

ANNUAL PROFESSIONAL DESIGN SERVICES AGREEMENT

This ANNUAL PROFESSIONAL DESIGN SERVICES AGREEMENT (Agreement), to be effective this 1st day of July, 2021, is made and entered into by and between:

ORANGE COUNTY SANITATION DISTRICT
hereinafter referred to as "OC San"

AND

INFRASTRUCTURE ENGINEERING
CORPORATION
hereinafter referred to as "CONSULTANT"

individually referred to as the "Party" and collectively as the "Parties".

RECITALS

WHEREAS, in accordance with Ordinance No. OCSD-52 and pursuant to a Request for Qualifications ("Underlying RFQ"), the Board of Directors of OC San, by action on May 26, 2021, approved the award of the Agreement for **CONTRACT NO. FE21-00-10**, to CONSULTANT to provide services for selected projects on a task order (Task Order) basis from July 1, 2021 to June 30, 2022; and,

WHEREAS, consistent with the Underlying RFQ, the CONSULTANT has been prequalified to perform services for Project Type 2: Linear; and,

WHEREAS, for Task Orders estimated to cost \$25,000 or less, the Director of Engineering, with concurrence of the Purchasing Manager, may solicit a proposal from one (1) firm on the prequalified list, which will include the project types for which the consultants are prequalified; and,

WHEREAS, the CONSULTANT is qualified to provide and has agreed to provide the necessary professional engineering and related services under this Agreement; and,

WHEREAS, by this Agreement, the Parties intend to set forth the general terms and conditions that will apply to any specific project for which CONSULTANT is given a Task Order by OC San.

NOW, THEREFORE, OC San and the CONSULTANT mutually agree as follows:

SECTION 1. SCOPE OF AGREEMENT

OC San, at its sole discretion, may, from time to time during the term of this Agreement, issue a Request for Task Order Proposal ("RFTOP") setting forth the detailed requirements and scope of work to be performed on the identified project and thereafter, upon receipt of a proposal from the CONSULTANT, may issue a Task Order to proceed with the work. The scope of work will be in the form attached hereto as Attachment "A" – Sample Scope of Work.

Upon execution by OC San, the Task Order shall become an operative part of this Agreement. Should any conflict or inconsistency exist in the contract documents identified in this section, the conflict or inconsistency shall be resolved by applying the provisions in the highest priority document, which shall be determined in the following order of priority:

1. Agreement and any amendments thereto
2. the Task Order
3. the RFTOP

SECTION 2. TASK ORDER ISSUANCE BY OC SAN

The Task Order issued by OC San shall, specifically or by reference to the RFTOP and corresponding proposal, set forth the terms that will apply to the specific project for which the services will be rendered. Those terms shall include, but not be limited to, scope of work, time for performance, and compensation.

SECTION 3. TERM

This Agreement shall commence on the effective date of this Agreement and terminate on June 30, 2022, unless further extended by written agreement signed by the Parties. Any work that is required by a Task Order and is not finished by the date of termination shall be continued and completed by the CONSULTANT and the terms and conditions of this Agreement shall continue in effect for that time. OC San may, at its option, renew this Agreement for two (2) additional terms of one (1) year each, for a maximum contract duration of three (3) years.

SECTION 4. COMPENSATION

The total compensation payable to the CONSULTANT pursuant to this Agreement shall not exceed Six Hundred Thousand Dollars (\$600,000) per year in accordance with the terms described in SECTION 3 - TERM. The compensation includes, but is not limited to, fees for professional engineering services based on the CONSULTANT's burdened labor rates, overhead, and profit, and fees from the CONSULTANT's subconsultants/subcontractors (Subconsultants/Subcontractors). The specific amount of compensation payable to the CONSULTANT for services rendered on an individual project, pursuant to a Task Order, shall be established for each Task Order and shall not exceed Three Hundred Thousand Dollars (\$300,000) per individual Task Order unless authorized by OC San's Board of Directors. The CONSULTANT agrees and acknowledges that the execution of this Agreement does not in any way guarantee that a Task Order will be issued to the CONSULTANT. Moreover, execution of this Agreement shall not entitle the CONSULTANT to any form of payment or compensation from OC San without OC San first having issued a written Task Order.

A. Total Compensation

Total compensation for any Task Order shall not exceed the amount indicated in the approved Task Order and any approved amendments thereto.

B. Labor

As a portion of the total compensation to be paid to CONSULTANT, OC San 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 the project and paid to CONSULTANT's personnel. The cost of benefits for CONSULTANT and its Subconsultants/Subcontractors shall be based on the fringe rates identified in Attachment "E" – Fee Proposal. Upon request of OC San, CONSULTANT shall provide OC San with certified payroll records of all employees' work that is charged to the project.

C. Overhead

As a portion of the total compensation to be paid to CONSULTANT, OC San shall compensate CONSULTANT and its Subconsultants/Subcontractors for overhead at the rates equal to the percentage of burdened labor as specified in Attachment "E" – Fee Proposal.

D. Profit

Profit for CONSULTANT and its Subconsultants/Subcontractors shall be a percentage of the burdened salary rate and overhead rate. When the total of Burdened Labor and Overhead cost is \$250,000 or less, the Profit shall be 10% of Burdened Labor and Overhead. When the total of Burdened Labor and Overhead cost exceeds \$250,000, the maximum Profit shall be limited by a straight declining percentage between 10% and 5%. Such profit percentages shall remain fixed through the term of this Agreement, inclusive of any renewals identified in Section 3 – TERM.

As a portion of the total compensation to be paid to CONSULTANT and its Subconsultants/Subcontractors, OC San shall pay profit for all services rendered by CONSULTANT and its Subconsultants/Subcontractors for the project as specified in the previous paragraph.

E. Direct Costs

OC San shall reimburse CONSULTANT and its Subconsultants/Subcontractors the actual costs of permits and associated fees, travel, licenses, and other services in an amount not to exceed the sums set forth in each approved Task Order. OC San shall also pay to CONSULTANT actual costs for equipment rentals, leases or purchases with prior written approval of OC San. Upon request, CONSULTANT shall provide to OC San receipts and other documentary records to support CONSULTANT's request for reimbursement of these amounts, refer to Attachment "D" – Allowable Direct Costs. All incidental expenses shall be included in the overhead cost pursuant to this SECTION 4 – COMPENSATION.

F. Other Direct Costs

OC San will reimburse the CONSULTANT for Other Direct Costs incurred by CONSULTANT and its Subconsultants/Subcontractors due to modifications in the scope of work resulting from field investigations and field work required by the Task Order. 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.

G. Reimbursable Direct Costs

OC San will reimburse the CONSULTANT for reasonable travel and business expenses as described in this section and further described in Attachment "D" – Allowable Direct Costs. The reimbursement of the above-mentioned expenses will be based on an "accountable plan" as considered by the Internal Revenue Service (IRS). The plan includes a combination of reimbursements based upon receipts and a "per diem" component approved by the IRS. The most recent schedule of the per diem rates utilized by OC San may be found on the U.S. General Services 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. OC San 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 OC San any excess reimbursements after the reimbursement has been paid by OC San.

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

Local travel is considered travel by the CONSULTANT within OC San 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 a personal vehicle for local travel.

Lodging – Overnight stays will not be approved by OC San for local travel. However, under certain circumstances overnight stay may be allowed at the discretion of OC San 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 OC San.

Travel Meals – Per diem rates as approved by the 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 Attachment "D" – Allowable Direct Costs.

H. 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 Task Order, including any approved additional compensation, CONSULTANT shall notify OC San immediately, in writing. The 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 OC San'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 OC San that the services cannot be completed within the authorized not to exceed amount of a Task Order is a material breach of this Agreement.

I. Method of Payment:

The CONSULTANT shall submit for approval by OC San, monthly invoices based on the total services which have been satisfactorily completed and specifying a percentage of completion. The CONSULTANT's billings shall be certified for payment by OC San only after OC San has determined that the CONSULTANT has completed each applicable project task.

CONSULTANT shall submit separate invoices for each Task Order on a monthly basis.

CONSULTANT understands that submitted costs are subject to Section 11 - AUDIT PROVISIONS, below.

J. Task Order Completion

Upon satisfactory completion by CONSULTANT of the work called for under the terms of the Task Order and upon acceptance of such work by OC San, CONSULTANT will be paid the unpaid balance of any money due for such work.

Upon satisfactory completion of the work performed under each Task Order and prior to final payment under each Task Order for such work or prior settlement upon termination of this Agreement, and as a condition precedent thereto, CONSULTANT shall execute and deliver to OC San a release of all claims against OC San 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.

K. False Claims

Pursuant to the California False Claims Act (Government Code Sections 12650-12655), any CONSULTANT that knowingly submits a false claim to OC San 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/Subcontractors.

The CONSULTANT or its Subconsultants/Subcontractors shall be deemed to have submitted a false claim when the CONSULTANT or its Subconsultants/Subcontractors: (a) knowingly presents or causes to be presented to an officer or employee of OC San 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 OC San; (c) conspires to defraud OC San by getting a false claim allowed or paid by OC San; (d) knowingly makes, uses, or causes to be made or used a false record or statement to conceal, avoid, or decrease an obligation to OC San; or (e) is a beneficiary of an inadvertent submission of a false claim to OC San and fails to disclose the false claim to OC San within a reasonable time after discovery of the false claim.

L. California Department of Industrial Relations (DIR) Registration and Record of Wages:

To the extent the CONSULTANT's employees and/or its Subconsultants/Subcontractors who will perform work during the design, preconstruction, and construction 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 its Subconsultants/Subcontractors 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.

The CONSULTANT and its Subconsultants/Subcontractors 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 Labor Code section 1776 may be deducted from progress payments per Labor Code section 1776.

Pursuant to Labor Code section 1776, the CONSULTANT and its Subconsultants/Subcontractors shall furnish a copy of all certified payroll records to OC San and/or general public upon request, provided the public request is made through OC San, the Division of Apprenticeship Standards or the Division of Labor Standards Enforcement of the DIR.

The CONSULTANT and its Subconsultants/Subcontractors shall comply with the job site notices posting requirements established by the Labor Commissioner per Title 8, California Code of Regulations section 16461(e).

M. Record of Expenses:

The CONSULTANT shall keep complete and accurate records of all costs and expenses incidental to services covered by this Agreement. Such records will be made available to OC San upon request.

N. Reallocation of Total Compensation:

OC San, by its Director of Engineering, shall have the right to approve a reallocation of the incremental amounts constituting the total compensation payable under the Task Order, provided that the total compensation for the Task Order is not increased.

SECTION 5. LIMITATIONS UPON SUBCONTRACTING AND ASSIGNMENT

The CONSULTANT shall not contract with any other person or entity to perform the services required without the written approval of OC San. This Agreement may not be assigned voluntarily or by operation of law without the prior written approval of OC San. If the CONSULTANT is permitted to subcontract any part of this Agreement by OC San, the CONSULTANT shall be responsible to OC San for the acts and omissions of its Subconsultant/Subcontractor, as it is for persons directly employed by the CONSULTANT. Nothing contained in this Agreement shall create any contractual relationship between any Subconsultant/Subcontractor and OC San. All persons engaged in the work will be considered employees of the CONSULTANT. OC San will deal directly with and will make all payments to the CONSULTANT.

SECTION 6. CHANGES TO SCOPE OF WORK

In the event of a change in the scope of work as requested by OC San or any other changes to the Task Order, the Parties shall execute an amendment to the Task Order setting forth with particularity all new terms of the Task Order, including, but not limited to, any additional compensation.

SECTION 7. DOCUMENT OWNERSHIP – CONSULTANT PERFORMANCE

- A. All documents in all forms (electronic, paper, etc.), including, but not limited to, studies, sketches, drawings, computer printouts, disk files, and electronic copies prepared in connection with or related to the scope of work shall be the property of OC San. OC San'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. OC San's 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 services are satisfied by the completion of the Agreement or are terminated in accordance with other provisions of this Agreement. Notwithstanding any other provision of this section 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 deliverables 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.
- C. Copies of Work Product

Upon completion of the work required for each Task Order, the CONSULTANT shall deliver to OC San the number of copies specified in the specific Task Order scope of work of the final report containing the CONSULTANT's findings, conclusions, recommendations, and all supporting documentation and/or final design drawings and specifications. Each Task Order will define the requirements for the deliverables.

SECTION 8. INSURANCE

- A. General:
- i. Insurance shall be issued and underwritten by insurance companies acceptable to OC San.
 - 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, OC San will accept State Compensation Insurance Fund for the required policy of Worker's Compensation Insurance subject to OC San's option to require a change in insurer in the event the State Fund financial rating is decreased below "B". Further, OC San 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 OC San 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 Four Million Dollars (\$4,000,000) aggregate. If aggregate limits apply separately to this Agreement (as evidenced by submission of ISO form CG 25 03 or CG 25 04), then the aggregate limit may be equivalent to the per occurrence limit. 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 OC San 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 automobile 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 automobile liability.

D. Automobile Liability Insurance:

The CONSULTANT shall maintain a policy of Automobile 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 One Million Dollars (\$1,000,000) or alternatively, Five Hundred Thousand Dollars (\$500,000) per person for bodily injury, One Million Dollars (\$1,000,000) per accident for bodily injury, and Five Hundred Thousand Dollars (\$500,000) 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 the CONSULTANT in the amount of One Million Dollars (\$1,000,000) in a form acceptable to OC San.

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 OC San. A statement on an insurance certificate will not be accepted in lieu of the actual endorsements unless the insurance carrier is the State of California Insurance Fund and the identifier "SCIF" and applicable endorsements 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:

The CONSULTANT shall maintain in full force and effect, throughout the term of this Agreement, standard industry form professional liability/errors and omissions insurance coverage with coverage limits of not less than Two Million Dollars (\$2,000,000) 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, the CONSULTANT shall obtain continuing insurance coverage for the prior acts or omissions of the CONSULTANT during the course of performing services under the terms 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 or omissions of the CONSULTANT during the course of performing services under the terms of this Agreement.

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

- Certificate of Insurance ACORD Form 25 or other equivalent Certificate of Insurance form
- Additional Insurance (General Liability) The combination of (ISO Forms) CG 2010 and CG 2037

All other Additional Insured endorsements must be submitted for approval by OC San and OC San may reject alternatives that provide different or less coverage to OC San.
- Additional Insured (Auto Liability) Submit Endorsement provided by carrier for OC San's approval.
- Waiver of Subrogation Submit workers' compensation waiver of subrogation endorsement provided by carrier for OC San's approval.
- Cancellation Notice No endorsement is required. However, Vendor/Contractor is responsible for notifying OC San of any pending or actual insurance policy cancellation, as described in Article I. Cancellation and Policy Change Notice below.

I. Cancellation and Policy Change Notice:

The CONSULTANT is required to notify OC San in writing of any insurance cancellation notice it receives or other knowledge of pending or actual insurance policy cancellation, within two (2) working days of receipt of such notice or acquisition of such knowledge. Additionally, the CONSULTANT is required to notify OC San in writing of any change in the terms of insurance, including reduction in coverage or increase in deductible/SIR, within two (2) working days of receipt of such notice or knowledge of same.

Said notices shall be mailed to OC San at:

ORANGE COUNTY SANITATION DISTRICT
 10844 Ellis Avenue
 Fountain Valley, CA 92708
 Attention: Contracts, Purchasing & Materials Management Division

J. Primary Insurance:

All liability policies shall contain a Primary and Non-Contributory Clause. Any other insurance maintained by OC San shall be excess and not contributing with the insurance provided by the 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 the 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 OC San on the Certificate of Insurance. All deductibles and/or self-insured retentions require acceptance by OC San. At the option of OC San, either: a) the insurer shall reduce or eliminate such deductible or self-insured retention as respects OC San or b) the CONSULTANT shall provide a financial guarantee satisfactory to OC San 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/Subcontractors:

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

P. Limits Are Minimums:

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

SECTION 9. PROJECT TEAM AND SUBCONSULTANTS

CONSULTANT shall provide to OC San, prior to execution of a Task Order, the names and full descriptions of all Subconsultants/Subcontractors and CONSULTANT's project team members anticipated to be used in performing work under a Task Order. In its proposal, CONSULTANT shall include a description of the work and services to be performed by each Subconsultant/Subcontractor and each of CONSULTANT's project team members. CONSULTANT shall include the respective compensation amounts for CONSULTANT and each Subconsultant/Subcontractor broken down as indicated in Section 4 – COMPENSATION, above.

There shall be no substitution of the listed Subconsultants/Subcontractors and CONSULTANT's project team members without prior written approval by OC San.

SECTION 10. ENGINEERING REGISTRATION

The CONSULTANT's personnel and its Subconsultants/Subcontractors shall be 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 when 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 who are registered in the State of California.

SECTION 11. AUDIT PROVISIONS

- A. OC San 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 OC San determines are necessary to discover and verify that the CONSULTANT is in compliance with all the requirements under this Agreement. The CONSULTANT shall include OC San's right as described above in any and all of their subcontracts and shall ensure that these rights are binding upon all its Subconsultants/Subcontractors.
- B. OC San retains the right to examine CONSULTANT's books, records, documents, and any other evidence of procedures and practices that OC San 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 the requirements under this Agreement during the term of this Agreement and for a period of three (3) years after expiration or earlier termination of the Agreement.
- C. The CONSULTANT shall maintain complete and accurate records in accordance with generally accepted industry standard practices and OC San's policy. The CONSULTANT shall make available to OC San for review and audit all project-related accounting records and documents and any other financial data within fifteen (15) days after receipt of notice from OC San. Upon OC San's request, the CONSULTANT shall submit exact duplicates of originals of all requested records to OC San. If an audit is performed, the CONSULTANT shall ensure that a qualified employee of the CONSULTANT will be available to assist OC San's auditor in obtaining all project related accounting records and documents and any other financial data.

SECTION 12. LEGAL RELATIONSHIP BETWEEN PARTIES

The legal relationship between the Parties is that of an independent contractor and nothing herein shall be deemed to transform the CONSULTANT, its staff, independent contractors, or its Subconsultants/Subcontractors, into agents or employees of OC San and shall obtain no rights to any benefits which accrue to OC San's employees. CONSULTANT's staff performing services under the Agreement shall at all times be employees and/or independent contractors of the CONSULTANT. The CONSULTANT shall monitor and control its staff and wages, salaries, and other amounts due directly to its staff in connection with the Agreement. The CONSULTANT shall be responsible for hiring, review, and termination of its staff and shall be accountable for all reports and obligations respecting them, such as social security, income tax withholding, unemployment compensation, workers' compensation insurance, and similar matters.

SECTION 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.

Notice shall be mailed to OC San at:

ORANGE COUNTY SANITATION DISTRICT
10844 Ellis Avenue, Fountain Valley, CA 92708
Attention: Ludwig Lapus, Senior Contracts Administrator
Copy: Jeff Mohr, Engineering Manager

Notice shall be mailed to CONSULTANT at:

INFRASTRUCTURE ENGINEERING CORPORATION
300 Spectrum Center Drive, Suite 400, Irvine, CA 92618
Attention: Sarita Lemons

All communication regarding the Task Order will be addressed to the Project Manager. Direction from other OC San staff must be approved in writing by OC San's Project Manager prior to action from the CONSULTANT.

SECTION 14. TERMINATION

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

The CONSULTANT shall be permitted to terminate this Agreement upon thirty (30) days written notice only if the 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 OC San at the address listed in Section 13 – NOTICES, above.

SECTION 15. COMPLIANCE

The 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.

The CONSULTANT shall comply with all applicable laws, ordinances, codes, and regulations of Federal, State, and local government in all aspects related to this Agreement and any work completed for OC San.

SECTION 16. AGREEMENT EXECUTION AUTHORIZATION

Both OC San and the CONSULTANT do covenant that each individual executing this document by and on behalf of each Party is a person duly authorized to execute this Agreement for that Party.

SECTION 17. 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.

SECTION 18. ATTORNEY’S FEES, COSTS, AND NECESSARY DISBURSEMENTS

If any action at law or inequity or if any proceeding in the form of an Alternative Dispute Resolution 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.

SECTION 19. 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, OC San informs the CONSULTANT that any part of the services fails to meet those standards, the CONSULTANT shall, within the time prescribed by OC San, take all such actions as are necessary to correct or complete the noted deficiency(ies).

SECTION 20. INDEMNIFICATION

To the fullest extent permitted by law, the CONSULTANT shall indemnify, defend (at the CONSULTANT’s sole cost and expense and with legal counsel approved by OC San, which approval shall not be unreasonably withheld), protect and hold harmless OC San and all of OC San’s officers, directors, employees, consultants, 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 OC San’s general and administrative expenses) individually, a “Claim” and 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 the CONSULTANT in carrying out its obligations under this Agreement to the extent of the negligent, recklessness, and/or willful misconduct of the CONSULTANT, its principals, officers, agents, employees, CONSULTANT’s suppliers, 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 the 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 the CONSULTANT's supplier, Subconsultant, Subcontractor, nor anyone employed directly or indirectly by any of them.

Exceptions (A) through (B) above shall not apply, and the 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.

The CONSULTANT's liability for indemnification hereunder is in addition to any liability the CONSULTANT may have to OC San for a breach by the 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 the CONSULTANT's indemnification obligation or other liability hereunder. The terms of this Agreement are contractual and the result of negotiation between the Parties. 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.

SECTION 21. 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 the 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 the CONSULTANT. Payment to the 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 OC San will reimburse the CONSULTANT for the reasonable costs of defending the Indemnified Parties against such Claims.

The 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.

SECTION 22. COMPLIANCE WITH OC SAN POLICIES AND PROCEDURES

The CONSULTANT shall be required to comply with all OC San policies and procedures. OC San requires the CONSULTANT and its Subconsultants/Subcontractors to follow and ensure their employees follow all Federal, State, and local regulations as well as OC San's safety standards while working at OC San locations. If during the course of the contract it is discovered that OC San's safety standards do not comply with Federal, State, or local regulations, then the CONSULTANT is required to follow the most stringent regulatory requirement at no additional cost to OC San. The CONSULTANT, and all of its employees and Subconsultants/Subcontractors, shall adhere to all applicable Contractor Safety Standards attached hereto as Attachment "L".

SECTION 23. GOVERNING LAW

This Agreement shall be governed by and interpreted under the laws of the State of California and the Parties submit to jurisdiction in Orange County in the event any action is brought in connection with this Agreement or the performance thereof.

SECTION 24. TIME OF ESSENCE

Time is of the essence in the performance of this Agreement.

SECTION 25. CONFLICT OF INTEREST

The CONSULTANT covenants that it presently has no interest and shall not acquire any interest, direct or indirect, which would conflict in any manner or degree with the performance of the services contemplated by this Agreement. No person having such interest shall be employed by or associated with the CONSULTANT.

SECTION 26. 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 hereof.

IN WITNESS WHEREOF, this Agreement has been executed in the name of OC San and the CONSULTANT by their respective duly authorized officers.

INFRASTRUCTURE ENGINEERING CORPORATION

By _____
Date _____

Printed Name & Title

ORANGE COUNTY SANITATION DISTRICT

By _____
David John Shawver
Board Chairman
Date _____

By _____
Kelly A. Lore
Clerk of the Board
Date _____

By _____
Ruth Zintzun
Purchasing & Contracts Manager
Date _____

- Attachments: Attachment "A" – Sample 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" – Not Used
Attachment "J" – Not Used
Attachment "K" – Not Used
Attachment "L" – Contractor Safety Standards

ATTACHMENT “A”

SAMPLE SCOPE OF WORK

ATTACHMENT A

SCOPE OF WORK

CENGEN COOLING WATER PIPE REPLACEMENT AT PLANT NO. 2

Project No. FE20-04

I. SUMMARY

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

- o Engineering Studies (Not included in this Agreement)
- o Preliminary Design Report
- o Permitting Assistance (Not included in this Agreement)
- o Preparation of Bid Documents
- o Services during Construction
- o Commissioning Services (Not included in this Agreement)
- o Closeout Services

II. BACKGROUND, GENERAL PROJECT DESCRIPTION, AND PROJECT ELEMENTS

The Central Power Generation System (Cengen) at Plant No. 2 was constructed by project J-19-2 in the early 1990's. The system provides the second level of power for the plant and requires cooling water to operate. The cooling water is highly corrosive and is causing the existing metallic piping to develop leaks. This project will replace the existing Cengen cooling water piping.

PROJECT ELEMENTS

Project Element 1 - Cooling Water Pipe Replacement

Replace the existing Cengen cooling water loop piping and associated valves and appurtenances. The existing piping is ductile iron in a variety of sizes and connection types (welded, flanged, and Victaulic). The approximate lengths of pipe to be replaced are provided in Table 1. The existing pipes are supported on steel brackets which in some cases support other pipelines.

Table 1 – Pipe Quantities	
Pipe Diameter (in)	Approximate Pipe Length (ft)
6	350
8	450
10	600

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

- New pipe will be fiberglass reinforced pipe (FRP), or glass reinforced pipe (GRP) based on a performance-based specification.
- Design for thermal expansion and contraction.
- Provide typical joint restraints and pipe supports. Utilize existing pipe supports when feasible. Install new supports when necessary.
- Design cleanouts and air release/air vacuum assemblies, and shutoff valves.
- Construction should be phased so that a minimum of three Cengen engines must be in service at all times.

See Exhibits 13.1 and 13.2 for pictures and record drawings.

III. PROJECT SCHEDULE

Table 1 lists the time frames associated with each major project deliverables along with OCSD’s review and approval periods. CONSULTANT shall comply with the deadlines indicated in this table.

Table 1 – Project Milestones and Deadlines	
MILESTONE	DEADLINE
Kickoff Meeting	The kickoff meeting will be scheduled to coincide with the Project Notice to Proceed (NTP).
Preliminary Design Report (PDR)	50 workdays from Preliminary Design Phase NTP
OCSD Review of PDR	10 workdays from receipt of PDR
Submit Design Submittal 3 (DS3)	80 workdays from approval of PDR
OCSD Review of DS3	20 workdays from receipt of DS3
Submit Final Design Submittal (FDS)	20 workdays from receipt of OCSD comments on DS3
OCSD Review of FDS	15 workdays from receipt of FDS
Submit Final Technical Specifications and Plans	10 workdays from receipt of OCSD comments on FDS.

For construction, commissioning, and closeout phase services shall be provided per the construction contract schedule, and the following schedule constraints:

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Table 2 – Construction Phase Milestones and Deadlines	
Task(s)	Period of Performance
Submittals	As described under task titled “Task 4.1 Submittal Reviews”
Requests for Information	As described under task titled “Task 4.2 Requests for Information (RFIs)”
Record Drawings	Draft Record Drawings shall be submitted to OCSD within 4 weeks of receipt from OCSD of the approved Contractor’s As-Built drawings. The Final Record Drawings shall be submitted within 1 week of receipt of OCSD comments on the Draft Record Drawings.

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

IV. PROJECT EXECUTION

Provide the following engineering services.

PHASE 1 – PROJECT DEVELOPMENT (NOT IN THIS SCOPE OF WORK)

PHASE 2 – PRELIMINARY DESIGN DOCUMENTS

TASK 2.1 – PRELIMINARY DESIGN REPORT

- 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, footprints, and utility connection locations should be well established. The extent of the design and the number and type of drawings should also be established.
- The report shall identify any equipment 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.

TASK 2.1.1 – REPORT CONTENT

The CONSULTANT shall prepare a preliminary design report that includes the following material:

- Summary of key constructability and construction sequencing constraints including conceptual layouts for any temporary bypass piping necessary for construction.
- Develop process flow schematic of the components of the plant water system at Plant No. 2 that impact the pipelines being replaced.

- Field verify sizes, lengths, and alignments in the field. Alignment of new pipe might not be able to follow existing alignment. Any new alignments should be kept as close to the existing alignment as feasible and documented in the PDR. Identify all locations where the existing alignment is not feasible.
- Identify the quantity and location of pipe supports necessary.
- Perform utility research, field investigations and staff interviews, and complete exhibits and drawings as necessary to develop alignment alternatives and reach agreement with OCSD for preferred alignment.
- All meeting, workshop, and field walk notes.

Preliminary Design Construction Cost Estimate

The CONSULTANT shall prepare an AACE International Class 4 cost estimate per OCSD's Engineering Design Guidelines, Chapter 01. Data used to prepare the cost estimate shall be included as an attachment to the PDR.

TASK 2.2 – PRELIMINARY DESIGN MEETINGS

CONSULTANT shall hold meetings necessary for the completion of the work. Assume a minimum of three meetings/workshops with a duration of two hours each.

TASK 2.3 - QUALITY CONTROL

CONSULTANT shall provide Quality Assurance and Quality Control of the work. Provide documentation upon request.

TASK 2.4 – PDR SUBMITTAL REVIEW

See Task 3.4 – Design Submittal Review for details.

PHASE 3 – DESIGN

CONSULTANT shall be responsible for managing CONSULTANT's project execution, schedule, budget, subconsultants, and coordination with other projects. CONSULTANT shall hold meetings and workshops throughout the project to keep OCSD apprised 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. In addition, provide the following services during design phase.

TASK 3.1 - BID DOCUMENTS

CONSULTANT shall provide engineering services to prepare biddable plans, technical specifications, and other Bid Documents as required. The CONSULTANT shall prepare construction drawings required for the work in CAD. Utilize CAD drawings provided by

OCSD. CONSULTANT shall provide Construction Cost Estimates with DS3. Show all utilities impacting the work. Make submittals in Bluebeam and respond to OCSD comments in Bluebeam.

Where possible, piping plans and sections shall be based on existing record drawings. CONSULTANT shall utilize existing record drawings as screened base layers to depict the demolition and installation work.

TASK 3.2 – DESIGN SUBMITTAL REVIEW

The draft PDR and final PDR shall be submitted in searchable PDF format with no hard copy. Drawings shall be submitted as a single compiled file, except where the size of the file would exceed 100 MB, in which case the drawings should be separated into separate files by discipline. The PDF files shall be named to include the project number, the name of the deliverable (e.g. Draft PDR, DS3, etc.), the volume, and the content. In cases where drawings are divided into separate PDF files by discipline, a number or letter shall be included in the file name so that the files are listed in the same order as the List of Drawings (this includes the PDR developed P&IDs, single-line drawings, plan drawings, etc.).

OCSD has standardized on the use of Bluebeam Revu for reviewing and providing comments to PDF files. The purpose of the studio session is to provide review and collaboration. OCSD staff will create the Bluebeam studio session, invite attendees, configure, and manage the Studio session. Make drawing submittals in Bluebeam and respond to OCSD comments in Bluebeam.

Specifications will be provided as Microsoft Word (MS-Word) files hosted in Microsoft Teams (MS-Teams). Make specification revisions and respond to OCSD comments using MS-Word in MS-Teams. 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. “Resolve” will be used by the reviewer or designee to confirm their comment has been addressed.

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 Bid Documents. No unaddressed comments or revisions shall remain in the Bid Documents.

For more information see Exhibits 14, 15, and 16.

TASK 3.3 - QUALITY CONTROL

Provide Quality Assurance and Quality Control of the work. Provide documentation upon request.

TASK 3.4 - BID SUPPORT SERVICES

CONSULTANT shall provide answers to bidder's questions related to the design. Provide revisions to specifications and drawings when needed for addendum.

PHASE 4 – CONSTRUCTION SERVICES

OCSD will administer and provide field inspection for construction contracts. Construction and installation support services shall be provided by the CONSULTANT as indicated below.

TASK 4.1 – SUBMITTAL REVIEWS

OCSD will manage submittal review. The CONSULTANT shall use PMWeb to review and return comments to OCSD. Return comments within one week.

TASK 4.2 – REQUESTS FOR INFORMATION (RFI'S)

OCSD will manage the processing of RFI's. When requested by OCSD, CONSULTANT shall return written responses to OCSD within five calendar days of receipt of RFI using PMWeb. CONSULTANT shall generate necessary sketches, figures, and modifications to the drawings for clarification.

PHASE 5 – COMMISSIONING SERVICES (NOT USED)

PHASE 6 – CLOSEOUT

CONSULTANT shall verify that the Contractor's As-Built set correctly reflects the information included in the approved shop drawings, RFIs, approved Field Change Orders, plan clarifications, plan changes, and other deviations from the conformed drawings, and that the information in the set is complete.

CONSULTANT shall prepare Draft Record Drawings based on the Final Field Markup Set for all drawings in accordance with the requirements in the CAD Manual. The CONSULTANT shall submit the Draft Record Drawings to the OCSD Resident Engineer. The Draft Record Drawings will be reviewed for content and CAD compliance by OCSD staff. If no comments are identified, CONSULTANT shall prepare the Final Record Drawings and submit them along with the Contractor's field markup set to the Project Manager. All record drawings shall contain a stamp indicating:

Record Drawings

These record drawings have been prepared based on information provided by others. The Engineer has not verified the accuracy of this information and shall not be responsible for any errors or omissions which may be herein as a result.

The stamp shall optimally be placed in the bottom right-hand corner of the border and may be included via x-ref. If importing the stamp via x-ref interferes with content in the bottom right-hand corner, the stamp may also be placed in other open space along the bottom of the border. In addition, a note shall be placed over the engineer's seal stating that "This drawing was originally approved for construction by [name of engineer] on [date] and sealed by [name of engineer] a licensed professional engineer in the State of California No. [License number] ".

CONSULTANT shall submit an electronic copy of the record drawings to OCSD for review and approval. The acceptance of the record drawings shall be deemed a condition for completion of work.

Contractor-generated drawings described in the Design Guidelines and the shop drawings will not be updated by CONSULTANT. The format and quantities for delivery of the submittals shall be listed below:

Contents	Draft Record Drawings	Final Record Drawings
All related electronic files, including CAD and compiled PDFs	One copy to be uploaded to Microsoft Teams	One copy to be uploaded to Microsoft Teams

V. STAFF ASSISTANCE

OCSD staff member or designee assigned to work with CONSULTANT on the design of this project is Andrew Brown. Phone (714) 599-3397, e-mail abrown@ocsd.com.

EXHIBITS:

Exhibits 1-12 – Not Used

Exhibit 13 Project Reference Material

- 13.1 – Project Maps and Photos
- 13.2 – Record Drawings

Exhibit 14 – BlueBeam Designer Training for Submission

Exhibit 15 – BlueBeam Designer User Training

Exhibit 16 – Spec Review using Microsoft Word and Teams

AB:dm

ATTACHMENT A

SCOPE OF WORK

[Project Title]

Project No. []

1. PROJECT REQUIREMENTS

SUMMARY

1.0.1 PROFESSIONAL DESIGN ENGINEERING SERVICES

- 1.0 A. Provide professional design engineering services for the project described herein including the following:
1. Engineering studies **[(Not included in this Agreement)]**
 2. Preliminary Design Report
 3. Environmental documentation services **[(Not included in his Agreement)]**
 4. Permitting assistance **[(Not included in this Agreement)]**
 5. Preparation of bid documents
 6. Commissioning services **[(Not included in this Agreement)]**
 7. Closeout services **[(Not included in this Agreement)]**

1.1 BACKGROUND AND GENERAL PROJECT DESCRIPTION

A. [The existing Headworks at Plant No. 2 has been expanded and modified by more than 40 different projects over the past 30 years. There are a number of Headworks components requiring major rehabilitation, replacement, automation, and safety/seismic upgrades. A Preliminary Engineering Report was prepared in 2000 to evaluate the condition of the existing Headworks and determine if was more technically and economically feasible to replace rather than upgrade the existing Headworks. The Report recommended that new Headworks be built at Plant No. 2 to handle flows through the year 2020.]

- 1.2 B. [The new Headworks at Plant No. 2 will have a rated capacity of 340 mgd and will be located in the area currently occupied by the sludge drying beds. Once the new Headworks is constructed and in operation, the existing Headworks B and C will be demolished. Associated electrical equipment located in Power Buildings A and B will also be demolished. Any instrumentation that currently sends information to the Headworks PLCs will need to be relocated in PLCs in another area before the existing Headworks is demolished. In addition, any piping that passes through the existing Headworks will need to be rerouted as part of this project.]

DESCRIPTION OF PROJECT ELEMENTS

Detailed descriptions of the Project Elements are presented below.

1.2.1 PROJECT ELEMENT 1 – [DIVERSION STRUCTURE]

- A. [The Diversion Structure shall be a reinforced concrete structure with gates to allow flow from an influent trunk to be diverted to the adjacent meter(s). This structure includes stop logs and plates to allow gate maintenance.]
- B. [Assumptions for Level of Effort
1. The structure will be cast-in-place concrete with a concrete cover.
 2. The concrete cover will support a one-room, single story concrete block building to house future electrical and control equipment. The concrete cover shall house 6 conduits to supply power and control to the future electrical building.
 3. Access to the bottom of the Diversion Structure will be provided by a staircase to a lower level.]
 4. [Temporary odor control facilities and temporary piping is needed to phase the replacement of the utilities in the tunnels.]
 5. [Coordinate with SP-166, Odor Control Master Plan. This study will evaluate odor control requirements and the costs of different levels of service at both plants. The conclusions of this study may have a significant impact on temporary odor control facilities. The Consultant shall coordinate with each project and incorporate work restrictions and requirements in the design documents]

PROJECT SCHEDULE

1.3 1.3.1 GENERAL

A. 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.

B. The time frames specified below are used to estimate the actual milestone dates based on the assumed NTP date, as shown in **Exhibit 8 - Project Schedule Calculation**.

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

PROJECT MILESTONE AND DEADLINES	
MILESTONE	DEADLINE
Kickoff Meeting	The kickoff meeting will be scheduled to coincide with the Preliminary Design NTP.
Preliminary Design NTP	
Submit draft Preliminary Design Report (PDR)	[80] 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.
OCSD Review of draft PDR	[10] workdays from receipt of Draft PDR
Submit final Preliminary Design Report	[10] workdays from receipt of OCSD comments on Draft PDR.
Final Design Notice to Proceed	CONSULTANT's schedule shall allow [10] working days from submittal of the final PDR to receipt of the Design Phase NTP.
Submit Design Submittal 3 (DS3)	[80] workdays from receipt of OCSD comments on DS2.
OCSD Review of DS3	[20] workdays from receipt of DS3

PROJECT MILESTONE AND DEADLINES	
MILESTONE	DEADLINE
Submit Final Design Submittal (FDS)	[10] 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	[10] workdays from receipt of FDS
Final Technical Specifications and Plans	[5] workdays from receipt of OCSD comments on FDS.

D. For construction, commissioning, and closeout phase services, services shall be provided per the construction contract schedule, and the following schedule constraints:

CONSTRUCTION, COMMISSIONING AND CLOSEOUT SCHEDULE CONSTRAINTS	
TASK(S)	PERIOD OF PERFORMANCE
Submittals	As described under task titled "Submittals"
Requests for Information	As described under task titled "Requests for Information (RFIs)"
Record Drawings	Draft Record Drawings shall be submitted to OCSD within 4 weeks of receipt from OCSD of the approved Contractor's As-Built drawings. The Final Record Drawings shall be submitted within 1 weeks of receipt of OCSD comments on the Draft Record Drawings.

2. PHASE 2 – PRELIMINARY DESIGN

2.0 PRELIMINARY DESIGN PRODUCTION

2.0.1 GENERAL

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

2.0.2 DESIGN MEMOS

A. The CONSULTANT shall produce Design Memos as indicated below in accordance with **Exhibit 1 - Preliminary Design Report Requirements**. The CONSULTANT shall discuss the combining of design memos with OCSD and develop a design memo submittal list.

- Process Design Configuration**
 - Design Configuration
 - Redundancy
 - Monitoring and Sampling
 - Process Flow Diagrams
 - Site and Facility Layouts
 - Preliminary Load Criticality Ranking Table
- Hydraulic Analysis**
 - [Limits of Modeling: ...]**
 - Hydraulic Analysis
 - Hydraulic Profile
- Demolition**
 - Describe Demolition Requirements
 - Demolition List
 - Demolition Plans

- Demo EID
- Rehabilitation Requirements**
- Geotechnical Data Report**
 - Review of Existing Data - Preliminary Geotechnical Report
 - Geotechnical Data Report and Recommendations
- Civil Design Parameters**
 - General Civil
 - Drainage Requirements
 - Corrosion Protection Requirements
- Utility Requirements**
- Structural Design Parameters**
- Architectural Design Parameters**
 - Note: Develop up to **[three]** alternative concepts for review and acceptance
- Process Mechanical Design Parameters**
- Building Mechanical Design Parameters**
- Fire Protection**
 - Fire Protection Requirements
 - Fire Water Flow Analysis
 - Fire Protection Requirements for Existing Facilities
- Electrical**
 - Codes/standards. Brief description of electrical system. Electrical drawings.
 - Identify Electrical System Impacts
 - Report – Data Collection and Verification
 - Preliminary Load List
 - Preliminary Standby Power Requirements
 - ETAP – Preliminary Short Circuit Analysis and Load Flow/Voltage Drop Studies
 - ETAP – Provide Data. OCSD will perform ETAP studies.
 - Preliminary Analysis for cable pull calcs, ductbank cable derating, cable tray fill calcs.
 - Hazardous Area Classification Requirements
- Instrumentation and Control**
 - Instrumentation and Control System
 - Specialty Safety Systems
 - Preliminary SAT
 - PLC and RIO Panel Location Map
 - CCTV Coverage Map
- Landscaping**
 - Landscaping Requirements
 - Develop up to **[three]** alternative concepts for review and acceptance
- Plant Utility Investigation Findings**
- Vibration Analysis**
 - [Perform vibration analysis for the following equipment:**
 - 1. Equipment 1**
 - 2. Equipment 2**
 - 3. Equipment 3]**
 - [(See revised Engineering Design Guidelines Chapter 06, MECHANICAL DESIGN, Section 06.7 “Vibration Analysis for Rotating Electrical Equipment” located at the end of the scope of work)**
- Collections Basis of Design**
 - Codes and Standards
 - Hydraulic Analysis

- Pipeline Basis of Design
- Manhole Basis of Design
- Hydraulic Profiles
- Collections Rehabilitation Alternatives**
 - Pipeline Rehabilitation
 - Manhole Rehabilitation
- Collections Pipeline Design**
 - Assume 3 viable alignment options
 - Design Memo Items 1-12
 - Open-cut vs. Trenchless Technologies
 - Trenchless Technologies at Major Closings
 - [Assume that a minimum of [17] trenchless crossings will be required.]**
- Collections Utility Investigation Findings**
- Collections Conceptual Traffic Control**
 - AHJ and Traffic Control Identification
 - Basis for Traffic Control Strategy
 - Traffic Analysis
 - Traffic Control Plans
- Design Safety Requirements**
 - Design Safety Requirements
 - Identify all potential project specific safety issues
 - Identify all potential Cal OSHA and OCSD safety issues
 - Identify construction safety hazards
 - Use Sample Full Project Safety Review Plan to verify safety elements
 - Risk Management Check List to verify safety elements
 - HAZOP
- Public Impacts**
- Environmental and Regulatory Requirements**
 - CEQA Part of Programmatic EIR
 - CEQA work consists of [____]
 - Determine project environmental and regulatory requirements
 - Matrix of CEQA and Permit Requirements
 - Mitigation, Monitoring and Reporting List
- Permit Requirements**
 - List of Permits Required
 - Oil Well Abandonment
- Stormwater Requirements**
- Hazardous Material Survey, Mitigation and Control**
- Maintainability**
 - Define Maintainability Requirements
 - Maintainability Requirements Plan Drawings
 - Define Maintainability Rules
 - Define Maintainability Information for Project Specific Equipment
- Facility Operation and Maintenance**
 - Facility O&M Requirements
 - Operating Philosophies
 - Preliminary Assessment of O&M Staffing Requirements
- Implementation Plan**
 - Identification of Adjacent Projects
 - Preliminary Commissioning Checklist

- Preliminary Construction Sequencing Plan
- Review of Constructability Issues
- Temporary Handling of Flow
- Construction Odor Monitoring and Mitigation**
- Preliminary Technical Specification List**

2.0.3 PROJECT SPECIFIC DESIGN MEMOS

A. []

2.0.4 PRELIMINARY DESIGN DRAWINGS

A. The CONSULTANT shall produce the following Preliminary Design Report drawings in accordance with **Exhibit 1 - Preliminary Design Report Requirements.**

- General
- Demolition
- Civil
- Landscape
- Structural
- Architectural
- Mechanical
- Electrical
- Instrumentation and Control

2.0.5 PRELIMINARY DESIGN REPORT (PDR) CONTENTS AND ORGANIZATION

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

B. The CONSULTANT shall combine the materials described below 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.

**Preliminary Design Report Design Memos
Drawings (see Preliminary Design Drawings list below)
Submittal Documentation**

- Calculations
- Equipment Data & Catalog Cuts
- Decision Log
- Meeting Minutes

C. 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 9 - Deliverables Quantities.** The labeling and organization of the PDF submittal shall be in accordance with **Exhibit 14 - Bluebeam Designer Training for Submission.**

2.0.6 PRELIMINARY DESIGN COST ESTIMATE

2.1 A. The CONSULTANT shall provide a cost estimate for the associated PDR submittal indicated below in accordance with **Exhibit 1 - Preliminary Design Report Requirements.**

- Preliminary design cost estimate is not required.
- Preliminary design cost estimate is required.

PRELIMINARY DESIGN ACTIVITIES

The following 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.

2.1.1 TOPOGRAPHIC SURVEY

A. 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.]**

B. 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.

C. **[The aerial topography shall be required to meet the following criteria:**

1. **The final product shall be delivered in AutoCAD.**
2. **The aerial shall be based on the plant coordinate system.**
3. **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.**
4. **Site contours shall be in 0.5-foot intervals.**
5. **Contour and spot elevations shall be 3D; all other features shall be 2D.]**
6. 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 (PDS)".

D. Control Surveys for Collection Systems

1. 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.

2. 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.

3. 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.

4. 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.

5. Aerial Field Survey Inclusions: The field survey shall include all survey monuments, topographic features, easements, property lines, 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.

6. 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.

7. 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.

8. 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.

9. 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.

10. 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,

11. 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.

2.1.2 GEOTECHNICAL INVESTIGATION

A. CONSULTANT shall secure the services of a qualified Geotechnical Engineering firm to prepare a Geotechnical Data Report that addresses geotechnical concerns for all applicable Project Elements of the project Scope of Work

B. Soil Explorations

1. The geotechnical services shall include exploratory work such as soil borings necessary to observe, test, classify soils, and monitor groundwater levels and potential groundwater pollutants of concern.

2. The number and spacing of borings shall be based on the geotechnical professional's interpretation of needs and recommendation; however, a maximum of five hundred feet (500') shall be allowed between pipeline alignment borings along a pipeline alignment.

a. If unexpected or unique soils are encountered, an adequate number of borings shall be taken to try and define the limits of the anomaly.

3. **[Borings shall also be taken at or near the upstream and downstream connection points for the proposed facility.]**

4. The depth of the borings shall be adequate to characterize the soils to a depth of at least five feet below the bottom of an excavation or any proposed sewer invert elevation. At least two borings shall extend ten (10) feet below the proposed excavation bottom or sewer invert.

5. **[The number of borings, trenching, CPTs, or other exploratory testing shall be as indicated in CONSULTANT's Technical Proposal and Fee Proposal. In the event that additional exploratory investigations are required, the price for such testing shall be negotiated on the basis of the unit priced indicated in CONSULTANT's Fee Proposal.]**

6. **[Specify in the proposal the required number of borings as wells as a unit price allowance per boring in the proposal base price. Based on the actual number of borings performed in the project as determined and agreed upon by CONSULTANT and OCSD, OCSD will pay the final price in accordance with the per-unit allowance in the CONSULTANT's proposal.]**

C. Soil Sampling

1. Soil samples for testing shall be collected as needed based upon CONSULTANT's professional judgment. However, samples intervals shall not exceed two-foot depth intervals alternating SPT and RING samples in each boring. If borings are taken near existing sewers, samples shall be taken and delivered to OCSD for testing for coliforms to determine if sewers are leaking.

D. Ground Water Pump Testing

1. **[Pumping tests shall not be required to determine dewatering parameters for inclusion in the specifications.]**

2. **[Conduct ground water pump testing to determine dewatering parameters for inclusion of the specifications.]**

3. **Provide a complete specification for the abandonment of wells for areas where aquifers could be compromised. Potential abandonment methods for deep penetrations might consist of overdrilling and fill with cement-bentonite grout slurry, or deep pressure grouting to create a concrete seal.]**

E. Groundwater Contamination Testing

1. []

F. Soil Exploration Locations

1. The location of all soil explorations shall be plotted on a map and attached to the Geotechnical Report. Preferably, the explorations shall include survey coordinates consistent with the project survey. Complete logs of the soil profiles shall be included in the report.

2. Explorations shall be located strategically within the footprint of the proposed excavation or on the centerline of proposed pipeline alignments. A total of [____] borings shall be cased and converted into water level monitoring wells for use during construction according to local agency requirements. CONSULTANT shall obtain all necessary permits for the installation of monitoring wells. CONSULTANT shall also be responsible for abandoning the wells after the construction is completed and the monitoring wells are no longer useful.

3. Work conducted within OCSD's treatment plants shall comply with the requirements of the OCSD Stormwater Management Plan. Work conducted outside OCSD's treatment plant shall comply with the requirements of the local jurisdiction.

2.1.3 UTILITY INVESTIGATION

A. To better manage the risks associated with construction excavation, CONSULTANT shall perform a thorough search of all utilities impacted by the work for all applicable Project Elements of this Scope of Work, regardless of size and all other facilities above or below ground. Utilities include all in-plant, utility company-owned and public agency-owned piping, duct banks, and other interferences. The search shall include utilities within the public right-of-way, and those located on private property and OCSD property impacted by the proposed project. The search shall include the records and plans of OCSD and all respective public and private companies and utilities.

B. Review of OCSD Records

1. 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, and sewer pipelines; traffic control facilities, telephone and electrical conduit and duct banks, storm drains, manholes, and other structures.

C. Review of Outside Agency Records

1. CONSULTANT shall contact, in writing, all jurisdictional agencies and utility owners to inform them of OCSD's project. CONSULTANT shall request plans showing all the agency's or utility's facilities, pipelines, etc. in the project area. CONSULTANT shall also request plans and schedules for all proposed construction in the project areas. CONSULTANT shall develop a schedule to minimize project conflicts and/or coordinate OCSD projects with local agencies.

2. CONSULTANT shall personally visit each agency/company and search through all available plans, files, and documents. CONSULTANT shall meet with applicable field staff from each agency to confirm the completeness of their research. Abandoned utilities shall also be considered.

3. 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.

4. CONSULTANT shall contact USA and request a Substructure listing for the project area.

D. On-Site Inspection

1. An on-site inspection shall be made in the project area. During the on-site inspection, a senior-level CONSULTANT representative shall walk the site accompanied by OCSD's Project Engineer and Supervising Inspector. The CONSULTANT representative shall be experienced in the location and identification of utilities in the field. During the on-site inspection the CONSULTANT shall document all visible features that indicate utilities within the project area and compare them with the available utility plans.

E. Utilities for Adjacent Properties

1. 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:

- a. List all utilities anticipated or each adjacent property.
- b. Indicate whether or not each such utility was found on as-built drawings of any agency, with an identification of the agencies identifying such utility.

- c. Indicate whether or not the utility was field located by utility through USA process, and, if so, by which agency.

F. CONSULTANT shall provide all required stamped traffic control plans as part of the encroachment application process required by all cities for use during the geophysical investigations, potholing, geotechnical borings and field investigations.

G. Subsurface Utility Investigations

1. Investigation of existing utilities shall be in accordance with the respective ASCE guidelines, except as amended by this Scope of Work. A brief description of the ASCE guidelines defines the Quality Level of detail for researching subsurface utilities as follows:

- a. **Quality Level D:** Information derived from existing records or oral recollections.

- b. **Quality Level C:** Information obtained by surveying and plotting visible above-ground utility features and by using professional judgment in correlating this information to Quality Level D information.

- c. **Quality Level B:** Information obtained through the application of appropriate surface geophysical methods to determine the existence and approximate position of subsurface utilities. Quality Level B data shall be reproducible by surface geophysics, such as ground penetrating radar, at any point of their depiction. This information is surveyed to applicable tolerances and reduced onto plan documents.

- d. **Quality Level A:** Precise horizontal and vertical location of utilities obtained by the actual exposure (or verification of previously exposed subsurface and surveyed utilities) and subsequent measurement of subsurface utilities, usually at a specific point. Minimally intrusive excavation equipment is typically used to minimize the potential for utility damage. A precise horizontal and vertical location, as well as other utility attributes, is shown on the plan documents. Accuracy is typically set to 15-mm vertical and to applicable horizontal survey and mapping accuracy.

2. Refer to CI/ASCE 38-02, Standard Guidelines for Collection and Depiction of Existing Subsurface Utility Data for details.

3. CONSULTANT shall determine all utilities impacted by the work for all applicable Project Elements of this Scope of Work. Utilities include **[all in-plant utilities] [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.

4. 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 that can later be incorporated into scaled (1" = 40') plan drawings.

5. 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. As part of the submittal, a Potholing Plan and Geophysical Investigation Plan shall be developed including proposed pothole locations and type of geophysical investigation.

6. Prior to OCSD's acceptance of the Potholing Plan/Geophysical Investigation Plan, a project field walk by the CONSULTANT Project Manager, OCSD Project Engineer, Supervising Inspector, and other designated OCSD personnel shall be performed.

H. Potholes and Geophysical Investigation

1. CONSULTANT shall secure the services of a subcontractor to perform the pothole work and geophysical investigation (including ground-penetrating radar).

2. CONSULTANT shall "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 shall also be present during potholing. Field investigations include visiting the project work site and each utility to verify the location of all interferences.

3. CONSULTANT shall provide all the related work necessary, including, but not limited to:
 - a. Documentation of information
 - b. Notification of USA's "Dig Alert"
 - c. Providing field survey
 - d. Obtaining required permits
 - e. Submission of traffic control plans
 - f. Setting up traffic control
 - g. Soft dig potholing
 - h. Ground-penetrating radar
 - i. Excavating
 - j. Backfilling
 - k. Repairing pavement to local jurisdiction requirements
4. "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 and contaminated soil conditions.
5. Potholing subcontractor shall measure and document the depth of pavement and of base material at each pothole, and every five feet along crosscut trenches.
6. Work conducted within OCSD's treatment plants shall comply with the requirements of the OCSD Stormwater Management Plan. Work conducted outside OCSD's treatment plant shall comply with the requirements of the local jurisdiction.
7. 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. **[OCSD] [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.
8. The results of potholing and geophysical efforts shall be summarized in a field findings report.
9. 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:
 - a. The materials removed from the excavation may not be used for backfill, unless approved by the local jurisdiction. If approved, excavated material used to fill potholes shall be placed with a maximum lift thickness of four inches and mechanically compacted.
 - b. If not approved, the CONSULTANT shall be responsible for 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, Minimum 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 Minimum 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. should the OVA reading be equal to or greater than 45 ppm.

c. 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]**. Cold mix shall only be allowed when the patch will be replaced by the project and where approved by **[the City]**.

d. Concrete pavement shall be replaced to full depth plus two inches with Portland cement unless otherwise required by **[the City]**.

I. Quantitative Assumptions

1. **[CONSULTANT's fee proposal shall include a cost for potholes and unit cost for additional potholes. The cost shall provide for a minimum of [____] potholes during preliminary design and [____] potholes during final design.**
2. **CONSULTANT's fee proposal shall include a cost for geophysical investigation. The cost shall provide for a minimum of [____] square feet during preliminary design.]**
3. **[An allowance shall be included in the proposal for potholing including number of potholes and unit price per pothole.**
4. **An allowance shall be included in the proposal for geophysical investigation including total square feet and unit price per square foot.]**

J. Depiction of Utilities and Potholes on Plans

1. 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.

K. Relocation of Existing Utilities

1. Project work that requires other agencies to relocate existing utilities shall be coordinated during design by CONSULTANT.

2.1.4 FIRE PROTECTION SERVICES

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

B. Fire Flow Analysis:

- Evaluation of existing potable water system is not required. Assume that the existing potable water system has adequate pressure and volume to supply the required sprinkler systems and hydrants.
- Evaluate existing potable water system for adequate pressure and volume to supply the required sprinkler systems and hydrants.

2.1.5 ELECTRICAL LOAD MEASUREMENTS

A. CONSULTANT shall perform preliminary calculations of existing equipment (i.e. panelboards and motor control centers) early in PDR, prior to taking any load measurements to determine if there is adequate spare capacity for the new loads.

B. **[OCSD has the following power monitoring data:**

1. **[Equipment Description and Tag 1]**
2. **[Equipment Description and Tag 1]]**

C. Consultant shall develop a list of loads load measurements that need to be taken to perform load calculation.

D. CONSULTANT shall take electrical measurements per Engineering Design Guidelines, Chapter 10, Section 10.2.1.4 "Report- Load Measurement and Recording".

E. **[The following describes the general nature of measurements to be taken.**

1. **[Measurement Description 1]**
2. **[Measurement Description 2]]**

F. **[CONSULTANT shall include [#] medium voltage circuits and [#] low voltage circuits in their proposal along with the unit costs for each type of circuit. The CONSULTANT shall review existing Project information during Phase 2 – Preliminary Design and confer with OCSD on the actual work to be done.]**

G. The load measurements data shall be compiled in a Load Measurement and Recording Report included as an attachment to the Electrical Design Memo.

2.1.6 SPECIALTY SERVICE

A. **[_____]**

2.1.7 PERMITTING ASSISTANCE

A. CONSULTANT services related to Permitting Assistance may span across Phase 2 – Preliminary Design and Phase 3 - Design. When such services are required, they will be based on the requirements of Section III – Project Schedule and the schedule constraints associated with each particular permit. The CONSULTANT shall allocate the budgeted hours between the Environmental Documentation services in Phase 2 and Phase 3 based on when these services will be required.

B. 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. Construction drawings, specifications and supplemental drawings shall be prepared, as necessary, in the format required to obtain all permits.

C. CONSULTANT shall assist OCSD in obtaining permits. This assistance shall include completing application forms provided by OCSD, preparing supporting documentation for the permit applications as required by the issuing agency, furnishing the required number of copies of all construction drawings and exhibits, and attending meetings with permitting agencies at the request of OCSD.

D. 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.

E. CONSULTANT shall submit all supporting documentation in a timely fashion for all permits required for this project as described below.

F. Building Permits

1. **[_____]**

2. The CONSULTANT shall assume [____] meetings at [____] hours each.
- G. CalTrans Encroachment Permits
1. [_____]
 2. The CONSULTANT shall assume [____] meetings at [____] hours each.
- H. City / County Encroachment Permits
1. [_____]
 2. The CONSULTANT shall assume [____] meetings at [____] hours each.
- I. Stormwater Permitting
1. **[Stormwater permitting is not required for this project.]**
 2. **[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.]**
 3. **CONSULTANT shall prepare the specification for stormwater using OCSD's respective master specification as a starting point. CONSULTANT shall not begin work on editing the specification until OCSD has approved the Consultant's preliminary Risk Level and Project Type.**
 4. **It is OCSD's intent to design linear underground/overhead projects (LUP) to LUP Type 2 requirements, whenever possible, which is often the most economical approach. CONSULTANT shall coordinate with the OCSD Project Manager and OCSD Environmental Compliance Division and edit Stormwater Pollution Prevention Plant specifications accordingly.]**

2.1.8 PROJECT MANAGEMENT

- A. 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.
- B. Progress Reports
1. CONSULTANT shall submit monthly progress reports at the same time as monthly invoices that include the following contents:
 - a. Work activities completed to date, in the current reporting period, and projected for the coming month.
 - b. A brief description of outstanding issues and their potential for impact on scope, schedule (design and construction), budget (design and construction) and quality.
 - c. Potential changes in the project scope or design scope.
 - d. Budget status including estimates of actual costs to date, earned value, costs to complete, and costs at completion.
 - e. Schedule status with a description of any variances between scheduled and forecasted milestone dates.
 - f. A discussion of corrective actions to be taken to avoid or mitigate cases where the project schedule is expected to be delayed.
- C. Project Invoices
1. 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:

- a. Budget
- b. Current billing period invoicing
- c. Previous billing period “total invoiced to date”
- d. Budget Amount Remaining
- e. Current billing period “total percent invoiced to date”

2. 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.

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

D. Management of Subconsultants

1. 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.

2.1.9 QUALITY CONTROL

A. The CONSULTANT shall provide quality control requirements in accordance with **Exhibit 6 - Quality Control Requirements**.

B. Quality Assurance/Quality Control Plan

QA/QC Plan Submittal Required

QA/QC Plan Submittal Not Required. Consultant shall utilize their standard QA/QC procedures and meet OCSD’s quality control requirements.

2.2 PDR WORKSHOPS AND MEETINGS

2.2.1 GENERAL

A. Workshop and meeting planning, requirements, agendas, and meeting minutes shall be in accordance with **Exhibit 5 - Workshop and Meeting Requirements**.

B. 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.

2.2.2 PDR MEETINGS

A. CONSULTANT shall hold meetings throughout the project to keep OCSD apprised 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. The list below also indicates the number of meetings to be held to cover the specific topic.

PDR MEETINGS	
TOPIC	DURATION (HRS)
Predesign Kick-off Meeting	[1]
PDR Production Meetings	
[...]	1
Constructability	1
Maintainability	1]

2.2.3 PDR REVIEW WORKSHOPS

A. CONSULTANT shall hold the following workshops to review the draft Preliminary Design Report as required in **Exhibit 5 - Workshop and Meeting Requirements**:

- 1. Draft PDR Presentation/Review Workshop

2.2.4 TECHNICAL PROGRESS MEETINGS

A. Technical Progress Meetings shall be held every [___] weeks to review various issues with OCSD’s project team. A total of [___] meeting shall be held during Preliminary Design Phase. The CONSULTANT shall coordinate with the OCSD Project Manager to determine what topics will be covered in what meetings, and what OCSD and CONSULTANT team members are required for each.

2.2.5 COORDINATION WITH OTHER PROJECTS MEETINGS

A. 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 and participate in the number of meetings indicated in the following table:

PROJECT COORDINATION MEETINGS		
PROJECT	PHASE 2 COORDINATION MEETINGS	PHASE 3 COORDINATION MEETINGS
[P1-23]	[2 meetings @ 2 hrs]	[3 meetings @ 2 hours]
[P2-34]	[2 meetings @ 2 hrs]	[3 meetings @ 2 hours]

2.2.6 STORMWATER COMPLIANCE MEETING

A. 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.

3.0 3. PHASE 3 – DESIGN

BID DOCUMENTS

3.0.1 GENERAL

A. 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 database (EID); SCADA Administration Tool (SAT); and bypassing plans.

3.0.2 ENGINEERING DESIGN GUIDELINE UPDATES

A. 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 PDR, shall be incorporated into the Design by CONSULTANT with no increase in CONSULTANT’s Not-to-Exceed upper limit on fees.

3.0.3 GENERAL REQUIREMENTS AND ADDITIONAL GENERAL REQUIREMENTS

A. The following are the minimum Additional GRs topics required for this project:

- Summary of Work
- Work Sequence
- Work Restrictions

- Permits
- Environmental Restrictions and Controls
- Measurement and Payment (includes Mobilization/Demobilization)
- Seismic Design Criteria (for those restraints, supports, etc. to be design by the Contractor)
- Shipping, Storage and Handling
- Project Control Management System (PMWeb construction management software)
- Equipment Service Manuals
- Equipment and Instrument Database (EID)
- Commissioning
- Training of OCSD Personnel
- Hazardous Materials Mitigation and Controls
- Mold Remediation and Controls
- []

3.0.4 DESIGN SUBMITTALS

A. The CONSULTANT shall produce the following design submittals as indicated below in accordance with **Exhibit 2 - Design Requirements**. If a design submittal is eliminated, then the design submittal shall include the requirements associated with the required design submittal along with the requirements associated with the previous unchecked design submittals.

- Design Submittal 1
- Design Submittal 2
- Design Submittal 3
- Final Design Submittal

3.0.5 CABLE AND CONDUIT SCHEDULE

CONSULTANT shall put the cable and raceway schedule on the drawings. CONSULTANT may utilize an Excel spreadsheet and copy the spreadsheet onto the drawings.
 CONSULTANT shall utilize OCSD's Microsoft Access Cable and Raceway Schedule database electronic format. See exhibit titled "Cable Conduit and Tray Schedule Database".

3.0.6 COMMISSIONING PLAN MATERIALS

A. The CONSULTANT shall provide a commissioning plan materials in accordance **Exhibit 2 - Design Requirements**.

B. Specification Section 01810, Commissioning

- OCSD will prepare Section 01810
- CONSULTANT shall edit Section 01810

C. ORT Procedures

- OCSD will prepare ORT procedures
- CONSULTANT shall prepare ORT procedures using OCSD's ORT procedure generator
- CONSULTANT shall prepare new ORT procedures [**consisting of:**]

D. Pre-FAT Procedures

- Pre-FAT procedures not required
- OCSD will prepare Pre-FAT procedures
- CONSULTANT shall prepare Pre-FAT procedures

E. FAT Procedures

- OCSD will prepare FAT procedures
- CONSULTANT shall prepare FAT procedures

F. RAT Procedures

- RAT procedures not required
- OCSD will prepare RAT procedures
- CONSULTANT shall prepare RAT procedures

G. PAT Procedures

- PAT procedures not required
- OCSD will prepare PAT procedures
- CONSULTANT shall prepare PAT procedures

3.0.7 EQUIPMENT AND INSTRUMENTATION DATABASE (EID)

- EID is not required.
- OCSD will develop the EID in accordance **Exhibit 2 - Design Requirements.**
- CONSULTANT shall develop EID in accordance **Exhibit 2 - Design Requirements.**

3.0.8 SCADA ADMINISTRATION TOOL (SAT)

- SAT is not required.
- OCSD will develop the SAT in accordance **Exhibit 2 - Design Requirements.**
- CONSULTANT shall develop the SAT in accordance **Exhibit 2 - Design Requirements.**

3.0.9 CONSTRUCTION SUBMITTAL ITEMS LIST

- OCSD will develop the Construction Submittal Items List in accordance with **Exhibit 2 - Design Requirements.**
- CONSULTANT shall develop the Construction Submittal Items List in accordance with **Exhibit 2 - Design Requirements.**

3.0.10 TEMPORARY FACILITIES DURING CONTRUCTION

- Temporary facilities and bypass pumping are not required.

Select below if temporary requirements are defined under “Temporary Facilities During Construction” and temporary facilities or bypassing can easily be described in words on the drawings or technical specifications.

- Temporary facilities and bypassing during construction are required, as described under the “Temporary Facilities During Construction” paragraph under the Project Elements, and shall be described in words on the drawings and technical specifications.

Select below if temporary requirements are defined under “Temporary Facilities during Construction” and temporary facilities or bypassing is complicated.

3.1

- Detailed plans and work sequence for temporary facilities and bypassing during construction, as described under the “Temporary Facilities During Construction” paragraph under the Project Elements.

DESIGN SUPPORT DOCUMENTATION

3.1.1 DESIGN SUBMITTAL SUPPORT DOCUMENTATION

A. The CONSULTANT shall provide a Design Submittal Support Documentation in accordance **Exhibit 2 - Design Requirements.**

B. Design Information

1. CONSULTANT shall include the following material with each Design Submittal:
 - a. Written response log to OCSD comments on the previous submittal.

- b. 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.
- c. Calculations
- d. Draft or final Geotechnical Reports not submitted in the previous submittal and those revised since the previous submittal.
- e. Proposed list of suppliers to be named in the specifications for major equipment
- f. Draft or final Fire Protection Reports not submitted in the previous submittal and those revised since the previous submittal.
- g. Draft or final Field Findings Reports not submitted in the previous submittal and those revised since the previous submittal.
- h. Equipment data sheets
- i. Equipment catalog cuts and vendor quotations.
- j. Commissioning Checklist. The Preliminary Commissioning Checklist first developed in the PDR Production Phase shall be updated in each Design Submittal to reflect all changes in equipment, and any changes in predecessors applicable testing and certifications required prior to commissioning. Each row shall be assigned to a commissioning package.
- k. All memos that may be been prepared since the previous submittal was delivered.

C. Facility Operation and Maintenance

Not required.

D. Electrical Design Documentation

- Electrical design documentation not required.
- Updated Electrical Load Criticality Table
- Electrical Analysis Report
- Load list for all equipment
- Equipment sizing from three manufacturers for motor control centers, switchgear, transformers and power panels
- Lighting calculations
- Standby generator sizing calculations
- Ductbank cable pulling tension, derating and cable tray fill calculations

E. Power System Studies

- ETAP not required.
- Plant ETAP model for the project performed by OCSD.
- Plant ETAP model for the project performed by CONSULTANT.
- Electrical Systems Analysis Report performed by CONSULTANT.

3.1.2 CONSTRUCTION COST ESTIMATE

A. The CONSULTANT shall provide a cost estimates for the associated design submittal indicated below in accordance with **Exhibit 2 - Design Requirements**.

- Design Submittal 1
- Design Submittal 2
- Design Submittal 3

Final Design Submittal

3.1.3 CONSTRUCTION SCHEDULE

A. The CONSULTANT shall provide a Preliminary Construction Schedule for the associated design submittal indicated below in accordance with **Exhibit 2 - Design Requirements**.

- Construction Schedule is not Required
- Design Submittal 1
- Design Submittal 2
- Design Submittal 3
- Final Design Submittal

3.1.4 PROCUREMENT ALTERNATIVES

A. The CONSULTANT shall recommend the appropriate procurement alternatives as described in **Exhibit 2 - Design Requirements**.

- Procurement alternatives not required
- Procurement alternatives required

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

1. []
2. []

C. Equipment to be pre-qualified will include:

1. []

3.2 DESIGN ACTIVITIES

The following 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.

3.2.1 TOPOGRAPHIC SURVEY

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

3.2.2 GEOTECHNICAL BASELINE REPORT

1. CONSULTANT shall prepare a Geotechnical Baseline Report (GBR). The GBR shall be prepared by the prime CONSULTANT, rather than by the Geotechnical Subconsultant that prepared the Geotechnical Data Report.
2. The Geotechnical Baseline Report (GBR) shall conform to the most recent issue of the American Society of Civil Engineers (ASCE) “Geotechnical Baseline Reports of Underground Construction: Guidelines and Practices”.
3. The GBR shall be site specific and shall include a narrative of all known soil conditions and subsurface expected constraints. The GBR shall establish quantitative thresholds and shall make specific recommendations to the Contractor regarding actions to be taken by the Contractor during construction, such as dewatering, removal of boulders by size, all other excavation and backfill stages, etc. Thresholds expressed as ranges of values will not be acceptable to OCSD (i.e. 100-200 gpm, or 5-10 CY). All thresholds shall be expressed in the form of one number (i.e. 150 gpm, or 7 CY).

4. The GBR will be used during construction to enforce the Differing Site Condition clause included in the construction Contract Agreement.

5. The draft GBR shall be submitted to OCSD staff for review and comments along with the DS2 submittal package. The final GBR incorporating OCSD comments shall be submitted with the DS3 submittal package.

3.2.3 UTILITY INVESTIGATION

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

B. Final Design Submittal Utility Coordination Reviews

1. During DS3 submittal review, the CONSULTANT shall meet with outside agencies to verify any changes made by agency during final design period and compare them with the Contract Drawings. 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.

2. During DS3 submittal review, an on-site inspection shall be made in the project area. During the on-site inspection, a senior-level CONSULTANT representative shall walk the site accompanied by OCSD's Project Engineer and Supervising Inspector. The CONSULTANT's representative shall be experienced in the location and identification of utilities in the field. During the on-site inspection the CONSULTANT shall document all visible features that indicate utilities within the project area and compare them with the Contract Drawings.

3.2.4 FIRE PROTECTION SERVICES

A. 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.

3.2.5 NOISE EVALUATION SERVICES

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

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

3.2.6 TRAFFIC CONTROL SERVICES

A. [_____]

3.2.7 SPECIALTY SERVICE

A.

3.2.8 PERMITTING ASSISTANCE

A. 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. 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.

3.2.9 PROJECT MANAGEMENT

A. CONSULTANT shall be responsible for managing CONSULTANT’s project execution, schedule, budget, subconsultants, and coordination with other projects. CONSULTANT services related to Project Management on the project are specified in Phase 2 – Preliminary Design and those services shall continue during Phase 3 – Design as required. CONSULTANT shall allocate the budgeted hours between Phase 2 and Phase 3 based on when these services will be required.

3.2.10 QUALITY CONTROL

A. The CONSULTANT shall provide Quality Control requirements in accordance with **Exhibit 6 - Quality Control Requirements**.

- Independent Multi-Discipline Design Workshop is not required.
- Independent Multi-Discipline Design Workshop is required. (minimum duration of [1] day)

DESIGN WORKSHOPS AND MEETINGS

3.3 3.3.1 GENERAL

A. Workshop and meeting planning, requirements, agendas, and meeting minutes shall be in accordance with **Exhibit 5 - Workshop and Meeting Requirements**.

B. 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.

3.3.2 DESIGN MEETINGS

A. CONSULTANT shall hold meetings 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. The list below also indicates the number of meetings to be held to cover the specific topic.

DESIGN MEETINGS	
TOPIC	DURATION (HRS)
[...]	1
Constructability	1
Maintainability	1]

3.3.3 DESIGN REVIEW WORKSHOPS

A. CONSULTANT shall hold the following workshops to review the draft Preliminary Design Report as required in **Exhibit 5 - Workshop and Meeting Requirements**:

1. Design Submittal 3 Kickoff Workshop/Review Meeting (combined activity)
2. Design Submittal 3 Validation Workshop
3. Final Design Submittal Review Meeting (meeting only)

3.3.4 TECHNICAL PROGRESS MEETINGS

A. Technical Progress Meetings shall be held every [___] weeks to review various issues with OCSD’s project team. A total of [___] meeting shall be held during Final Design Phase. The

CONSULTANT shall coordinate with the OCSD Project Manager to determine what topics will be covered in what meetings, and what OCSD and CONSULTANT team members are required for each.

3.3.5 COORDINATION WITH OTHER PROJECTS MEETINGS

A. 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 and participate in the number of meetings indicated in the following table:

PROJECT COORDINATION MEETINGS		
PROJECT	PHASE 2 COORDINATION MEETINGS	PHASE 3 COORDINATION MEETINGS
[P1-23]	[2 meetings @ 2 hrs]	[3 meetings @ 2 hours]
[P2-34]	[2 meetings @ 2 hrs]	[3 meetings @ 2 hours]

3.3.6 COMMISSIONING TEAM MEETINGS

A. Design phase commissioning team meetings shall be held on a [monthly] basis after completion of OCSD's review [DS1].

B. Meetings will generally be 2-4 hours in length. CONSULTANT shall determine how many meetings shall be needed to cover these topics and organize the topics accordingly. 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.

C. The Commissioning Team meetings shall cover the following subjects:

1. 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.
2. Identify procedures, testing requirements and sequencing for commissioning.
3. Develop a detailed outline of a commissioning plan based on the results of the recommended construction sequencing plan.
4. 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.
5. Identify timing within the construction contract schedule when commissioning activities are required, including hold points for testing and inspection.
6. Identify roles and responsibilities of the Project Manager, Resident Engineer, Inspector, Project Engineer, PCI, Engineering support, Design CONSULTANT and Contractor.
7. Develop a timeline of commissioning
8. Develop a commissioning specification
9. Develop standard forms for testing and commissioning documentation
10. Electrical, mechanical and process tie-ins
11. Startup requirements and testing
12. Record drawings
13. O&M training

14. OMaP documentation and coordination of same with O&M Training

3.3.7 SAFETY AND RISK MEETING

A. 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.

3.3.8 CONSTRUCTION SUBMITTAL ITEMS LIST MEETING

A. Meet with OCSD between DS2 and DS3 to review the CONSULTANT's approach to developing the project Construction Submittal Items List using Error! Reference source not found. and the CONSULTANT-provided specifications and discuss the grouping of submittals in commissioning packages and phases.

BID PHASE SUPPORT SERVICES

3.4.1 BID PHASE SUPPORT SERVICES

3.4

A. CONSULTANT shall provide the following bid period services:

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

3.4.2 BID EVALUATION ASSISTANCE

- A. Participate in reviewing alternate equipment proposals from the Contractor, if applicable.
- B. 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.

3.4.3 CONFORMED DOCUMENT PREPARATION

A. 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).

4. PHASE 4 – CONSTRUCTION AND INSTALLATION SERVICES

4.0.1 GENERAL

A. OCSD will administer and provide field inspection for construction contracts. Construction and installation support services shall be provided by the CONSULTANT as requested by OCSD. CONSULTANT shall refer to the Engineering Design Guidelines, Chapter 01 for detailed requirements.

4.0.2 PROJECT MANAGEMENT

- A. CONSULTANT Project Management responsibilities during Phase 4 shall be as specified for Phase 2 – Preliminary Design.
- B. CONSULTANT shall be responsible for detailed management of the project, including managing its subconsultants, and shall keep OCSD apprised of the status of the project.
- C. CONSULTANT shall conduct monthly project management meetings with OCSD's Project Manager. These meetings shall be attended by OCSD's Project Manager and CONSULTANT's Project Manager at a mutually agreeable time. The purpose of the meetings shall be to review the CONSULTANT Project Manager's progress report and the status of the project scope,

budget, and any issues which may affect completion of the project. Meetings should be arranged so that the progress report can be submitted shortly prior to or at each meeting.

D. Consultant shall prepare and submit monthly invoices to OCSD no later than the first Wednesday of the following month. The invoices shall document the man-hours and billing rate for each person that works on the project for each task in the WBS. 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:

1. Budget
2. Current billing period invoicing
3. Previous billing period "total invoiced to date"
4. Budget amount remaining
5. Current billing period "total percent invoice to date"
6. Current billing period "total percent completed to date"

E. The cost component breakdown for each element above shall match that of the PDSA. The monthly progress report and project schedule shall be submitted with the project invoice as part of the monthly request for payment.

F. Consultant shall also provide the percent budget spent for each of OCSD's WBS cost codes (i.e. by work package and phase). OCSD shall provide a list of cost codes by phase to the Consultant.

G. Consultant shall also provide a summary of progress and expenditures to date as described in **Exhibit A-1**.

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

4.0.3 SUBMITTAL REVIEWS

A. OCSD will receive and log-in all submittals from the Contractor. OCSD will forward copies of selected shop drawing and submittals requiring CONSULTANT review. CONSULTANT shall review the shop drawings and submittals for conformance with the requirements of the Contract Documents and return the submittal review comments to OCSD within ten (10) calendar days after receipt of submittal. CONSULTANT shall return comments to OCSD allowing sufficient time for OCSD to incorporate all comments into a combined review comment set that OCSD will return to the Contractor. CONSULTANT shall accommodate occasional expedited reviews for time sensitive submittals. Submittals shall include but not be limited to shop drawings, vendor tests, certifications, and test reports. Some submittals will be made available only electronically (PDF).

B. The itemization of anticipated submittals is shown in **Exhibit A-2**. See "Construction Phase Quantitative Assumptions" in this Scope of Work for the number of submittals.

4.0.4 REQUEST FOR INFORMATION (RFIS)

A. OCSD will log in and forward to CONSULTANT certain RFIs generated by the Contractor or OCSD. CONSULTANT shall return written responses to OCSD as soon as possible or within five (5) calendar days of receipt of RFI, clarifying the requirements of the Contract Documents. CONSULTANT shall generate necessary sketches, figures, and modifications to the drawings for clarifications. When required to avoid schedule delay or additional construction-related costs, CONSULTANT shall expedite the review of time sensitive RFIs.

4.0.5 CONTRACT DOCUMENTATION MODIFICATIONS

A. If the Contract Documents require modifications, due to changed conditions, OCSD requested changes, omissions or design errors; CONSULTANT shall prepare preliminary change order documents and forward them to OCSD, as needed. OCSD shall review the

proposed change and request CONSULTANT to incorporate any changes. OCSD will issue the change order documents in a formal Request for Proposal (RFP) or Field Change Order (FCO) to the Contractor. CONSULTANT shall forward design calculations and other design backup documents as necessary to OCSD.

B. See “Construction Phase Quantitative Assumptions” in this scope of Work for the number of hours to be allocated for design changes and cost estimating assistance.

4.0.6 CONSTRUCTION PROGRESS MEETINGS AND SITE VISITS

A. CONSULTANT shall attend construction progress meetings and make field visits as requested by OCSD. The scope includes time for meeting preparation, travel time, follow-up, and review of meeting minutes. Progress meeting minutes shall be prepared by OCSD.

B. See “Construction Phase Quantitative Assumptions” in this scope of Work for construction progress meetings and site visits.

4.0.7 CONSTRUCTION PHASE QUANTITATIVE ASSUMPTIONS

A. The assumptions listed in the following table below shall be the basis for the assumed level of effort.

CONSTRUCTION PHASE QUANTATIVE ASSUMPTIONS		
TASK	DESCRIPTION	ASSUMPTION
4.1	Project Management	15 months duration from Construction NTP to Construction Final Completion
4.2	Submittal Reviews	10 Original submittals 10 Resubmittals
4.3	Requests for Information	80 RFIs
4.4	Contract Document Modifications	20 manhours total
4.5	Construction Progress Meetings and Site Visits	6 person-visits total

5. PHASE 5 – COMMISSIONING SERVICES

5.0.1 OPERATIONS MANUAL AND PROCEDURES (OMAP)

A. Consultant shall prepare Operation Manual and Procedures (OMaP) for the operators that shall completely describe the functionality of the system based on the control strategies, system and device features, general network configuration, and drawings. Specific requirements and standards for OMaP are addressed in **Exhibit 18 - Requirements and Standards for Operation Manual and Procedures (OMaP)**. All features of the system shall be described for normal equipment operation, fail-over equipment operation, and emergency equipment operation.

B. Following commissioning, the Consultant shall address, resolve and/or incorporate any comments, additions or changes to the OMaP discovered during commissioning requiring revision and then resubmit for review and approval by the Sanitation District.

6. PHASE 6 – CLOSE OUT

6.0.1 CLOSE-OUT REQUIREMENTS

A. When requested by OCSD, CONSULTANT shall verify that the Contractor’s As-Built set correctly reflects the information included in the approved shop drawings, RFIs, approved Field Change Orders, plan clarifications, plan changes and other deviations from the conformed drawings, and that the information in the set is complete. Based on the findings, CONSULTANT

shall prepare a written report on the completeness of the field markup set. TheCONSULTANT shall assume that As-Built reviews will be required at two times during construction (e.g. 50% completion and 100% complete).

B. After completion of construction, OCSD will transmit to CONSULTANT the Final Field Markup Set of drawings. At that time, the CONSULTANT shall meet with OCSD’s inspectors and Resident Engineer to review the Contractor’s Final Field Markup Set.

C. CONSULTANT shall prepare Draft Record Drawings based on the Final Field Markup Set for all drawings in accordance with the requirements in the CAD Manual. The CONSULTANT shall submit the Draft Record Drawings to the OCSD Resident Engineer. The Draft Record Drawings will be reviewed for content and CAD Compliance by OCSD staff. A comment log will be returned to the CONSULTANT and, if any comments are generated, the CONSULTANT shall revise the record drawings and resubmit to the RE for review of the changes and acceptance of the record drawings.

D. When no additional comments are identified, CONSULTANT shall prepare the Final Record Drawings and submit them along with the Contractor’s field markup set to the Project Manager. All record drawings shall contain a stamp indicating:

Record Drawings

These record drawings have been prepared based on information provided by others. The Engineer has not verified the accuracy of this information and shall not be responsible for any errors or omissions which may be herein as a result.”

E. The stamp shall optimally be placed in the bottom right hand corner of the border and may be included via x-ref. If importing the stamp via x-ref interferes with content in the bottom right hand corner, the stamp may also be placed in other open space along the bottom of the border. In addition, a note shall be placed over the engineer’s seal stating that “This drawing was originally approved for construction by [name of engineer] on [date] and sealed by [name of engineer] a licensed professional engineer in the State of California No. [License number] “. CONSULTANT shall submit an electronic copy of the record drawings to OCSD for review and approval. The acceptance of the record drawings shall be deemed a condition for completion of work.

F. Contractor-generated drawings described in the Design Guidelines and the shop drawings will not be updated by CONSULTANT.

G. The format and quantities for delivery of the submittals shall be listed below:

Contents	Draft Record Drawings	Final Record Drawings
Hard Copy Sets	[6] sets of bound 11x17 prints	1 set of bound 11x17 prints
All related electronic files, including CAD and compiled PDFs	One DVD	One DVD

7.0

7. GENERAL REQUIREMENTS

GENERAL

7.0.1 OCSD ENGINEERING DESIGN GUIDELINES AND STRATEGIC PLAN

A. CONSULTANT shall refer to and adhere to the requirements of OCSD Safety Standards, OCSD Engineering Design Guidelines, any deviations to the Engineering Design Guidelines listed below, and other OCSD’s Design Standards referenced therein. **Exhibit 16 - OCSD Engineering Design Guidelines and Standards – Available online at**

<https://www.ocsd.com/about-us/transparency/document-central/-folder-917> is a complete set of the OCSD Safety Standards and OCSD Design Standards, the latest edition at the time of the design proposal stage.

- B. The Engineering Guidelines define what plant 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.
- C. 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.
- D. 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.
- E. The project Scope of Work also includes requirements that supplement and/or modify the Guidelines requirements for this project.
- F. The project Scope of Work and OCSD Engineering Design Guidelines impact CONSULTANT’s project cost.
- G. 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.
- H. 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 [1][2], shall be incorporated into the Design by CONSULTANT with no increase in CONSULTANT’s Not-to-Exceed upper limit on fees.
- I. 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.
- J. 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.

7.0.2 PROJECT PHASES AND TASKS

- A. 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.

7.0.3 CONSTRUCTION SEQUENCING AND CONSTRAINTS

- A. 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.

7.0.4 WORKING HOURS

- A. Meetings with OCSD staff shall be scheduled from Monday through Thursday between the hours of 8:00 AM and 4:00 PM. Any CONSULTANT staff working on-site shall conform to OCSD work schedules. CONSULTANT shall refer to the Engineering Design Guidelines,

Chapter 01, Section 01.3.5 "CONSULTANT Inspection of Treatment Facilities" for further requirements.

7.0.5 STANDARD DRAWINGS AND TYPICAL DETAILS

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

7.0.6 SOFTWARE

A. 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:

B. 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.

C. 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.

7.0.7 SUBMITTAL REVIEW USING BLUEBEAM

A. 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 14 - Bluebeam Designer Training for Submission** and "OCSD CAD Standards Manual" prior to submission.

B. PDF files will be hosted in a Bluebeam cloud-based studio session for review. See **Exhibit 15 - Bluebeam 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.

7.0.8 WORD TRACK CHANGES

A. 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.

B. 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.

C. OCSD will return the MS-Word files or host them in a central location.

1. 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.

2. 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.

D. 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.

E. "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.

F. 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.

G. 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.

7.0.9 GIS SUBMITTALS

A. 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)
 - (1) Boundary to encompass all new facilities and existing to be modified including:
 - Buildings\Structures
 - Tunnels
 - Utilities
 - Pavement
 - Street boundary (ROW to ROW) of possible alignment
 - b. Structures (Polygon)
 - New structure outline
 - Additions to existing structures
 - Structure label
3. DS1
 - a. Project boundary - *updated from PDR*
 - b. Structures - *updated from PDR*
 - c. Utilities (Polyline)
 - (1) Utility alignment
 - d. Manholes (Point)
 - e. Excavation of pits (Polygon)
 - (1) Pits that will stay open for extended duration
 - (2) CIPP
 - (3) Tunnel - jacking and receiving
 - (4) 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)
 - (1) Crossing of Dig Alert critical utilities
 - (2) Critical utility label
 - Natural gas
 - Fuel pipeline
 - 12 kV Electrical
 - g. Asphalt (Polygon)

- (1) Asphalt to be replaced

8. PROJECT-SPECIFIC DEVIATIONS FROM OCSD DESIGN GUIDELINES

The following Scope sections change the Engineering Design Guidelines requirements for this project and apply to ALL its Project Elements:

ENGINEERING DESIGN GUIDELINES CHAPTER 01, “DESIGN GUIDELINES – GENERAL REQUIREMENTS”

8.0.1 SECTION 01.2.19 “LIFE CYCLE COSTS”

8.0

- A. Replace the 1st paragraph with the following:
- B. CONSULTANT shall conduct a sensitivity analysis to see if the life cycle costing analysis is sensitive to the following assumed costs: _____

8.0.2 ENGINEERING DESIGN GUIDELINES CHAPTER 06, “MECHANICAL DESIGN”

- A. Section 06.7 “Vibration Analysis for Rotating Electrical Equipment”

- 1. Replace the entire section with the following:

CONSULTANT shall perform a RUN evaluation for all pumping systems according to ANSI/HI 9.6.8-2014 or latest (Rotodynamic Pumps—Guideline for Dynamics of Pumping Machinery), to assess various vibration related phenomena. RUN is the general term used to denote the quantity obtained from multiplying the Risk (R) value and Uncertainty (U) value determined during the appropriate evaluation. This evaluation will help determine the relevant analysis level required to appropriately evaluate pumping machinery construction attributes and relevant site characteristics. CONSULTANT shall obtain (from the manufacturers of the rotating equipment) or calculate (based on anticipated turning speeds, operational requirements, etc.) the relevant equipment and system natural and/or excitation frequencies. These frequencies will include any effect from the various torsional, lateral, and structural behaviors of the equipment or system.

All other rotating equipment such as fans, blowers, compressors, and pumps/equipment not covered by other standards or specifications, etc. shall undergo a similar evaluation to determine relevant risk and analysis requirements to ensure project success and reliability targets are met. For these other types of rotating equipment not covered by other standards or specifications, the CONSULTANT shall propose a plan for OCSD to approve prior to analysis being performed accordingly.

For the purpose of estimating level of effort, the Risk Value, “R”, for critical equipment that is required for continuous operation of a process system or where standard equipment is modified slightly for this application, a R-Value of 4 should be assumed. For systems dedicated to a redundant process train or where standard equipment is used, a R-Value of 2 should be assumed.

The results from the above RUN evaluation shall be used by the CONSULTANT in their subsequent design, to help provide a robust solution for the project needs. Iterations of design and equipment substitutions shall trigger additional RUN evaluations and analysis, as needed. Final equipment acceptability and commissioning shall be per ANSI/HI 9.6.4-2009 or latest (Rotodynamic Pumps—for Vibration Measurements and Allowable Values), applicable Part of ISO 10816 latest (Mechanical Vibration), ANSI/AMCA 204-05:2012 or latest (Balance Quality and Vibration Levels for Fans), ISO 1940-1:2003 or latest (Mechanical Vibration—Balance Quality Requirements for Rotors in a Constant (Rigid) State), and ISO 21940-12:2016 or latest (Mechanical Vibration—

Rotor Balancing—Procedures and Tolerances for Rotors with Flexible Behavior) as applicable. In addition, all loads, forces and moments imparted to equipment or piping, including resonance, shall be fully mitigated and all usage cases analyzed and documented per ASME 31.3-2018 or latest (Process Piping) at a minimum, and properly designed within applicable allowable stresses, etc. If there are conflicts in the standards specified, the more stringent value or condition to prevail.

8.0.3 [ENGINEERING DESIGN GUIDELINES CHAPTER 10, “ELECTRICAL DESIGN CRITERIA “

A. Section 10.1.1 “Electrical Design Basis and Assumptions- Data, Measurements and Analyses”

1. Replace the 1st paragraph with the following:
2. The calculation criteria for this project shall be as follows: _____
3. The CONSULTANT shall also refer to Engineering Design Guidelines, Chapter 10, Section 10.7 "Distribution System Requirements" for requirements.

B. Section 10.2.1.11 “Report - Motor Starting Study”

1. Replace the last 2 paragraphs with the following:
2. Dynamic Motor Study as part of the Motor Starting Study **[shall not be required for this project] [shall include only the following equipment: _____]**

C. Section 10.2.1.14 “Stability Study”

1. Replace the first paragraph with the following:
2. CONSULTANT shall perform a stability study which shall include the following elements: [_____]

D. Section 10.2.1.18 “Report - Other Analyses”

1. Replace the text with the following:
2. CONSULTANT shall also include in the Report the following analyses
3. The following additional project-specific analyses: _____
4. **[All testing shall be compared to equipment manufacturer or designated equipment specification(s) by a certified testing Contractor.]**
5. **[Other analyses required in accordance with recognized engineering practice to support prudent design for the project, but not necessarily indicated in the Scope of Work.]**

8.0.4 ENGINEERING DESIGN GUIDELINES, CHAPTER 11, “INSTRUMENTATION AND CONTROL”

A. Section 11.4.1 “Requirements Study”

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

9. STAFF ASSISTANCE

OCSD staff member or designee assigned to work with CONSULTANT on the design of this project is [_____] at (714) 593-[_____] , e-mail to: [_____].

10. EXHIBITS

Exhibit 18 - Requirements and Standards for Operation Manual and Procedures (OMaP)

Exhibit 1 - Preliminary Design Report Requirements

- Exhibit 2 - Design Requirements**
- Exhibit 3 - Project Management Requirements**
- Exhibit 4 - Risk Management Requirements**
- Exhibit 5 - Workshop and Meeting Requirements**
- Exhibit 6 - Quality Control Requirements**
- Exhibit 7 - Design Submittal Requirements Matrix**
- Exhibit 8 - Project Schedule Calculation**
- Exhibit 9 - Deliverables Quantities**
- Exhibit 10 - Sample Construction Cost Estimate Format**
- Exhibit 11 - Sample Full Project Safety Review Plan**
- Exhibit 12 - Sample Risk Management Check List**
- Exhibit 13 - MMRP Log Template**
- Exhibit 14 - Bluebeam Designer Training for Submission**
- Exhibit 15 - Bluebeam Designer User Training**
- Exhibit 16 - OCSD Engineering Design Guidelines and Standards – Available online at <https://www.ocsd.com/about-us/transparency/document-central/folder-917>**
- Exhibit 17 - Master Construction Submittal Items List**
- Exhibit 18 - Requirements and Standards for Operation Manual and Procedures (OMaP)**
- Exhibit 19 - Project Reference Material**
 - **[J-102 Electrical Master Plan – October 2007]**
 - **[J-47 Cable Tray Improvements - Preliminary Design Report – Feb 2009]**
 - **[P1-20 Headworks No. 2 at Plant No. 1 Record Drawings – 1987]**
- Exhibit 20 - Sample Criticality Data Table**
- Exhibit 21 - ORT Procedure Examples**
- Exhibit 22 - Pre-FAT Procedure Examples**
- Exhibit 23 - Sample FAT Procedure**
- Exhibit 24 - Sample RAT Procedure**
- Exhibit 25 - Project J-47 Cable Tray Improvements Preliminary Design Report**
- Exhibit 26 - J-102 Electrical Master Plan**
- Exhibit 27 - Cable Conduit and Tray Schedule Database**

XXX:xxx