipment rental.
4. All charges are subject to the Allowable Direct Costs requirements included as Attachment D to the RFP.
5. Allowable Direct Costs will be compensation at actual costs incurred.

ATTACHMENT "K"

MINOR SUBCONSULTANT HOURLY RATE SCHEDULE

(Submit with Proposal)

Submitted By: THE PRIZM GROUP
(Name of Firm)

Labor Category	Hourly Rate $/hr
(example – Senior Engineer)	$140
(example – CAD Designer)	$95
PRINCIPAL SURVEYOR	150
ASSOCIATE SURVEYOR	100
CAD DRAFTING TECHNICIAN	100
SURVEY CREW	240

In-House Non-Labor Services	Units	Billing Rate $/unit
(example – Concrete Compression Test)	sample	$200
(example – Drilling Rig)	hours	$150

Instructions

1. Include one schedule per Minor Subconsultant.
2. For labor charges, list all categories that might be used on the projects, whether such hours are budgeted or not. This schedule will be the only basis for compensation of labor charges during project execution.
3. In-House Non-Labor Services are for services provided by the Minor Subconsultant, but not suitable for an hour labor rate. Examples include laboratory tests and equipment rental.
4. All charges are subject to the Allowable Direct Costs requirements included as Attachment D to the RFP.
5. Allowable Direct Costs will be compensation at actual costs incurred.

ATTACHMENT "K"

MINOR SUBCONSULTANT HOURLY RATE SCHEDULE

(Submit with Proposal)

Submitted By: SPEC Services Inc.
(Name of Firm)

Labor Category	Hourly Rate $/hr
Project Manager 1	$160
Project Manager 2	$189
Project Manager 3	$215
Project Controls 2	$140
Project Controls 3	$160
Project Admin Assistance	$88
Engineer 1	$118
Engineer 2	$140
Engineer 3	$160
Engineer 4	$189
Engineer 5	$215
Design 1	$96
Design 2	$110
Design 3	$130
Design 4	$144
Design 5	$158
Design 6	$171

In-House Non-Labor Services	Units	Billing Rate $/unit
CADD Charges (Software)	Hours	$10

Instructions

1. Include one schedule per Minor Subconsultant.

2. For labor charges, list all categories that might be used on the projects, whether such hours are budgeted or not. This schedule will be the only basis for compensation of labor charges during project execution.
3. In-House Non-Labor Services are for services provided by the Minor Subconsultant, but not suitable for an hour labor rate. Examples include laboratory tests and equipment rental.
4. All charges are subject to the Allowable Direct Costs requirements included as Attachment D to the RFP.
5. Allowable Direct Costs will be compensation at actual costs incurred.

ATTACHMENT "K"

MINOR SUBCONSULTANT HOURLY RATE SCHEDULE

(Submit with Proposal)

Submitted By: TRAFFIC CONTROL ENGINEERING, INC.
(Name of Firm)

Labor Category	Hourly Rate $/hr
David Kuan - Project Manager	$220
N. Kuan - Traffic Engineer	$170
F. Lu - CAD/Tech	$86

In-House Non-Labor Services	Units	Billing Rate $/unit

ATTACHMENT "K"

MINOR SUBCONSULTANT HOURLY RATE SCHEDULE

(Submit with Proposal)

Submitted By: Veneklasen Associates, Inc.
(Name of Firm)

Labor Category	Hourly Rate $/hr
Principal/Associate I	$250
Associate II	$200
Associate III	$180
Associate IV	$150
Associate V	$135
Associate VI	$115
Acoustic Modeling	$175

In-House Non-Labor Services	Units	Billing Rate $/unit

Instructions

1. Include one schedule per Minor Subconsultant.
2. For labor charges, list all categories that might be used on the projects, whether such hours are budgeted or not. This schedule will be the only basis for compensation of labor charges during project execution.
3. In-House Non-Labor Services are for services provided by the Minor Subconsultant, but not suitable for an hour labor rate. Examples include laboratory tests and equipment rental.
4. All charges are subject to the Allowable Direct Costs requirements included as Attachment D to the RFP.
5. Allowable Direct Costs will be compensation at actual costs incurred.