PROFESSIONAL DESIGN SERVICES AGREEMENT

THIS AGREEMENT, is made and entered into to be effective the 26th day of February, 2020 by and between the ORANGE COUNTY SANITATION DISTRICT, hereinafter referred to as "SANITATION DISTRICT", and Brown and Caldwell, for purposes of this Agreement hereinafter referred to as "CONSULTANT".

WITNESSETH:

WHEREAS, the SANITATION DISTRICT desires to engage a CONSULTANT for **Electrical Power Distribution System Improvements, Project No. J-98**; and to provide Design services to prepare final plans and specifications, construction cost estimates, schedule, and bid documents for both 480V and 12kV electrical power distribution systems including modifications to double-ended switchgear, transformers, MCCs, breakers, and conductors; and,

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

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

WHEREAS, at its regular meeting on February 26, 2020 the Board of Directors, by Minute Order, accepted the recommendation of the Operations Committee pursuant to SANITATION DISTRICT's Purchasing Ordinance to approve this Agreement between the SANITATION DISTRICT and CONSULTANT.

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

1. SCOPE OF WORK

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

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

B. CONSULTANT is responsible for the quality of work prepared under this Agreement and shall perform its work in accordance with engineering standards in effect for clarity, uniformity, and completeness. CONSULTANT shall respond to

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

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

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

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

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

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

F. All professional services performed by the CONSULTANT, including but not limited to all drafts, data, correspondence, proposals, reports, and estimates

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

G. The SANITATION DISTRICT shall furnish the CONSULTANT available studies, reports and other data pertinent to the CONSULTANT's service; obtain or authorize the CONSULTANT to obtain or provide additional reports and data as required; furnish to the CONSULTANT services of others required for the performance of the CONSULTANT's services hereunder, and the CONSULTANT shall be entitled to use and rely upon all such information and services provided by the SANITATION DISTRICT or others in performing the CONSULTANT's services under this Agreement.

H. The SANITATION DISTRICT acknowledges that construction estimates, financial analyses and feasibility projections are subject to many influences including, but not limited to, price of labor and materials, unknown or latent conditions of existing equipment or structures, and time or quality of performance by third parties. The SANITATION DISTRICT acknowledges that such influences may not be precisely forecasted and are beyond the control of CONSULTANT and that actual costs incurred may vary substantially from the estimates prepared by CONSULTANT. CONSULTANT does not warrant or guarantee the accuracy of construction or development cost estimates.

2. COMPENSATION

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

A. Total Compensation

Total compensation shall be in an amount not to exceed Two Million Two Hundred Forty Thousand Dollars ($2,240,000). Total compensation to CONSULTANT including burdened labor (salaries plus benefits), overhead, profit, direct costs, and Subconsultant(s) fees and costs shall not exceed the sum set forth in Attachment "E" - Fee Proposal.

B. Labor

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

C. Overhead

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

D. Profit

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

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

E. Subconsultants

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

F. Direct Costs

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

G. Other Direct Costs

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

H. Reimbursable Direct Costs

The SANITATION DISTRICT will reimburse the CONSULTANT for reasonable travel and business expenses as described in this section and further described in Attachment "D" - Allowable Direct Costs to this Agreement. The reimbursement of the above-mentioned expenses will be based on an "accountable plan" as considered by Internal Revenue Service (IRS). The plan includes a combination of reimbursements based upon receipts and a "per diem" component approved by IRS. The most recent schedule of the per diem rates utilized by the SANITATION DISTRICT can be found on the U.S. General Service Administration website at http://www.gsa.gov/portal/category/104711#.

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

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

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

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

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

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

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

I. Limitation of Costs

If, at any time, CONSULTANT estimates the cost of performing the services described in CONSULTANT's Proposal will exceed seventy-five percent (75%) of the not-to-exceed amount of the Agreement, including approved additional compensation, CONSULTANT shall notify the SANITATION DISTRICT immediately, and in writing. This written notice shall indicate the additional amount necessary to complete the services. Any cost incurred in excess of the approved not-to-exceed amount, without the express written consent of the SANITATION DISTRICT's authorized representative shall be at CONSULTANT's own risk. This written notice shall be provided separately from, and in addition to any notification requirements contained in the CONSULTANT's invoice and monthly progress report. Failure to notify the SANITATION DISTRICT that the services cannot be completed within the authorized not-to-exceed amount is a material breach of this Agreement.

3. REALLOCATION OF TOTAL COMPENSATION

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

4. PAYMENT

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

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

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

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

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

or

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

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

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

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

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

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

A CONSULTANT or Subconsultant shall be deemed to have submitted a false claim when the CONSULTANT or Subconsultant: a) knowingly presents or causes to be presented to an officer or employee of the SANITATION DISTRICT a false claim or request for payment or approval; b) knowingly makes, uses, or causes to be made or used a false record or statement to get a false claim paid or approved by the SANITATION DISTRICT; c) conspires to defraud the SANITATION DISTRICT by getting a false claim allowed or paid by the SANITATION DISTRICT; d) knowingly makes, uses, or causes to be made or used a false record or statement to conceal, avoid, or decrease an obligation to the SANITATION

DISTRICT; or e) is a beneficiary of an inadvertent submission of a false claim to the SANITATION DISTRICT, and fails to disclose the false claim to the SANITATION DISTRICT within a reasonable time after discovery of the false claim.

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

A. To the extent CONSULTANT's employees and/or Subconsultants who will perform Work during the design and preconstruction phases of a construction contract for which Prevailing Wage Determinations have been issued by the DIR and as more specifically defined under Labor Code Section 1720 et seq, CONSULTANT and Subconsultants shall comply with the registration requirements of Labor Code Section 1725.5. Pursuant to Labor Code Section 1771.4, the Work is subject to compliance monitoring and enforcement by the DIR.

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

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

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

6. DOCUMENT OWNERSHIP – SUBSEQUENT CHANGES TO PLANS AND SPECIFICATIONS

A. Ownership of Documents for the Professional Services performed.

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

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

7. INSURANCE

A. General

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

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

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

B. General Liability

The CONSULTANT shall maintain during the life of this Agreement, including the period of warranty, Commercial General Liability Insurance written on an occurrence basis providing the following minimum limits of liability coverage: One Million Dollars ($1,000,000) per occurrence with Two Million Dollars ($2,000,000) aggregate. Said insurance shall include coverage for the following hazards: Premises-Operations, products liability/completed operations (including any product manufactured or assembled), broad form property damage, contractual liability, independent contractors liability, personal and advertising injury, mobile equipment, vicarious liability, and cross liability and severability of interest clauses. A statement on an insurance certificate will not be accepted in lieu of the actual additional insured endorsement(s). If requested by SANITATION DISTRICT and applicable, XCU coverage (Explosion, Collapse and Underground) and Riggers/On Hook Liability must be included in the General Liability policy and coverage must be reflected on the submitted Certificate of Insurance.

C. Umbrella Excess Liability

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

which, when combined with the primary insurance, will equal the minimum limits for general liability and automotive liability.

D. Automotive/Vehicle liability Insurance

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

E. Drone Liability Insurance

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

F. Worker's Compensation Insurance

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

G. Errors and Omissions/Professional Liability

CONSULTANT shall maintain in full force and effect, throughout the term of this Agreement, standard industry form professional negligence errors and omissions insurance coverage in an amount of not less than Three Million Dollars ($3,000,000) with limits in accordance with the provisions of this Paragraph. If the policy of insurance is written on a "claims made" basis, said policy shall be continued in full force and effect at all times during the term of this Agreement, and for a period of five (5) years from the date of the completion of the services hereunder.

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

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

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

H. Proof of Coverage

The CONSULTANT shall furnish the SANITATION DISTRICT with original certificates and amendatory endorsements effecting coverage. Said policies and endorsements shall conform to the requirements herein stated. All certificates and endorsements are to be received and approved by the SANITATION DISTRICT before work commences. CONSULTANT shall provide the SANITATION DISTRICT with access to copies of its insurance certificates and amendatory endorsements affecting coverage at its regional office in Irvine, California during normal working hours. Confidential information may be redacted from said policies, provided that verification of coverage may not be redacted. Said policies and endorsements shall conform to the requirements herein stated. The following are approved forms that must be submitted as proof of coverage:

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

I. Cancellation Notice

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

J. Primary Insurance

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

K. Separation of Insured

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

L. Non-Limiting (if applicable)

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

M. Deductibles and Self-Insured Retentions

Any deductible and/or self-insured retention must be declared to the SANITATION DISTRICT on the Certificate of Insurance. All deductibles and/or self-insured retentions require approval by the SANITATION DISTRICT. At the option of the SANITATION DISTRICT, either: the insurer shall reduce or eliminate such deductible or self-insured retention as respects the SANITATION DISTRICT; or the CONSULTANT shall provide a financial guarantee satisfactory to the SANITATION DISTRICT guaranteeing payment of losses and related investigations, claim administration and defense expenses. The SANITATION DISTRICT will not invoke the option expressed in this paragraph unless it has reasonable cause to question CONSULTANT's financial strength.

N. Defense Costs

Liability policies (except Errors and Omissions/Professional Liability) shall have a provision that defense costs for all insureds and additional insureds are paid in addition to and do not deplete any policy limits.

O. Subconsultants

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

P. Limits Are Minimums

If the CONSULTANT maintains higher limits than any minimums shown above, then SANITATION DISTRICT requires and shall be entitled to coverage for the higher limits maintained by CONSULTANT. Nothing in this section, however, requires CONSULTANT in the absence of litigation to reveal its Errors and Omissions/Professional Liability limits beyond that required above in Section 7.

8. SCOPE CHANGES

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

9. PROJECT TEAM AND SUBCONSULTANTS

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

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

10. ENGINEERING REGISTRATION

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

11. AUDIT PROVISIONS

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

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

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

12. LEGAL RELATIONSHIP BETWEEN PARTIES

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

13. NOTICES

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

Notices shall be mailed to the SANITATION DISTRICT at:

ORANGE COUNTY SANITATION DISTRICT
10844 Ellis Avenue
Fountain Valley, CA 92708-7018
Attention: Clarice Marcin, Senior Contracts Administrator
Copy: Todd Waltz, Project Manager

Notices shall be mailed to CONSULTANT at:

Brown and Caldwell
18500 Von Karman Avenue, Suite 1100
Irvine, CA 92612
Attention: Cherylle Barrido, PE
Copy: Mike Puccio, PE

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

14. TERMINATION

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

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

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

15. DOCUMENTS AND STUDY MATERIALS

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

16. COMPLIANCE

A. Labor

CONSULTANT certifies by the execution of this Agreement that it pays employees not less than the minimum wage as defined by law, and that it does not discriminate in its employment with regard to race, color, religion, sex or national origin; that it is in compliance with all federal, state and local directives

and executive orders regarding non-discrimination in employment; and that it agrees to demonstrate positively and aggressively the principle of equal opportunity in employment.

B. Air Pollution

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

17. AGREEMENT EXECUTION AUTHORIZATION

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

18. DISPUTE RESOLUTION

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

19. ATTORNEY'S FEES, COSTS AND NECESSARY DISBURSEMENTS

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

20. PROGRESS REPORTS

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

21. WARRANTY

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

22. INDEMNIFICATION

To the fullest extent permitted by law, CONSULTANT shall indemnify, defend (at CONSULTANT's sole cost and expense and with legal counsel approved by the SANITATION DISTRICT, which approval shall not be unreasonably withheld), protect

and hold harmless the SANITATION DISTRICT and all of SANITATION DISTRICT's officers, directors, employees, CONSULTANT's, and agents (collectively the "Indemnified Parties"), from and against any and all claims, damages, liabilities, causes of action, suits, arbitration awards, losses, judgments, fines, penalties, costs and expenses (including, without limitation, attorneys' fees, disbursements and court costs, and all other professional, expert or CONSULTANT's fees and costs and the SANITATION DISTRICT's general and administrative expenses; individually, a "Claim"; collectively, "Claims") which may arise from or are in any manner related, directly or indirectly, to any work performed, or any operations, activities, or services provided by CONSULTANT in carrying out its obligations under this Agreement to the extent of the negligent, recklessness and/or willful misconduct of CONSULTANT, its principals, officers, agents, employees, CONSULTANT's suppliers, CONSULTANT, Subconsultants, subcontractors, and/or anyone employed directly or indirectly by any of them, regardless of any contributing negligence or strict liability of an Indemnified Party. Notwithstanding the foregoing, nothing herein shall be construed to require CONSULTANT to indemnify the Indemnified Parties from any Claim arising solely from:

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

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

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

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

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

23. DUTY TO DEFEND

The duty to defend hereunder is wholly independent of and separate from the duty to indemnify and such duty to defend shall exist regardless of any ultimate liability of CONSULTANT and shall be consistent with Civil Code Section 2782.8. Such defense obligation shall arise immediately upon presentation of a Claim by any person if, without regard to the merit of the Claim, such Claim could potentially result in an obligation to indemnify one or more Indemnified Parties, and upon written notice of such Claim being provided to CONSULTANT. Payment to CONSULTANT by any Indemnified Party or the

payment or advance of defense costs by any Indemnified Party shall not be a condition precedent to enforcing such Indemnified Party's rights to indemnification hereunder. In the event a final judgment, arbitration, award, order, settlement, or other final resolution expressly determines that the claim did not arise out of, pertain to, or relate to the negligence, recklessness, or willful misconduct of the CONSULTANT, to any extent, then the DISTRICT will reimburse CONSULTANT for the reasonable costs of defending the Indemnified Parties against such claims.

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

24. CONSULTANT PERFORMANCE

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

25. COMPLIANCE WITH SANITATION DISTRICT POLICIES AND PROCEDURES

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

26. CLOSEOUT

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

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

i. Give the CONSULTANT a final Agreement Acceptance: or

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

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

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

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

27. ENTIRE AGREEMENT

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

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

CONSULTANT: BROWN AND CALDWELL

By _____
Date

_____
Printed Name & Title

ORANGE COUNTY SANITATION DISTRICT

By _____
David John Shawver — Date
Board Chairman

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

By _____
Ruth Zintzun — Date
Purchasing & Contracts Manager

Attachments: Attachment "A" – Scope of Work
Attachment "B" – Labor Hour Matrix
Attachment "C" – NOT USED
Attachment "D" – Allowable Direct Costs
Attachment "E" – Fee Proposal
Attachment "F" – NOT USED
Attachment "G" – NOT USED
Attachment "H" – NOT USED
Attachment "I" – Cost Matrix and Summary
Attachment "J" – NOT USED
Attachment "K" – NOT USED
Attachment "L" – OCSD Safety Standards

ATTACHMENT “A”

SCOPE OF WORK

ATTACHMENT A

SCOPE OF WORK

Electrical Power Distribution System Improvements
Project No. J-98

TABLE OF CONTENTS

I. SUMMARY

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

1. A Preliminary Design Report

2. Preparation of Bid Documents

II. BACKGROUND, GENERAL PROJECT DESCRIPTION, AND PROJECT ELEMENTS

BACKGROUND

The electrical distribution systems at Plants 1 and 2 are critical to ensure uninterrupted power supply to all plant facilities at all times. The electrical distribution system includes distribution centers, power buildings, and electrical rooms throughout the plants, which use medium-voltage and low-voltage switchgears and automatic transfer switches to distribute utility, Central Generation (Cen Gen), and standby generator power.

In the event of a system disturbance like a fault or a Southern California Edison (SCE) outage, electrical maintenance staff at Plant 1 are required to reconfigure the electrical system and/or shed loads at power buildings/electrical rooms located throughout the plants. This is a time consuming and inefficient means of operating the electrical distribution system, particularly during emergency events like a SCE outage where time is critical in preventing a spill. The J-117B project at Plant 2 will install a substation LAN (local area network)-based load shedding control system that will compare electrical demand with the available supply and shed loads by tripping 12kV feeder breakers based on an operator selected priority during a load shedding event to allow Cen Gen to remain in operation. The load shedding system will be triggered on the detection of a contingency-based event (monitoring key breakers) as the primary method with under frequency used as a backup method. As part of J-117B, OCSD evaluated IEC 61850 substation LAN systems for load shedding and selected Schweitzer Engineering Laboratories (SEL) to provide a load shedding system and protective relays for J-117B and future projects. A similar system is required at Plant 1. In 2009, Project P1-97 completed the replacement of the electromechanical protective relays with SEL relays at the 12kV Service Center and Cen Gen at Plant 1.

Project J-117B will also be implementing a speaker and strobe system at various electrical buildings at Plant 2 per **Exhibit 12A** requirements. This system would provide an early warning of planned remote operation of breakers in order to reduce the risk of any potential electrical hazards to personnel during remote operations. A similar system is required at Plant 1.

Existing electrical deficiencies have been identified under J-25-4 project. These deficiencies include the addition of transient voltage surge suppressors (TVSS), addition of zigzag (high resistance) grounding transformers, and other miscellaneous upgrades.

GENERAL PROJECT DESCRIPTION

Electrical distribution system improvements will be made to various areas throughout Plant 1 and Plant 2. This scope covers both 480V and 12.47kV switchgear, MCCs, transformers, breakers, conductors, status monitoring, load shedding, and arc flash mitigation.

PLANT 1

This project will implement a load shedding system at Plant 1, similar to the system being implemented at Plant 2 under J-117B by SEL, add speaker and strobe system, add high resistance grounding transformers, and provide transient voltage surge suppression devices.

PLANT 2

Project P2-92 relocated and replaced DC-D, B-side 12kV feeder from 12kV Service Center to Cen Gen to create a spare circuit breaker at the 12kV Service Center for DC-K. To match the expected cable useful life and longevity, this project will replace the existing A-side 12kV feeder from Cen Gen to DC-D.

To increase the reliability of the Plant 2 power distribution system, a hybrid grounding system will be added to three (3) EPSA standby generators and (3) Headworks 12.47kV standby generators to reduce potential ground fault currents.

Connections for a portable generator load bank will be added to the EPSA Standby Power Building and the Headworks Standby Power Building to test for compliance with NFPA 110, “Standard for Emergency and Standby Power System”. This standard is currently being implemented as part of the P1-105, Headworks Rehabilitation and Expansion Project at Plant 1.

Aged transformers, switchgears, and MCCs will be replaced at various power buildings with new equipment.

Project J-117B will be installing an electrical SCADA system for a significant portion of the electrical system at Plant 2. To match the SCADA additions being implemented on Project J-117B, this project will add similar SCADA functionality to equipment at DC-A and at the power buildings fed by DC-A. The Substation LAN that will be installed by Project J-117B will also be extended to DC-A by this project.

DESCRIPTION OF PROJECT ELEMENTS

PROJECT ELEMENT 1 – ELECTRICAL UPGRADES AT PLANT 1

Required electrical upgrades for each power building/electrical room are indicated in the facility breakdown below. This list provides an overview of each electrical room/power building and shall be used to identify specific elements at each location.

1. DAF Building:

Add high resistance grounded zig-zag transformers and associated **Exhibit 12A** monitoring points to the existing electrical Programmable Logic Controller (PLC).

2. Speaker and Strobe System:

Add 'Room Strobe' and 'Room Speaker' equipment and associated signals to the respective electrical PLCs per **Exhibit 12A** to the following buildings:

- 12kV Service Center
- CenGen
- Blower Building 1
- Blower Building 2
- DAF Building
- Power Building 5
- Power Building 6
- Power Building 7
- Power Building 8
- Power Building 9
- Steve Anderson Lift Station
- Thickening and Dewatering Building (this location presently has a strobe and horn which shall be replaced with a strobe and speaker system)

3. TVSS

Provide transient voltage surge suppression (TVSS) devices at the following motor control centers (MCCs) and panels. Provide monitoring status signal at the locations indicated:

a. MCC-AAA
    i. TVSS status to Primary Basins 1-5 PLC, Drop 3, Rack 1, Slot 3, Point 8 (Register 10056). Reserved in SAT.
b. MCC-OM
    i. TVSS status to Control Center PLC, Drop 1, Rack 2, Slot 5, Point 1 (Register 10001). Reserved in SAT.
c. MCC-CB
    i. TVSS status to Primary Basins 1-5 PLC, Drop 2.
d. MCC-CWA, and MCC-CWB
    i. TVSS status to City Water PLC, Drop 2, Rack 1, Slot 8, Point 16 (Register 10048). Reserved in SAT.
e. MCC-SP
    i. TVSS status to Power Building 4 Electrical SCADA PLC, Drop 2, Rack 1, Slot 5, Point 16 (Register 10048). Reserved in SAT.

f. MCC-T and MCC-TA
    i. MCC-T: TVSS status to Primary Basins 6-15B PLC, Drop 8, Rack 1, Slot 3, Point 16 (Register 10336). Reserved in SAT.
    ii. MCC-TA: TVSS status 16-30A PLC, Drop 6, Rack 1, Slot 3, Point 16 (Register 10288). Reserved in SAT.
g. MCC-U and MCC-UA
    i. MCC-U: TVSS status to Primary Basins 6-15B PLC, Drop 23, Rack 1, Slot 3, Point 16 (Register 10800). Reserved in SAT.
    ii. MCC-UA: TVSS status to Primary Basins 17-31 PLC, Drop 4, Rack 1, Slot 3, Point 16 (Register 10176). Reserved in SAT.
h. MCC-VA (located at Effluent Junction Box)
    i. TVSS status to Plant Water PLC, Drop 7, Rack 1, Slot 3, Point 16 (Register 10176). Reserved in SAT.
i. MCC-W (located at Primary Effluent Junction Box)
    i. TVSS status to Aeration Basin Utility PLC, Drop 18, Rack 1, Slot 3, Point 16 (Register 10864). Reserved in SAT.
j. MCC-X (located at Primary Polymer Facility)
    i. TVSS status to Primary Basins Polymer PLC, Drop 4, Rack 1, Slot 5, Point 16 (Register 10160). Reserved in SAT.
k. MCC-Z (located at WSSPS)
    i. TVSS status to Waste Sidestream Pump Station, Drop 2, Rack 1, Slot 6, Point X (Register 10048). Reserved in SAT.
l. SWGR-6A, and 6B
    i. SWGR-6A: TVSS status to Power Building 6 Electrical SCADA PLC, Drop 2, Rack 1, Slot 6, Point 6 (Register 10054). Reserved in SAT.
    ii. SWGR-6B: TVSS status to Power Building 6 Electrical SCADA PLC, Drop 2, Rack 1, Slot 5, Point 7 (Register 10039). Reserved in SAT.
m. SWGR-7A, and 7B
    i. SWGR-7A: TVSS status to Power Building 7 Electrical SCADA PLC, Drop 1, Rack 1, Slot 8, Point 16 (Register 10048). Reserved in SAT.
    ii. SWGR-7B: TVSS status to Power Building 7 Electrical SCADA PLC, Drop 1, Rack 1, Slot 9, Point 16 (Register 10064). Reserved in SAT.
n. SWGR-F Bus A, and BUS B
    i. Bus A: TVSS status to Power Building 2 Electrical SCADA PLC, Drop 2, Rack 1, Slot 3, Point 15 (Register 10015). Reserved in SAT.
    ii. Bus B: TVSS status to Power Building 2 Electrical SCADA PLC, Drop 2, Rack 1, Slot 3, Point 16 (Register 10016). Reserved in SAT.
o. SWGR-CGSA, CGSB
    i. SWGR-CGSA: TVSS status to CEN-GEN Electrical SCADA PLC, Drop 2, Rack 1, Slot 6, Point 13 (Register 10061). Reserved in SAT.

ii. SWGR-CGSB: TVSS status to CEN-GEN Electrical SCADA PLC, Drop 2, Rack 1, Slot 13, Point 11 (Register 10171). Reserved in SAT.

p. SWGR-M1
   i. TVSS status to DAF Electrical SCADA PLC, Drop 2, Rack 1, Slot 3, Point 7 (Register 10007). Reserved in SAT.

q. SWGR-NB Bus A, and Bus B
   i. TVSS status to Power Building 2 Electrical SCADA PLC. Need to provide an additional I/O card and CableFast.

r. SWGR-P1
   i. TVSS status to DAF Electrical PLC, Drop 2, Rack 1, Slot 4, Point 6 (Register 10022). Reserved in SAT.

PROJECT ELEMENT 2 – ELECTRICAL UPGRADES AT PLANT 2

Required electrical upgrades for each power building/electrical room are indicated in the facility breakdown below. This list provides an overview of each electrical room/power building and shall be used to identify specific elements at each location:

1. **<u>EPSA and Headworks Standby Power Buildings</u>:**
   - Provide a hybrid grounding system for the medium-voltage generators at EPSA and Headworks Standby Power Buildings. The new hybrid grounding system will comprise of a high resistance grounding unit at each medium voltage generator set and a low resistance grounding system located at the generator paralleling switchgear bus.

   - Provide a permanent load bank connection for the medium voltage generators at EPSA and Headworks Standby Power Buildings. The load bank connection will include 12kV circuit breakers (utilize an existing spare breaker at EPSA and Headworks Standby Power Buildings), 12kV feeders, 12.47kV-480V dry-type cast-coil pad-mounted transformers, 480V feeders and Cam-lok connectors located in a weatherproof enclosure. Load bank connection shall be sized to support 100% of one generator nameplate rating.

2. **<u>Distribution Center A (DC-A)</u>:**
   - Provide SCADA monitoring and control (including conduit and wiring from equipment to new electrical PLC/RIO cabinet) per **Exhibit 12A** requirements for the following equipment:
     - 12kV Switchgears SWGR-DCA-A and SWGR-DCA-B (includes breaker monitoring/control and remote transfer scheme operation). Note that the existing 12kV switchgear has an automatic transfer scheme in accordance with OCSD's standards.
     - 12kV switchgear station battery charger and associated bypass switch.
     - Plant Water Pump Station 12.47kV to 480V oil-filled transformers
     - New SEL 12kV protection relays

- Add building in remote/local status per **Exhibit 12A.**
- Add 'Room Strobe' and 'Room Speaker' equipment and associated signals per **Exhibit 12A.**

- Provide new PLC/RIO cabinet for electrical SCADA. The new PLC will tie into the ICS network cabinet in DC-A that is to be installed per P2-107 documents under Contract J-117B.
- This project will integrate with the J-117B design and implement the modifications. Integration primarily includes the ICS and Substation LAN network systems. Any required integration documents shall be produced by this project.

3. **Power Building B (PB-B):**
   - Replace transformers TFR-BA, BB and BC with new delta-wye, high-resistance grounded, liquid-filled substation transformers and locate outside on the west side of PB-B. Provide secondary containment. Demolish existing transformers. Existing transformers are located inside the building.
   - Project P2-92 demolished most of the loads from MCC-RC. Perform load calculation at SWGR-RC and SWGR-DCSL. Based on the calculations refeed MCC-RC and MCC-DW from SWGR-DCSL and demolish remaining unused switchgear, MCC, transformer, load interrupting switch, and feeders. If evaluation deems that SWGR-DCSL becomes overloaded, then size new transformer TFR-BC to support the revised loads on SWGR-RC.
   - Provide breaker control and monitoring for all breakers on SWGR-DCSL per **Exhibit 12A.** Switchgear includes an automatic transfer switch that shall be incorporated into the monitoring and control.
   - Add 'Room Strobe' and 'Room Speaker' equipment and associated signals per **Exhibit 12A.**
   - Add building in remote/local status per **Exhibit 12A.**
   - Provide all transformer alarm points per **Exhibit 12A** for new Transformers TFR-BA, TFR-BB, TFR-BC.
   - Provide electrical HMI Panel within PB-B or an alternate OCSD accepted location if space is inadequate within PB-B.
   - Provide a new electrical PLC panel in PB-B to wire up the new electrical SCADA points. Modify the existing PB-B process PLC panel by moving over the PB-B process PLC signals over to the digester rack, located within the same panel. Demolish the PB-B process PLC. If space is not adequate within PB-B for a new electrical PLC panel, then modify the existing process PLC panel at PB-B to accommodate new electrical PLC.

4. **Power Building C (PB-C)**
   - Replace transformer TFR-CA with new delta-wye, high-resistance grounded, liquid-filled substation transformer and locate outside. Provide secondary containment. Demolish existing transformer. Existing transformer is located inside the building.

- Replace switchgears CPB and SB with arc-resistant switchgears and re-feed all existing loads. Refer to Project Execution section of this scope of work regarding spacing and construction sequencing requirements.
- Provide all **Exhibit 12A** signals for the new switchgears and existing ATSs.
- Add 'Room Strobe' and 'Room Speaker' equipment and associated signals per **Exhibit 12A.**
- Provide electrical HMI Panel within PB-C or an alternate OCSD accepted location if space is inadequate within PB-C.
- Provide all transformer alarm points per **Exhibit 12A**.
- Provide all required conduit and wiring from above monitored/controlled equipment to electrical PLC/RIO cabinet to be located in PB-C by Project J-117B.

5. Power Building D (PB-D)

- Replace transformer TFR-DA with new delta-wye, high-resistance grounded, liquid-filled substation transformer and locate outside. Provide secondary containment. Existing transformer is located inside the building.
- Replace MCC-G with new arc resistant MCC and re-feed all existing loads form the new MCC.
- Demolish MCC-FA and re-feed all existing loads from new MCC-G.
- Replace ATS, generator breaker, and incoming normal source breaker with new ATS and breakers. Existing transfer scheme and generator start functionality shall be incorporated into the new design.
- Provide all transformer, generator, breaker, ATS, and TVSS points per **Exhibit 12A**.

6. Distribution Center D (DC-D)

- Replace A side 12kV feeder from CEN-GEN to DC-D.

7. CABLES

- **SWBD-OBC**

  Replace existing #4 conductors feeding the elevator (located in the Operations Center fed by breaker OBC413) with #1 conductors. (SLD indicates #4 conductors, with 80A CB). Replace cable and its feeder breaker to the appropriate size.

8. Sizing Evaluation and Modification

- **SWBD-OBC**
  J-25-4 study identified a sizing issue with circuit breaker OBC-413 (80A feeding elevator). Replace circuit breaker to the appropriate size.
- **SWBD-MBB (Maintenance Building)**
  J-25-4 study identified a sizing issue with circuit breaker MBC-403 (40A feeding Valve 322). Replace circuit breaker to the appropriate size.

- **MCC-MBC**
  J-25-4 study identified a sizing issue with circuit breaker MBC-408 (200A feeding AHU3000 Valve – 83HP). Replace circuit breaker to the appropriate size.

PROJECT ELEMENT 3 – IMPLEMENT LOAD SHEDDING AND ARC FLASH MITIGATION SCHEME AT PLANTS 1 AND 2

To increase the reliability and probability of Cen Gen remaining in operation during an SCE power outage (loss of utility power source), a load shedding scheme and substation LAN will be implemented. Relay-to-relay communications will utilize the substation LAN to support communications for a "virtual-main" protection scheme to reduce arc flash levels. The scheme should be similar to the scheme utilized in Project J-117B. See **Exhibit 13B** for the scheme to utilize where the low voltage switchgear and its upstream source medium voltage switchgear are in close vicinity to one-another (where hard-wired trips are feasible). See **Exhibit 13A** for the scheme to utilize where the low voltage switchgear and its upstream source medium voltage switchgear are far away from one-another (where IEC 61850 communications are necessary over the Substation LAN network to send trip signals to one-another).

The fail status (trouble alarm) of the existing SEL protection relays located in the 12kV Service Center and Cen Gen are presently being monitored per the **Exhibit 12A** requirements. The existing feeder breaker protection relays presently have an Ethernet cable connected to the ICS network cabinet. The protection relays associated with the main (351), tie (351A), Cen Gen feeder (311L), and central generators (300G) utilize serial communications. Provide network communication cables to all replaced and existing protection relays as required by SEL. **Exhibit 12A** signals shall be added for any new protection relays to the electrical PLCs located in the associated building.

A portion of the engineering services for load shedding and arc flash mitigation will be performed by SEL. The remaining portion of the engineering services to complete the design will need to be performed under this scope of work by the CONSULTANT.

A summary of the modifications at the various buildings is as follows:

Plant 1

- 12kV Service Center (12kV SWGR-ESC BUS A and BUS B)
  - Replace and upgrade certain existing intelligent electronic devices (IEDs) to achieve design requirements (identified by SEL as being the 351, 351A, 311L protection relays and RTAC). The term IEDs include protection relays, as well as other interface devices such as SEL time clocks and RTAC (real time automation controller).
  - Add PRP (parallel redundancy protocol) and PTP (precision time protocol) hardware to interface with existing protection relays. Details of design modifications will be provided by SEL.
  - Add load shed functionality (all main and feeder breakers)

    - Add Auto-Synchronization via the IEC 61850 communication to the 12kV Service Center main breakers (requirements include communication between generator protection relays and the 12kV Service Center main breaker protection relays and interface with the generation controls to allow selection of synchronization at either Cen-Gen main breakers or 12kV Service Center main breakers – presently only the hardwired Cen-Gen synchronization functionality exists which will remain in the new design)
    - Add Potential Transformer (PT) inputs for all protection relays to enable power data collection
    - Add circuit breaker opened and closed status to all protection relays
    - Add racked-in status to all protection relays for all breakers
    - Add a load shed controller and HMI
    - Add substation LAN connectivity and hardware
- CenGen Distribution Switchgear (12kV SWGR-CGS BUS A and BUS B)
    - Replace and upgrade certain existing IEDs to achieve design requirements (identified by SEL as being the SEL 351, 351A, 311L protection relays and RTAC).
    - Add hardware to interface with existing protection relays (PRP and PTP). Details of design modifications will be provided by SEL.
    - Add load shed functionality (all main and feeder breakers)
    - Add an HMI in the Cen Gen control room on the second floor
    - Add PT inputs for all relays to enable power data collection
    - Add circuit breaker opened and closed status to all protection relays
    - Add racked-in status to all protection relays for all breakers
    - Add substation LAN connectivity and hardware
- CenGen Generator Switchgear (12kV BUS G)
    - Replace existing SEL 300G relays with new SEL 400G or 700G as required to achieve design requirements
    - Add hardware to interface with existing protection relays (PRP and PTP).
    - Add PT inputs for all relays to enable power data collection
    - Add circuit breaker opened and closed status to all protection relays
    - Add racked-in status to all protection relays for all breakers
- Power Building 7 (480V SWGR-7-A and SWGR-7-B)
    - Add new SEL relays for transformer virtual main (location for relay-relay tripping via 61850 communication)
    - Add substation LAN connectivity and hardware
- Power Building 8 (480V SWGR-TFA and SWGR-TFB)
    - Add new SEL relays for transformer virtual main (location for relay-relay tripping via 61850 communication)
    - Add substation LAN connectivity and hardware
- Power Building 9 (480V SWGR-LA-A and SWGR-LA-B)
    - Add new SEL relays for transformer virtual main (location for relay-relay tripping via 61850 communication)
    - Add connectivity from the existing GE F60 protection relays to the Substation LAN network
    - Add substation LAN connectivity and hardware

- Blower Building 1 (4.16kV SWGR-BLOWER)
    - Replace electromechanical relays with SEL protection relays for the main breakers located at the 4.16kV SWGR-BLOWER. These main breaker and associated relays are located outside adjacent to their power source transformers.
    - Add load shed functionality for the two main breakers via the new SEL relays
    - Add PT inputs for the new SEL relays to enable power data collection for the main breakers
    - Add circuit breaker opened and closed status to the new protection relays for the main breakers
    - Add racked-in status to the new protection relays for the main breakers
    - Add substation LAN connectivity and hardware
- Blower Building 2 (12kV SWGR-J-A and SWGR-J-B, 480V SWGR JB-A and SWGR JB-B)
    - Add new SEL relays for transformer virtual main (location for relay-relay hard-wired tripping)
    - Add connectivity from the existing GE Multilin and F60 protection relays to the Substation LAN network
    - Add substation LAN connectivity and hardware
- Thickening and Dewatering Building (12kV SWGR-Q-A and SWGR-Q-B, 480V SWGR-QA-A, SWGR-QA-B, SWGR-QC-A, SWGR-QC-B)
    - Add new SEL relays for transformer virtual main (location for relay-relay hard-wired tripping)
    - Add connectivity from the existing GE Multilin protection relays to the Substation LAN network
    - Add a load shed controller and HMI at this location
    - Add substation LAN connectivity and hardware
- Steve Anderson Lift Station – SALS (480V SWGR-HB-A and SWGR-HB-B)
    - Add new SEL relays for transformer virtual main (location for future relay-relay tripping via 61850 communication). The upstream medium voltage power source for this is from Power Building 3. A separate project (Project P1-105) will install new relays at Power Building 3. That project will provide programming for relay-relay tripping via 61850 communication. This project will install the relays and the CTs wiring at SALS.
    - Add substation LAN connectivity and hardware
- Power Building 5
    - Add substation LAN connectivity and hardware
      As a clarification note, new SEL relays at this location will be designed, programmed, and installed by a separate project. However, this Substation LAN addition will be part of this scope of work.
- New (Future) Power Building 3
    - New SEL relays will be designed, programmed, and installed by a separate project (Project P1-105). This project should account for the new Substation LAN location at Power Building 3 during the network design.
- Control Center
    - Add an HMI in the Control Center
- Electrical Maintenance Building
    - Add an HMI in the electrical maintenance supervisor work area

- Power Building 6
    - Replace electro-mechanical relays with SEL Relays (Including Door Replacements)
    - Add substation LAN connectivity and hardware

Plant 2

- Distribution Center A (12kV SWGR-DCA-A and SWGR-DCA-B)
    - Replacement of existing relays, including door replacements, with new SEL relays (location for relay-relay tripping via 61850 communication).
    - Add DC-A to Substation LAN ring between Headworks Standby PB and Cen-Gen. This will require a new air-blown fiber optic cable between DC-A and Cen Gen. OCSD will provide information detailing available tube cell pathway for new fiber.
- Power Building B (480V SWGR-DCSL-A, SWGR-DCSL-B, and SWGR-RC)
    - Add new SEL relays for transformer virtual main (location for relay-relay tripping via 61850 communication) by extending relay-to-relay communications to DC-A substation LAN using a fiber optic cable and copper to fiber converters at PB-B and DC-A.
    - Add substation LAN connectivity and hardware
- Power Building C (480V SWGR-CPB – new replacement switchgear)
    - Add new SEL relays for transformer virtual main (location for relay-relay tripping via 61850 communication)
    - Connect relays at this location to the Power Building B Substation LAN via a SEL RTAC (Real Time Automation Controller)
- Power Building D (480V MCC-G – new replacement MCC)
    - Add new SEL relays for transformer virtual main (location for relay-relay tripping via 61850 communication)
    - Connect relays at this location to the Power Building B Substation LAN via a SEL RTAC (Real Time Automation Controller)

WORK TO BE DONE BY SEL AT PLANTS 1 AND 2

SEL will develop the Substation LAN functional design, design the overall Substation LAN topology, program, test, and commission a fully functional load shedding system utilizing IEC-61850 based substation LAN. The CONSULTANT will perform the detailed design for all switchgear, breaker control schemes, IEDs, and networking based on SEL's functional design. IEDs include protection relays and associated interface devices such as time clocks, controllers, redundancy boxes, etc. The system will be designed to perform relay-to-relay tripping and time synchronization using PTP protocol. The system will collect sequence of events data from all protective relays, including existing capable (GE F60, GE Multilin, SEL, etc.) relays. The substation LAN system shall be a stand-alone, redundant, dual ring topology PRP network system. SEL will be validating that this topology yields the optimal results and may modify the topology upon further evaluation early in the design phase. The proposed hardware system will be identical to that used by Project J-117B unless newer versions of the hardware have been released by SEL.

SEL will evaluate the use of existing SEL relays to implement the load shedding system at the Plant 1 12kV Service Center and Cen-Gen switchgears. Modifications and additional hardware to integrate into the load shedding system will be required. If the existing relays are lacking required features to meet the full intent of the load shedding system, then new hardware will be necessary.

SEL will provide the network topological diagrams (that illustrate overall Substation LAN topology), sample network riser diagrams (providing detailed examples of cabling between each model IED to be connected and its local Substation LAN switches), and the front-end engineering report (which will evaluate existing hardware capability and provide proposed new hardware and design solutions) in the early part of the design.

The level of effort for this Scope of Work includes coordination and integration with the SEL design elements. Table 1 has been provided to identify the overview of work to be done by others for the Substation LAN to help facilitate integration into the CONSULTANT's design. SEL will provide certain engineering services for the Substation LAN which shall be integrated into the CONSULTANT's design by the CONSULTANT. The CONSULTANT shall provide all detailed drawings and specifications to provide a complete set of Contract Documents.

Table 1 – Overview of Work to be Done by Others for the Substation LAN

Phase	SEL	CONSTRUCTION CONTRACTOR
Preliminary Design/ Design	- Network Block Diagrams (Topological and Sample Riser Diagrams) - Front-end Engineering Design (FEED) - Functional Design Specification - Load Shed & Substation LAN Specification - Testing and Associated Procedures - All Required Development in the Design Phase: Programming - Including SCADA, IEDs, Controllers, and Network	- None.
Construction/ Commissioning /Close-out	- All Required Development in the Construction/ Commissioning Phase: Development - Including SCADA, IEDs, Controllers, and Network Systems - Testing and Associated Procedures - Training	- NETA Testing - As-built Switchgear Elevation Drawings - As-built Switchgear Wiring (Interconnect) drawings - As-built 3-line Drawings - Procurement and Installation of Hardware & Services per Construction Contract Requirements

COORDINATION WITH OTHER PROJECTS

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

- P1-105 Headworks Rehabilitation and Expansion at Plant 1. This project will rehabilitate and upgrade facilities at the Plant 1 Headworks. Facilities to be rehabilitated include the Metering and Diversion Structure, the Bar Screen Building, the Bin Loading Building, the Main Sewage Pump Station, the Grit Basins, the Primary Influent channels, the Headworks Odor Control Scrubbers, replace existing PB-3A with new power building PB-3 (including a new server room), and electrical power distribution and control systems. The project will also include demolition of the original Headworks No. 1 facilities and the unused Chlorine Building pumps project.

- P1-132 Uninterruptible Power Supply Improvements at Plant 1. A new regional UPS will be installed at Power Building 8 to provide critical power to facilities at the northwest region of Plant 1. Existing UPS status and alarm signals will be modified to reflect their replacement with a power distribution unit (PDU) and automatic transfer switch at the Control Center, Power Buildings 7 and 8, and Primary Clarifiers 6-31 east and west electrical rooms. This project will also replace old electrical cables, step-down transformers, distribution and branch circuit panelboards at Buildings A, B, 5, 6, Warehouse, and Fleet Services. All work in this area requires a city of Fountain Valley permit.

- P1-128 Headquarters Complex. This project will construct the new Headquarters Building on the north side of Ellis Avenue to house OCSD staff. The project includes the demolition of the HR Building, Risk Trailer, and other buildings on the Ellis and Bandilier properties.

- J-117B Outfall Low Flow Pump Station. This project performs several modifications at Plant 2. This project rehabilitates the medium voltage OOBS pumps, adds new pump station facilities, adds SCADA functionality to electrical equipment, adds a new ICS (industrial control system) network, performs switchgear modifications including adding new SEL relays, adds a load shed system, adds a new Substation LAN, and other miscellaneous electrical upgrades throughout various facilities at Plant 2.

- P2-98 Primary Treatment Rehabilitation at Plant 2. This project rehabilitates the Plant 2 primary clarifiers. This project also demolishes and performs addition of the associated electrical systems. The project will be constructed in several phases spread throughout several years.

III. PROJECT SCHEDULE

MILESTONE	DEADLINE
Kickoff Meeting	The kickoff meeting will be scheduled to coincide with the Preliminary Design NTP
Submit draft Preliminary Design Report (PDR)	100 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	15 workdays from receipt of Draft PDR
Submit final Preliminary Design Report	15 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 1 (DS1)	80 workdays from Design Phase NTP
OCSD Review of DS1	20 workdays from receipt of DS1
Submit Design Submittal 2 (DS2)	80 workdays from receipt of OCSD comments on DS1
OCSD Review of DS2	20 workdays from receipt of DS2
Submit Design Submittal 3 (DS3)	80 workdays from receipt of OCSD comments on DS2.
OCSD Review of DS3	20 workdays from receipt of DS3
Submit Final Design Submittal (FDS)	40 workdays from receipt of OCSD comments on DS3. CONSULTANT shall stop work upon submission of DS3, except as required to participate in OCSD meetings, until receipt of OCSD comments on DS3
OCSD Review of FDS	15 workdays from receipt of FDS
Final Technical Specifications and Plans	20 workdays from receipt of OCSD comments on FDS

The time frames specified in Table 1 are used to estimate the actual milestone dates based on the assumed NTP date, as shown in **Exhibit 2**.

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

IV. PROJECT EXECUTION

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

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

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

Not in this Scope of Work.

PHASE 2 – PRELIMINARY DESIGN

TASK 2.1 – PREDESIGN EVALUATION STUDIES (NOT IN THIS SCOPE)

TASK 2.2 - PRELIMINARY DESIGN PRODUCTION

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

The following requirements apply to PDR Production.

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

- CONSULTANT shall schedule and execute the work so that draft design memos are produced and submitted early enough that OCSD comments can be addressed and the changes incorporated into the draft PDR. All significant equipment decisions are to be made before the start of Phase 3 - Design.

At the end of Phase 2 – Preliminary Design, major design elements should be fixed and major equipment, building footprints, and major structural elements should be well defined and established. The extent of the design and the number and type of drawings should also be established.

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

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

Preliminary Design Report (PDR) Contents and Organization

The PDR shall be structured as outlined below, with the contents corresponding to the tasks listed in this Scope of Work.

Volume 1 – Preliminary Design Report Technical Memos
Executive Summary
Predesign Evaluation Studies Report (not in this scope of work)

Design Memos
Design Memo 1 – Electrical
Design Memo 2 – Instrumentation and Control / Networking / Tagging
Design Memo 3 – Implementation Plan

Volume 2 – Drawings
General
Demolition
Civil
Landscape (NOT USED)
Structural (NOT USED)
Architectural (NOT USED)
Mechanical (NOT USED)
Electrical
Instrumentation & Control

Volume 3 – Submittal Documentation
Calculations
Equipment Data & Catalog Cuts
Decision Log
Meeting Minutes

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

The draft PDR and final PDR shall be submitted in searchable PDF format legible on-screen and as a hard copy. The number of hard copies is indicated in **Exhibit 4.** The following requirements apply to the labeling and organization of the PDF submittal:

- Each design memo shall be a separate file.

- Drawings shall be submitted as a single compiled file, except where the size of the file would exceed 30 MB, in which case the drawings should be separated into separate files by discipline. If the file for one discipline is more than 30 MB, the file may be divided into multiple files. In no case may drawings be submitted as separate PDF files for each drawing. The order of drawings in the PDF file shall match the list of drawings.

- The PDF files shall be named to include the project number, the name of the deliverable (e.g. Draft PDR, DS2, etc.), the volume, and the particular content. The files shall also be named so that the list appears in sequential order when sorted by file name. 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. The use of special characters shall not be allowed in file names. Spaces and hyphens are acceptable, however.

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

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

Task 2.2.1 Design Memo 1 – Electrical

Design Parameters

CONSULTANT shall develop the design configuration and performance requirements of the proposed facilities including the following:

- Duct bank, cable and conduit sizing and routing requirements. Evaluation shall clearly depict all relevant sections of duct banks and tunnels, including all proposed changes in elevation, entry and exit points, pull box locations, pothole locations, etc. A sample cable and conduit layout are provided as a reference for both of the different “virtual-main” protection scenarios in **Exhibit 13C** and **Exhibit 13D**. CONSULTANT shall use this as a reference and design the required amount of wires, cables, and conduits.

- Recommended types and configuration of equipment, including the information required to qualify and select specific equipment for the system.

- Sizing parameters, such as the capacitive charging current, size of the proposed grounding resistor, the size of the load bank, panel electrical loading, etc.

In development of the design configuration, CONSULTANT shall consult extensively with OCSD’s staff.

Rehabilitation Requirements

CONSULTANT shall prepare detailed description of the proposed rehabilitation measures for existing equipment. The descriptions shall include, as a minimum, the following material, as applicable:

- Lists of existing equipment identifying where items are to be replaced, rebuilt, or rehabilitated.
- Electrical system rehabilitation and replacement measures, including location of switchgears, transient voltage surge suppressors, low and high resistance grounding units, circuit breaker monitoring and control status signals, transformer replacement, load bank and I/O signals etc.
- Wiring terminations to existing equipment shall be field verified where using spare terminals.
- Rehabilitation, replacement, and improvement of instrumentation and control facilities. Note – the Design Memo should include only a summary of instrumentation and control work. Detailed descriptions are to be included in the Instrumentation and Control Design Memo.

Code Requirements

Identify the following that apply to the project:

- Building codes and other regulations
- State and federal safety standards and regulations.

Design Safety Requirements

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

- Excavation and trenching hazards
- Electrical hazards
- Site access

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

- Floor openings
- Floor holes
- Walking-working surfaces (buildings, tunnels, and outdoor equipment areas)

- Noise
- Ergonomics (including equipment operation)
- Clearance and passageways (for installing devices, panels, or valves).
- Barricades for protection of electrical panels
- Locations of equipment that may lead to a safety issue.
- Applicable safety issues and solutions included in OCSD Safety Standards.

Electrical Design Guidelines

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

- Tagging procedures
- Relay protection guidelines
- Neutral grounding
- Power cable type
- Surge suppression
- Electrical equipment naming conventions
- Distribution equipment naming convention
- Configuration of standby generator set connection to the plant system.

CONSULTANT shall coordinate the electrical system design with other on-going OCSD design and construction projects affecting the project area as well as with the system requirements being developed as part of the projects listed under Coordination with Other Projects under Description of Project Elements in Section II of this Scope of Work.

CONSULTANT shall provide the following:

- Field data collection and verification as defined in the Engineering Design Guidelines, Chapter 10, "Report – Field Data Collection and Verification".
- Preliminary Load List. This list shall show all major and auxiliary electrical loads for each voltage level. Auxiliary loads may be lumped. In addition, this list shall be used to classify the equipment for asset management. This shall designate equipment items which are classified as "run to failure" for preventative maintenance or for predictive maintenance.

Electrical Design Requirements

Where existing systems (electrical, I&C, process, etc.) are modified or replaced by this project, CONSULTANT shall also provide the design to upgrade the respective existing electrical distribution systems to the version of OCSD Design Standards specified in Section V "General Requirements" of this Scope of Work, including the following activities.

- Evaluate the project area systems (electrical and the related systems) and the existing system philosophy. E.g.:
    - Manual and automatic bus transfer and control capabilities.
    - Interlocking
    - HVAC requirements for electrical and control rooms and the related electrical system requirements.
    - Electrical distribution equipment upgrades required due to the I&C upgrades of Design Memo 2 - Instrumentation and Control.
- Identify the upgrade requirements.
- Provide design for the respective upgrades.

The cables associated with equipment replacements, upgrades, and relocations (MCC, control panels, mechanical equipment, etc.) shall be replaced. This replacement will be for full length. Splicing will not be allowed.

OCSD's Project Manager's written approval shall be required for any deviations from the above requirements and/or the OCSD Design Standards.

Task 2.2.2 Design Memo 2 - Instrumentation and Control / Networking / Tagging

Instrumentation and Control

CONSULTANT shall provide a list of monitoring and control signals required at each building as required by **Exhibit 12A.**

For the Power Building D (PB-D) - Evaluate connecting new electrical SCADA points to an existing nearby electrical PLC and also to the existing process PLC at the north scrubber complex. Based on OCSD acceptance, proceed with optimal option in design.

Networking

CONSULTANT shall provide descriptions of their findings on the fiber routing between buildings. Additionally, the CONSTULTANT shall provide a building by building summary of the field investigations of existing panels, power sources, location of new networking equipment, and the proposed modifications.

Tag Numbering System

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

OCSD's Project Manager's written approval shall be required for any deviations from the above requirements and/or the OCSD Design Standards.

Task 2.2.3 Design Memo 3 - Implementation Plan

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

Identification of Adjacent Projects

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

Preliminary Construction Sequencing Plan

The plan shall include the following material:

- Description of sequencing constraints and the reasons for those constraints.
- Implementation alternatives that might expedite construction and commissioning, avoid sequencing constraints, and/or mitigate schedule and cost risks.
- A detailed narrative describing a likely sequence for how construction and commissioning would be completed. The purpose of the narrative is not to decide exactly how the project should be completed, but to demonstrate that there is at least one viable method to complete the work, and to clarify what risks may be associated with that plan. The narrative should include sequential graphics clearly describing how the work can be phased.
- A CPM construction schedule showing in the interrelationships of the elements of the project. The schedule shall be prepared using software intended for schedule projects. Examples of acceptable software packages include Microsoft Project and Primavera.
- Coordination with planned outages, construction cutover, construction activities from contiguous projects, temporary feeds to maintain existing system, etc.

Review of Constructability Issues

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

- The consequence of the issue occurring.
- The likelihood that the issue will occur, including what factors would cause it to occur, or not.
- Suggested mitigation measures and when mitigation measures might be implemented.
- Potential project changes and approaches that may be warranted to address the issue.

Preliminary Design Construction Cost Estimate

The CONSULTANT shall prepare an AACE International Class 3 cost estimate per OCSD's Engineering Design Guidelines, Chapter 01. A sample construction cost estimate format is provided in **Exhibit 5**.

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

Demolition Equipment and Instrumentation Databases (EIDs)

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

Task 2.2.4 Preliminary Design Drawings

Preliminary Design drawings shall be bound into a separate volume. Drawing requirements by discipline are described below.

General Drawings

General drawings shall include:

- Cover sheet including location and vicinity maps
- Index of drawings
- Abbreviations
- Legends and symbols

Demolition Drawings

Preliminary Design demolition drawings shall include a site plan indicating the location of structures to be demolished along with mark-ups of key record drawings that illustrate the extent of demolition proposed, including sections depicting the proposed depth of demolition.

Civil Drawings

Civil drawings shall include:

- Overall site plan
- Horizontal control, paving, and grading showing each structure at 1"=20' scale or as required.
- Yard piping plans at 1" = 20' scale (or as required) showing the location and routing of buried pipelines greater than 12-inch diameter size and smaller diameter process piping (down to 8-inches in diameter) if the routing is critical to the site layout.

Structural Drawings

Structural drawings shall include:

- Ground and roof plans
- Illustrative sections
- Key project-specific details required to illustrate key connections, including to existing structures.

Architectural Drawings (NOT USED)

Mechanical Drawings

Mechanical drawings shall include the following:

- Layout plans showing the location of all major equipment, major pipe sizes, major valve locations, access routes.
- Sections illustrating the proposed layout of equipment and piping.

Electrical Drawings

Electrical drawings shall include the following:

- Preliminary Electrical Site Plan. This is a preliminary site plan that shows routing of major electrical duct banks. This sketch will not be included in the final plans since final electrical plans will show the same information in more detail. See Engineering Design Guidelines, Appendix A, Section A.2.9 "Electrical Plan Drawings" for requirements.

- Single-line Diagrams. Single-line diagrams shall show all major electrical loads from the MCC level up. Load shall include all equipment shown on the process flow diagrams. The single-line diagrams shall also show preliminary information regarding auxiliary system and equipment such as HVAC, lighting, sump pumps, UPS, etc. This will enable the CONSULTANT to conservatively size equipment, rooms, and occupancies at this preliminary design point including loads and dimensions. See Engineering Design Guidelines, Chapter 10, Section 10.3.3 “Single-Line Diagrams”, Engineering Design Guidelines, Chapter 10, Section 10.7 “Distribution System Requirements” and Engineering Design Guidelines, Appendix A.

- Power Building, Electrical and Control Room Plans which shows equipment location and conduit routing. See Engineering Design Guidelines, Appendix A.

- Demolition Plans and Demolition Single-Line Diagrams for major equipment such as MCCs, switchgear, transformers, and control panels.

Instrumentation and Control Drawings

Instrumentation and control drawings shall include the following:

- Process and Instrumentation Diagrams (P&IDs). Preliminary Design P&IDs shall show all major equipment, instruments, and most auxiliary equipment. P&IDs shall also be developed for the electrical SCADA points. Where the project includes multiple parallel systems, P&IDs need only be prepared for one of the systems. Replication will not be required until Phase 3 - Design. All P&IDs included with the PDR shall be complete, with no missing equipment, instruments, piping, sampling provisions, metering, etc. Equipment block numbers, however, should not be included in PDR P&IDs. Provide P&IDs for all SCADA equipment, with the exception of the Plant 1 electrical SCADA points. See Engineering Design Guidelines, Appendix A.

- Demolition Process and Instrumentation Diagrams. CONSULTANT shall manually annotate existing P&IDs to indicate what equipment, piping, instruments and controls will be demolished by the project. This information shall be used to prepare Demolition EIDs specified in Task 2.2.3.

TASK 2.3 - PROJECT MANAGEMENT

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

Task 2.3.1 Project Management Plan (Not Used)

Task 2.3.2 Project Management Progress Meetings

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

Task 2.3.3 Project Schedule

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

At a minimum, the schedule shall indicate the following:

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

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

Task 2.3.4 Project Logs

CONSULTANT shall produce and maintain on at least a monthly basis the following logs through the course of the project:

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

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

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

Meeting Log. See Task 2.5 and Task 3.7 Workshops and Meetings, Workshop and Meeting Planning.

Task 2.3.5 Progress Reports

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

- Work activities completed to date, in the current reporting period, and projected for the coming month.
- A brief description of outstanding issues and their potential for impact on scope, schedule (design and construction), budget (design and construction) and quality.
- Potential changes in the project scope or design scope.
- Budget status including estimates of actual costs to date, earned value, costs to complete, and costs at completion. The budget status over time shall be presented on a graph with associated tabular data indicating for each month the actual costs incurred, earned value, and planned value.
- A discussion of corrective actions to be taken to avoid or mitigate cases where estimated costs at completion exceed budgets.
- Schedule status, including an updated project schedule as a color hardcopy and as a native format electronic file.
- A discussion of corrective actions to be taken to avoid or mitigate cases where the project schedule is expected to be delayed.
- Updated Project Decision Log
- Updated Action Item Log
- Updated Design Issues Log
- Updated Meeting Log
- Updated Risk Management Log
- Summary of the status of CONSULTANT invoices, including identification of invoices not yet submitted and submitted but unpaid invoices.
- Overall project budget and schedule completion in graphical format on the same graph. Show actual budget used, original schedule completion, and actual estimated project completion on the graph.
- The approved WBS shall form the basis for reporting the status of each Scope of Work task in the monthly project Progress Report and the project Invoices.

All calculations of earned value and estimates to complete shall be made at the same level of detail as included in the Cost Matrix and Summary submitted with CONSULTANT's proposal. Furthermore, for estimating earned value, tasks shall be further broken down to subtasks of no more than $100,000. Progress reports shall include the basis for estimating earned value for each task and subtask.

Task 2.3.6 Project Invoices

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

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

- Budget
- Current billing period invoicing
- Previous billing period "total invoiced to date"
- Budget Amount Remaining
- Current billing period "total percent invoiced to date"

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

Work Package	Description	Tasks
3146	Preliminary Design	All Phase 2 tasks, except those listed above.
3250	CONSULTANT Services During Design	Tasks 3.5 through 3.8
3251	Design Submittal 1	Tasks 3.1 through 3.3, divided into effort by design submittal. FDS is charged against DS3
3252	Design Submittal 2	
3253	Design Submittal 3	
3254	Bid Support Services	Task 3.4

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

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

Task 2.3.7 Management of Subconsultants

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

TASK 2.4 – RISK MANAGEMENT

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

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

Task 2.4.1. – Initial Risk Workshop

An Initial Risk Management Workshop will be held shortly after the beginning of the Preliminary Design effort. Attendees will include OCSD's project team. CONSULTANT's Project Manager and Project Engineer shall prepare for and participate in the workshop. The purpose of the workshop will be to initially identify the key project-specific risks and discuss which risks warrant additional attention as the preliminary design and detail design progresses. CONSULTANT shall prepare the minutes for this Workshop.

Task 2.4.2 – Preliminary Design Risk Management Workshop

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

- Identify key project-specific risks
- Characterize the nature of the impact of each risk should it occur
- Characterize how likely the risk is to occur

Identify potential mitigation strategies that should be implemented, or be ready to be implemented to address each risk

Task 2.4.3 Risk Mitigation Measure Log

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

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

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

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

Task 2.4.4 Risk Monitoring Updates

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

- Identification of all risks included in the RMP that have occurred since the last monthly report
- Identification of all risks included in the RMP that have been resolved or are no longer a risk
- Identification of new risks that have occurred or been identified since the last progress report.
- An update of the Risk Mitigation Measure Log reflecting the status of each recommended mitigation measure.

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

TASK 2.5 – PDR PRODUCTION WORKSHOPS AND MEETINGS

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

When informal meetings or conference calls are held during the course of the project, the CONSULTANT shall document all conclusions reached in those meetings by an email to the OCSD Project Manager and Project Engineer describing the context of the meeting, the discussions, and the conclusions. The email shall be sent within 3 workdays of the information meeting or conference call. Discussions and decisions made without documentation from an email will not be recognized as having occurred.

Workshop and Meeting Planning

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

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

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

- Scheduling Reference. Examples might include “4 weeks after Kickoff Meeting”, “Upon submittal of DM 5”, or “1 week after receipt of the draft DM.”

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

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

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

Workshop and Meeting Agendas

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

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

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

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

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

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

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

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

- Hard copies of the agenda, one for each attendee
- One sign-in sheet with the names of attendees pre-listed.
- Native electronic files used for the presentation. With the exceptions noted below, hard copies of presentation materials will generally not be required. The OCSD Project Manager will make the electronic files available to the OCSD project team internally.
- Hardcopies of all materials that cannot be easily viewed when projected on a screen. Examples might include design drawings and spreadsheets.

Meeting Minutes

CONSULTANT shall transmit the minutes to the OCSD Project Manager within 3 business days of the meeting in MS Word format using OCSD's template, or an approved substitution. CONSULTANT shall also update and transmit the Action Item Log, Decision Log, and Design Issues Log with the minutes.

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

Informal Meeting Requirements

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

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

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

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

Task 2.5.1 PDR Production Workshops

PDR Production Workshops shall be held during Preliminary Design to review the topics listed below. The list below also indicates the number of workshops to be held to cover the specific topic. Unless otherwise noted, each workshop shall be 2 to 4 hours in length.

Topic	Number of Workshops
PDR Production Kickoff	1
Electrical and Networking	3
SEL Integration	2
Instrumentation and Control	1
Implementation Plan and Sequencing Constraints	1

In addition to the number of workshops listed above, CONSULTANT shall hold for each of the Design Memos the following meetings:

- Design Memo Presentations. CONSULTANT shall present each design memo to OCSD's project team at the time the design memo is submitted. The purpose of this meeting is for CONSULTANT to summarize the key aspects of the design memo and associated drawings and explain the basis for the findings. OCSD staff will not have had the opportunity to review the material prior to the meeting. The purpose of this meeting is to help OCSD staff more effectively review the submitted material.

- Design Memo Validation Workshops. A workshop will be held with CONSULTANT and the appropriate members of OCSD's project team following OCSD's review of the design memo and related drawings and calculations.

Depending on timing, compatibility of subject material, and meeting duration, design memo presentations for more than one design memo may be combined into a single meeting. Likewise, design memo validation workshops may be combined.

CONSULTANT shall develop a detailed schedule for these workshops at the beginning of the PDR Production Phase, and coordinate with the OCSD Project Manager to set tentative dates, material to be covered, and attendee lists for each.

TASK 2.6 – QUALITY CONTROL

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

Submittals that contain gross deficiencies or errors requiring a significant amount of OCSD staff time for checking will be returned without review until OCSD is satisfied that a thorough CONSULTANT's review, checking and correction for coherence, consistency, spelling, etc. has been performed.

Quality Control Requirements

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

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

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

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

On a periodic basis, OCSD will conduct an audit of CONSULTANT's work to ensure conformance with the QA/QC Plan. OCSD shall notify CONSULTANT when these audits will

occur. For this project, an audit will be done before the PDR submittal and after the DS1 submittal.

CONSULTANT shall respond to any OCSD comments made during the audit within two weeks. If comments are extensive, OCSD will schedule a follow-up audit approximately 60 days after the comments are received.

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

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

A detailed description of the QA/QC Plan requirements is included in the Engineering Design Guidelines, Chapter 01, Design Guidelines – General Requirements, and as revised in Section V of this Scope of Work, "Project-Specific Deviations from OCSD Design Guidelines". Major elements of the QA/QC Plan shall include the following:

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

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

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

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

Prior to the submittal to OCSD, each Evaluation Memo, Design Memo, and Design Submittal identified in the Scope of Work shall be thoroughly reviewed and corrected by a member of the QC Team. The reviewer shall attest to their review in the form of a written affidavit outlining the submittal subject and identifying the corrected deficiencies.

Discipline Internal Check

CONSULTANT shall perform discipline check and review all drawings, specifications, studies, reports, calculations, and any other deliverable required by the Scope of Work. These requirements shall be implemented by those Project Team members responsible for the specific planning or design activity. Documentary evidence of such checking shall be provided to OCSD with each project submittal.

Discipline Integrity Check

Immediately prior to the submittal of DS1, the CONSULTANT shall perform a drawing integrity check (plan check) for all disciplines. Each discipline shall provide an affidavit attesting to the details of the review, listing drawings and specification sections reviewed.

The DS1 submittal shall also have a coordination check between the P&IDs and Mechanical Drawings. The mechanical lead engineer shall attest to the accuracy of each P&ID and the respective mechanical drawings.

Interdiscipline Coordination Check

CONSULTANT shall perform an inter-discipline coordination cross-check immediately before each design submittal to correct discrepancies among the process and demolition plans; mechanical, structural, electrical, and instrumentation and controls drawings, and databases. Within each submittal, all documents shall have inter-discipline coordination checked and shall be in agreement with each other. Documentary evidence of such checking shall be provided to OCSD with each project submittal. CONSULTANT shall refer to Engineering Design Guidelines, Chapter 01, Design Guidelines, General Requirements, and Phase 2 – Preliminary Design and Phase 3 –Design in this Scope or Work for additional requirements.

Documentation of Level of Effort for QA/QC

CONSULTANT shall include man-hours for all QA/QC activities related to Preliminary Design in this task, including the development of the QA/QC Plan and review of Bid Documents either by CONSULTANT, or by the CONSULTANT in conjunction with OCSD staff in meetings and workshops. The level of effort will be reviewed with OCSD staff prior to award of the Professional Design Services Agreement (PDSA)

PHASE 3 – DESIGN

All changes in OCSD's Engineering Standards, OCSD's Design Guidelines, and/or changes in design concepts and facility layouts as a result of OCSD comments that may occur up to transmittal of OCSD comments on Design Submittal 2, shall be incorporated into the Design by CONSULTANT with no increase in CONSULTANT's Not-to-Exceed upper limit on fees.

TASK 3.1 - BID DOCUMENTS

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

Task 3.1.1 Specifications

Task 3.1.1.1 Contract Agreement, General Conditions, and Special Provisions

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

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

Task 3.1.1.2 General Requirements and Additional General Requirements

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

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

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

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

- Summary of the Work
- Work Restrictions
- Sequence and Constraints
- Measurement and Payment
- Site Access
- Mobilization/Demobilization

- Construction photographs and videos

- Equipment Shipping, Storage, and Handling

Task 3.1.1.3 Technical Specifications

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

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

Task 3.1.2 Drawings

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

The CONSULTANT shall prepare detailed network drawings based on SEL produced front-end engineering design (FEED) and sample drawings as follows:

- LAN Relay Connection Details. These shall be based on the SEL produced Sample Riser Diagrams.

- Network Panel Wiring Diagrams. These shall be based on the SEL produced front-end engineering design (FEED). Where existing panels are modified, CONSULTANT may utilize photographs of the existing panels and produce a rendering of the modifications (including all necessary wiring terminations) to include in the design drawings.

- Fiber Optic Cable Routing Between Buildings. These shall be based on the SEL produced topological diagrams. OCSD will provide assistance in the form of narratives and mark-ups of the existing configuration for the Consultant to include in the design drawings.

- Fiber Cabinet Layout Drawings and BOM. These shall be based on the SEL produced front-end engineering design (FEED). Where existing panels are modified, CONSULTANT may utilize photographs of the existing panels and produce a rendering of the modifications (including all necessary wiring terminations) to include in the design drawings.

Task 3.1.3 Cable, Conduit and Tray Schedules

CONSULTANT shall utilize either OCSD's Microsoft Access Cable and Raceway Schedule database or an OCSD approved alternate method.

Task 3.1.4 Equipment and Instrumentation Databases (EIDs)

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

Task 3.1.5 SCADA Access Tables (SAT)

OCSD uses SAT files to list all analog and discrete monitoring points on the project, filed by PLC. SAT will be produced by OCSD. CONSULTANT shall coordinate P&IDs, tagging, cable and conduit schedules, and other design documents with the OCSD developed SAT databases. CONSULTANT shall coordinate and provide P&IDs and I/O lists to OCSD for the production of the SAT databases.

TASK 3.2 - DESIGN SUPPORT DOCUMENTATION

Task 3.2.1 Design Information

CONSULTANT shall include the following material with each Design Submittal:

- CONSULTANT shall maintain the Project Logs specified under Phase 2 Project Management through Phase 3 as well. Current copies of all logs shall be included with each Design Submittal.
- Written response log to OCSD comments on the previous submittal.
- Calculations
- Proposed list of suppliers to be named in the specifications for major equipment.
- Draft or final Field Findings Reports not submitted in the previous submittal and those revised since the previous submittal.
- Equipment data sheets
- Equipment catalog cuts and vendor quotations.
- All memos that may be been prepared since the previous submittal was delivered.

Task 3.2.3 Electrical Design Documentation

CONSULTANT shall provide the following electrical design information:

- Electrical System Analysis Report which includes Summary, Field Data Collection and Verification Report, and Neutral Grounding Systems Study (see Engineering Design Guidelines, Chapter 10, Section 10.2.1 for details). The field data collection includes field investigations of the modified equipment, spacing for new equipment, and availability of spare conductors and termination points.

Field measurements and calculations shall demonstrate adequate load capacity of power source equipment for any load addition. Field measurements and/or calculations shall be provided for sizing the grounding system.

- ETAP related protective device settings, load flow, short-circuit, and arc-flash studies will be provided by OCSD to the CONSULTANT. CONSULTANT shall provide a detailed listing of the ETAP studies and information needed by the CONSULTANT to prepare bid documents. CONSULTANT shall provide OCSD with all required design information to develop the ETAP model and perform the studies.

- Load List for all equipment. Lumping of auxiliary loads is allowed.

Task 3.2.4 Construction Cost Estimates

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

Task 3.2.5 Construction Schedule

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

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

For DS3 and later submittals, more information shall be included in the schedule. The goal is to develop a realistic schedule based on project information, not a "rule of thumb". The construction schedule shall be based on the commissioning documents prepared for the project as well. CONSULTANT shall engage the services of a least one construction individual to review the quantity takeoffs from CONSULTANT staff and use this information to assist in the development of the detailed construction schedule. CONSULTANT may use their own staff if they are qualified or hire a Subconsultant to assist in this activity.

TASK 3.3 - DESIGN SUBMITTALS

Design submittals shall be submitted per OCSD review as indicated in the Section III – Project Schedule. The contents of each submittal shall be as described in **Exhibit 1.**

Design Submittals shall be delivered in hard copy, PDF format (see section "Submittals in PDF Format" in Part V General Requirements), and native files. The number of hard copies is indicated in **Exhibit 4**. The following requirements apply to the labeling and organization of the PDF and native:

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

- Drawings shall be submitted as a single compiled file, except where the size of the file would exceed 30 MB, in which case the drawings should be separated into separate files by discipline. If the file for one discipline is more than 30 MB, the file may be

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

- The PDF files shall be named to include the project number, the name of the deliverable (e.g. Draft PDR, DS1, etc.), the volume, and the particular content. The files shall also be named so that the list appears in sequential order when sorted by file name. In cases where drawings are divided into separate PDF files by discipline, a number or letter must be included in the file name so that the files are listed in the same order as the List of Drawings.

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

- All native Word files used for specifications shall be submitted, combined into a single folder with the number of the specification section in the file name so that the files are listed in the same order they would appear in a hard copy print. Attachments to specification sections should be named so that they also fall in the correct order on the file list.

- Specification sections based on OCSD master specifications shall be edited using tracked changes so that by opening the Word file, the changes made from the OCSD master can be readily viewed. The printed version of the specification sections (both PDF and hard copy) shall not show the tracked changes.

- Native CAD files shall be submitted per the CAD manual standards, with all applicable.

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

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

Volume 1 - Submittal Documentation

Memo to Reviewers
Responses to Comments on Previous Submittal
Design Information
Facility Operations and Maintenance
Electrical Design Documentation
Networking Design Documentation

Instrumentation and Control Documentation
Construction Cost Estimate
Construction Schedule
Procurement Alternatives

Volume 2 - Specifications

Volume 3 – Drawings

Volume 4 – Project Support Documentation

Design Period Memos as needed to document specific design issues and their resolutions.
Calculations
Equipment Selection (organized by Specification Section)
Equipment Data Sheets
Catalog Cuts
Vendor Quotes

Volume 5 – Electronic Files and Databases

The Memo to Reviewers included at the beginning of Volume 1 shall describe how the submittal is organized, include a table of contents, and list any significant changes that have been made to the design since the last submittal, or the last time a particular issue was discussed.

TASK 3.4 - BID SUPPORT SERVICES

Task 3.4.1 Bid Phase Activities

CONSULTANT shall provide the following bid period services:

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

Task 3.4.2 Bid Evaluation Assistance

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

Task 3.4.3 Conformed Document Preparation

- Within two weeks of the bid date, prepare conformed documents set (drawings, databases, specifications and other required materials) that incorporates the addenda. See Engineering Design Guidelines, Chapter 01, Design Guidelines – General

Requirements, Section 01.4 “Preparation of Project Deliverables” for requirements as modified in Section V of this Scope of Work, “Project-Specific Deviations from OCSD Design Guidelines” and the requirements of the CAD Manual).

TASK 3.5 - PROJECT MANAGEMENT

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

TASK 3.6 - RISK MANAGEMENT ASSISTANCE

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

Task 3.6.1 Design Phase Risk Workshops

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

Workshop Name	Timing	Duration
DS1 Risk Workshop	During OCSD’s review of DS1	2 hours

The purposes of the workshops are to:

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

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

Task 3.6.2 Risk Mitigation Measure Log

Maintaining the Risk Mitigation Measure Log required for Phase 2 shall be continued through submission of the Final Design Submittal.

Task 3.6.3 Risk Monitoring Updates

The Risk Monitoring updates required for Phase 2 shall be continued through submission of the Final Design Submittal.

TASK 3.7 - WORKSHOPS AND MEETINGS

The requirements specified in Task 2.5 Workshops and Meetings specified for Phase 2 – Preliminary Design related to Workshop and Meeting Planning and Workshop and Meeting Agendas shall also apply for Phase 3 - Design.

Task 3.7.1 Design Phase Workshops

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

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

Task 3.7.1.1 Design Submittal 1 Workshops

DS1 Review Kickoff Workshop

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

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

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

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

This workshop shall be 2 to 3 hours in length.

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

DS1 Review Meetings

Up to DS1design submittal review meetings shall be held at approximately the midpoint of OCSD's review period. The design submittal meetings shall be working sessions that bring together OCSD and CONSULTANT staff to discuss specific design issues in detail. Each drawing shall be reviewed relative to the operation and maintenance of the facilities (i.e., space between equipment, utility requirements, maintenance concerns, etc.). In addition, CONSULTANT shall also address questions that OCSD staff has identified during the first half of their review of the design submittal. The following Review Meetings shall be held:

- Electrical and I&C - (2) meetings
- Civil/Yard - (1) meeting
- Construction - (1) meetings

Each meeting shall be 2 to 3 hours in length.

DS1 Validation Workshop

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

This workshop shall be 2 to 3 hours in length.

Task 3.7.1.2 Design Submittal 2 Workshops

DS2 Review Kickoff Workshop

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

This workshop shall be 2 to 3 hours in length.

DS2 Review Meetings

The DS2 Review Meetings shall be conducted as specified for the DS1 Review Meetings. The following DS2 Review Meetings shall be held:

- Electrical and I&C (2) meetings
- Civil/Yard - (1) meeting
- Construction - (2) meetings

Each meeting shall be 2 to 3 hours in length.

DS2 Validation Workshop

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

This workshop shall be 2 to 3 hours in length.

Task 3.7.1.3 Design Submittal 3 Workshops

DS3 Review Kickoff Workshop

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

This workshop shall be 2 to 3 hours in length.

DS3 Review Meetings

The DS3 Review Meetings shall be conducted as specified for the DS1 Review Meetings. The following DS3 Review Meetings shall be held:

- Electrical and I&C (2) meetings
- Civil/Yard - (1) meeting
- Construction - (2) meetings

Each meeting shall be 2 to 3 hours in length.

DS3 Validation Workshop

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

This workshop shall be 2 to 3 hours in length.

Task 3.7.1.4 Final Design Submittal Workshops

FDS Review Kickoff Workshop

An FDS Review Kickoff Workshop will not be required.

FDS Review Meetings

The FDS Review Meetings shall be conducted as specified for the DS1 Review Meetings. The following FDS Review Meetings shall be held:

- Electrical and I&C- (1) meetings
- Civil/Yard - (1) meetings
- Construction - (1) meetings

Each meeting shall be 2 to 3 hours in length.

FDS Validation Workshop

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

This workshop shall be 2 to 3 hours in length.

Task 3.7.2 Design Phase Meetings

Task 3.7.2.1 Technical Progress Meetings

Technical Progress Meetings shall be held every 4 weeks to review various issues with OCSD's project team. A total of 10 meetings 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.

Task 3.7.2.2 Focused Meetings

Focused meetings shall be held throughout preliminary design to discuss specific issues in detail and generate comments and direction from OCSD staff. The following tentative list of topics may be covered in these meetings:

- Quality control plan
- Sample EID and SAT database
- Data network block diagram/network connection diagram
- Load shedding and arc flash mitigation

- 12kV Service Center Main Breakers Auto-Synchronization (Cen-Gen to SCE Utility Power) Feature
- I/O relocation plan
- Electrical distribution system, system controls and the related upgrades
- Construction sequencing
- Coordination with other projects
- Additional meetings as necessary

Each meeting shall generally be 2-3 hours in length. CONSULTANT shall determine how many meetings will be needed to cover these topics. CONSULTANT may suggest additional topics as necessary. Supplementary meetings may be scheduled with OCSD staff, as necessary to allow coordination between the CONSULTANT and OCSD staff.

Task 3.7.2.3 Safety and Risk Meeting

Meet with OCSD Safety and Risk Management personnel, and OCIP (Owner Controlled Insurance Program) safety representatives, between DS1 and DS3 to review the plans and specifications in accordance with OCSD safety policies and OCSD Risk Management goals.

Task 3.7.2.4 CONSULTANT Office Technical Meetings (COTMs)

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

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

- One three-hour visit to review the Conduit, Tray and Cable Schedules
- One three-hour visit to review each of the SAT and EID products, including P&ID, SAT and EID coordination.
- One three-hour visit to review each of the electrical drawing products, including SLDs, breaker control schematics and Plan drawings.
- One three-hour visit to perform DS1 over the shoulder review.
- One three-hour visit to perform DS2 over the shoulder review.
- One three-hour visit to perform DS3 over the shoulder review.

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

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

TASK 3.8 - QUALITY CONTROL

The quality control requirements for Phase 3 - Design and Bid are specified under Quality Control for Phase 2.

PHASE 4 – CONSTRUCTION AND INSTALLATION SERVICES (NOT IN THIS SCOPE OF WORK)

Not in this Scope of Work.

PHASE 5 – COMMISSIONING SERVICES (NOT IN THIS SCOPE OF WORK)

Not in this Scope of Work.

PHASE 6 – CLOSE OUT (NOT IN THIS SCOPE OF WORK)

Not in this Scope of Work.

V. GENERAL REQUIREMENTS

GENERAL

OCSD ENGINEERING DESIGN GUIDELINES AND STRATEGIC PLAN

CONSULTANT shall refer to and adhere to the requirements of OCSD Safety Standards, OCSD Engineering Design Guidelines and other OCSD's Design Standards referenced therein except for the deviations specified below. **Exhibit 12** is a complete set of the OCSD Safety Standards and OCSD Design Standards, the latest edition at the time of the design proposal stage.

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.

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

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

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

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

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

In addition, OCSD will require the CONSULTANT to follow subsequent revisions of OCSD Safety Standards, OCSD Engineering Design Guidelines and other OCSD Design Standards up to transmittal by OCSD of comments on Design Submittal 2, shall be incorporated into the Design by CONSULTANT with no increase in CONSULTANT's Not-to-Exceed upper limit on fees.

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

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

Project Phases and Tasks

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

Construction Sequencing and Constraints

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

Working Hours

Meetings with OCSD staff shall be scheduled from Monday through Thursday between the hours of 8:00 AM and 4:00 PM. CONSULTANT's on-site staff 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.

Standard Drawings and Typical Details

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

Software

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

o Windows 10 Professional
o Esri software 10.5.1 (fGDB, pGDB or shapefile formats)
o Microsoft Internet Explorer 11
o AutoCAD Plant 3D ver 2018 (for P&ID drawings only)
o Autodesk software 2018 (AutoCAD, AutoCAD Map3D or compatible dwg file format)
o Microsoft Office 365
o Maximo 7.6
o Bluebeam Revu eXtreme (version 2018.2)
o Primavera P6 for scheduling
o Database software as defined elsewhere in the project Scope of Work

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

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

Submittal Review using Bluebeam

OCSD has standardized on the use of Bluebeam Revu for reviewing and providing comments to PDF files. Prior to submitting electronic PDF files, format them as indicated below (underlined text refers to commands or functions within the Bluebeam software). See **Exhibit 17** and "OCSD CAD Standards Manual" prior to submission.

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

1. The purpose of the studio session is to provide review and collaboration. The session provides multiple attendees, despite location, the opportunity to review and comment on the same PDFs in real time. All review actions are tracked and recorded.
2. OCSD staff will create the Bluebeam studio session, invite attendees, configure, and manage the Studio session.

3. Bluebeam provides reviewers with tools for annotating PDFs called a markup. OCSD provides two toolboxes for annotating PDFs: "OCSD Drawings Review" and "OCSD Report Review."
4. Markups are both graphical and tabular. When the graphic markup is placed, corresponding tabular data are created. The collection of tabular data is considered the markup list.
5. The markup is automatically populated with various properties including author, sheet number, comment, markup type, etc. to make reviewing consistent. The tabular data within the markup list are hyperlinked to the graphical markup for back-and-forth viewing.
6. The markup list may be sorted or filtered. For example, filtering markups by author makes that attendee's markups more prominent on the page by dimming everyone else's markups.
7. Within a studio session, markups may only be modified by the markup author except for the Status data field using the "Set Status" command. OCSD has customized this field for the reconciliation of comments and backcheck. Session attendees may "Reply" to the markup of other reviewers. Replying to a markup provides the responder the opportunity to explain how the markup will be incorporated.
8. The comment reconciliation steps are summarized below:
    a. Reply – respond to OCSD provided review comment with: **Agree, Disagree,** or **Flag for Discussion**.
    b. Direct – meet with OCSD to reconcile the non-agrees with either an **Incorporate** or **Do Not Incorporate** response. OCSD will work with Consultant to ensure clear direction is provided.
    c. QC Check – Consultant tells OCSD that the comment has been addressed in the next submittal by responding with **Incorporated** or **Not incorporated**.
    d. Backcheck – reconciliation of open and incorporated comments by OCSD with an **Open** or **Closed** response.
9. A one-hour training session on the use of Bluebeam and custom status menu will be provided by OCSD. All Consultant team members responsible for quality control and reconciliation of submittal comments shall attend.

Word Track Changes

1. Below are guidelines for the review and incorporation of MS-Word comments and revisions. Use MS-Word Track Changes to show edits to all project specifications and other MS-Word files.
2. Submit the marked-up electronic files for OCSD review, as required by the Scope of Work. OCSD's review will consist of comments and (in-text) revisions. OCSD comments and revisions shall remain visible in Track Changes throughout design.
3. OCSD will return the MS-Word files or host them in a central location.
    a. If the files are returned, CONSULTANT will check the files back into their document management system (i.e., replace the old files with the returned files) and resume their design and review of OCSD comments using the returned files. This insures that in-text revision by OCSD are preserved.

b. Hosting files in a central repository is preferred because it eliminates file transfer and the potential for multiple copies. Hosted files are also protected by version control.

4. OCSD comments shall be addressed using MS-Word “Reply” and “Resolve.” The CONSULTANT shall “Reply” to each OCSD comment describing how the comment will be addressed and revise the specification, as needed, to address the comment.
5. “Resolve” will be used by the reviewer or designee to confirm their comment has been addressed. “Resolve” greys out the comment showing it is closed.
6. Revisions may be “Rejected” with the concurrence of the Project Engineer or reviewing party. Concurrence is necessary because once a revision is "rejected," it is removed from MS-Word Track Changes and no longer visible.
7. 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.

VI. STAFF ASSISTANCE

OCSD staff member or designee assigned to work with CONSULTANT on the design of this project is Todd Waltz at (714) 593-7117, e-mail to: twaltz@ocsd.com.

EXHIBITS:

- **Exhibit 1** Design Submittal Requirements Matrix
- **Exhibit 2** Project Schedule Calculation
- **Exhibit 3** Sample Criticality Data Table (Not Used)
- **Exhibit 4** Deliverables Quantities
- **Exhibit 5** Sample Construction Cost Estimate Format-Basis of Estimate
- **Exhibit 6** Sample Full Project Safety Review Plan
- **Exhibit 7** Sample Risk Management Check List
- **Exhibit 8** MMRP Log Template (Not Used)
- **Exhibit 9** Sample ORT Procedure (Not Used)
- **Exhibit 10** Sample FAT Procedure (Not Used)
- **Exhibit 11** Sample RAT Procedure (Not Used)
- **Exhibit 12** OCSD Engineering Design Guidelines
- **Exhibit 12A** OCSD Instrument and Equipment Tagging Procedure – Exhibit D8
- **Exhibit 13** Project Reference Material
  - **Exhibit 13A** Sample Virtual Main Configuration (Switchgears Requiring IEC 61850 Trips)
  - **Exhibit 13B** Sample Virtual Main Configuration (Switchgears Requiring Hardwired Trips)
  - **Exhibit 13C** Sample Cable and Conduit Block Diagram (Switchgears Requiring IEC 61850 Trips)
  - **Exhibit 13D** Sample Cable and Conduit Block Diagram (Switchgears Requiring Hardwired Trips)
- **Exhibit 14** Project J-47 Cable Tray Improvements Preliminary Design Report (Not Used)
- **Exhibit 15** J-102 Electrical Master Plan (Not Used)
- **Exhibit 16** Cable Conduit and Tray Schedule Database (Not Used)
- **Exhibit 17** Designer Training for Submission
- **Exhibit 18** Designer User Training

TW:dm

EXHIBITS

- Exhibits to Attachment A Scope of Work are considered reference material and were previously provided as part of the Request for Proposal.

- Copies of Exhibits to Attachment A Scope of Work shall be furnished through Microsoft OneDrive.

ATTACHMENT “B”

LABOR HOUR MATRIX

Electrical Power Distribution System Improvements, J-98

Attachment B - Labor Hour Matrix

Task Item	Puccio, Mike	Barrido, Cherylle	Shadan, Frank	Zinn, Bryan	Kindle, Chris	Vo, Sang	Wright, Karizma	Gadd, Tarek	Pace, Hugh	Halverson, Eric	Schell, Derek	Resop, Chris	Ramirez, Sarah	Chandler, Ken	Falken, Eric	Alvarez, Manny	Goodburn, Dan	Shroyer, David	Agster, William	Rivas, Alex	Ennis, Renee	Rasmussen, Anna	Bongiovanni, Nicole	Total Hours
	PIC	PM	PE	QA Manager	Load Shed	Elect Eng	Elect Eng	Elect Eng	QA/QC Elect	I&C Lead	I&C LAN	I&C CAD	I&C CAD	QA/QC I&C	Struct	Civil	Cost Est	Cost Est	QA/QC Cost Est	CAD	WP	PA	Biller	
Average Actual Salary	106.65	78.06	85.16	97.67	78.69	59.47	31.85	55.42	73.63	36.02	56.03	39.53	37.18	72.66	72.79	53.21	66.42	61.50	78.80	54.83	39.57	36.41	27.01	
PHASE 2 - PRELIMINARY DESIGN																								
2.1 Predesign Evaluation Studies (NOT USED)																								
2.2 Preliminary Design Production			20				20			5	5				2	4					16			72
2.2.1 DM 1 - Electrical			20				20			5	5				2	4					8			64
2.2.2 DM 2 - Instrumentation and Control / Networking Tagging			20				20			5	5				2	4					8			64
2.2.3 DM 3 - Implementation Plan			20				20			5	5				2	4	80	80			8			224
2.2.4 Preminiary Design Drawings			25		75		202			17	17	25	25		8	13				45				452
2.3 Project Management (6 months)		112	56		28																	21	14	231
2.4 Risk Management		8	16		16																			40
2.5 PDR Production Workshops and Meetings	8	60	62		40	40				35	35	40	40			10								370
2.6 Quality Control				40					40					40					40					160
2.7 Field Verification					100			100			100													300
Subtotal - Phase 2 - Preliminary Design	**8**	**180**	**239**	**40**	**259**	**40**	**282**	**100**	**40**	**72**	**172**	**65**	**65**	**40**	**16**	**39**	**80**	**80**	**40**	**45**	**40**	**21**	**14**	**1,977**
PHASE 3 - FINAL DESIGN																								
3.1 Bid Documents (CA, GRs, Tech Specs)			30		30	30	30	30		47	47				80	220								544
3.2 Design Support Documentation (Calc, Cut Sheets)			12		12	12	12	12		46	46				20	20								192
3.3 Design Submittals (Drawings)																								
DS1			152		248	370	617	286		114	114	195	195		18	48	80	80		129	8			2,654
DS2			149		307	463	663	223		105	105	186	186		26	52	80	80		151	8			2,784
DS3			82		125	160	234	68		101	101	182	182		18	41	80	80		114	8			1,576
FDS					67	144	154	74		98	98	125	125		12	30	40	40		84	8			1,099
IFB					40	40	40	40		20	20	30	30		20	20	40	40		40	8			428
3.4 Bid Support Services		16	60		60	20	20	20		30	30	20	20		16	28					24			364
3.5 Project Management (18 months)		288	144		18																	54	36	540
3.6 Risk Management Assistance		8	24		24																			56
3.7 Workshops and Meetings	8	120	108		65	65				50	50					30								496
3.8 Quality Control				80					96					96					40					312
Subtotal - Phase 3 Final Design	**8**	**432**	**761**	**80**	**996**	**1,304**	**1,770**	**753**	**96**	**611**	**611**	**738**	**738**	**96**	**210**	**489**	**320**	**320**	**40**	**518**	**64**	**54**	**36**	**11,045**
TOTAL - PHASES 2 AND 3	**16**	**612**	**1,000**	**120**	**1,255**	**1,344**	**2,052**	**853**	**136**	**683**	**783**	**803**	**803**	**136**	**226**	**528**	**400**	**400**	**80**	**563**	**104**	**75**	**50**	**13,022**

Date: 1/8/2020
Final Negotiated

ATTACHMENT “D”

ALLOWABLE DIRECT COSTS

ATTACHMENT "D"
ALLOWABLE DIRECT COSTS

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

AIRFARE	Airline ticket cost including one bag will be reimbursed only if pre-approved by the SANITATION DISTRICT. First class tickets will not be reimbursed unless pre-approved by the SANITATION DISTRICT. Membership dues for corporate card frequent user programs or the cost of airline club membership will not be reimbursed.
AUTO RENTAL	Rental car cost for intermediate or standard model, mid-size car (Class "C") or the smaller car compatible with the specific need and rental car gas will be reimbursed. Receipts must be provided to substantiate requested reimbursements.
PARKING FEE	Parking fees for hotel, airport, rail station, etc. will be reimbursed. Consultant shall use the most economic and practical parking location as reasonably available. Excessive parking fees that are deemed unreasonable by the SANITATION DISTRICT will not be reimbursed.
TRAVEL MEALS	Travel meals will be reimbursed on a per diem basis as established by U.S. General Service Administration. Per diem rates include gratuities (tips) and will not be separately reimbursed by the SANITATION DISTRICT. Personal expenses such as cost of alcoholic beverages will not be reimbursed. No receipts are required for the approved meals. The daily total reimbursement for meals shall not exceed the SANITATION DISTRICT per diem rate which is available upon request.
PER DIEM DAILY RATE FOR LODGING AND MEALS	The SANITATION DISTRICT may utilize per diem daily rate that includes lodging, meals and incidentals (M&IE) as established by IRS and U.S. General Service administration for pre-approved travel when reasonable.
RENTAL EQUIPMENT	Consultant will be reimbursed at actual cost, no mark-up.
OTHER DIRECT COSTS	OCSD may authorize other items that may be necessitated due to modifications in scope of work resulting from field investigations and field work required by Contract. These items may include special equipment, test equipment and tooling and other materials and services not previously identified. These items will be reimbursed based on actual cost incurred. A one-time mark-up of 15% for additional equipment rentals, materials and outside services required for field work and investigations may be allowed, as applicable, if justified. No additional markup is allowed by Consultant on other direct costs resulting from work performed by its Contractors.
MISCELLANEOUS	Cost of miscellaneous personal items such as, but not limited to newspapers, toiletries, shoeshine, tobacco products, pay TV, movies, valet services, health club charges, in-room mini bars, clothing and footwear will not be reimbursed. ATM/bank fees incurred by Consultant while traveling will not be reimbursed. Costs for project team lunches will not be reimbursed unless pre-approved by the SANITATION DISTRICT.

ATTACHMENT “E”

FEE PROPOSAL FORM

ATTACHMENT "E"
FEE PROPOSAL FORM

Submitted by: Brown and Caldwell
(Name of Firm)

Consultant Name:		Brown and Caldwell			
Raw Labor		$ 728,723			
Fringe Costs	38.62%	$ 281,433			
		Burdened Labor (Raw Labor + Fringe)		$ 1,010,156	
		Overhead	109.23%	$ 1,103,393	
				Subtotal (Burdened labor + OH)	**$ 2,113,549**
Note: Round all values to nearest dollar.				Profit (% of Subtotal) 5.86%	$ 123,854
				Total Direct Costs, not to exceed	$ 2,597
TOTAL - "Consultant" Not to Exceed					**$ 2,240,000**

SUMMARY	
Consultant	$ 2,240,000
Major Subconsultant A	$ -
Major Subconsultant B	$ -
Major Subconsultant C	$ -
Subconsultants Under $100,000	$ -
GRAND TOTAL - Not to Exceed	**$ 2,240,000**

ATTACHMENT “I”

COST MATRIX & SUMMARY

Electrical Power Distribution System Improvements, J-98

Attachment I - Cost Matrix

Task Item	Puccio, Mike	Barrido, Cheryle	Shadan, Frank	Zinn, Bryan	Kindle, Chris	Vo, Sang	Wright, Karizma	Gadd, Tarek	Pace, Hugh	Halverson, Eric	Schell, Derek	Resop, Chris	Ramirez, Sarah	Chandler, Ken	Falken, Eric	Alvarez, Manny	Goodburn, Dan	Shroyer, David	Agster, William	Rivas, Alex	Ennis, Renee	Rasmussen, Anna	Bonglovanni, Nicole	Total Hours	Raw Labor	Fringe Costs	Burdened Labor	Overhead	Burdened Labor & Overhead	Profit	Allowable Direct Costs	Total Fees
	PIC	PM	PE	QA Manager	Load Shed	Elect Eng	Elect Eng	Elect Eng	QA/QC Elect	I&C Lead	I&C LAN	I&C CAD	I&C CAD	QA/QC I&C	Struct	Civil	Cost Est	Cost Est	QA/QC Cost Est	CAD	WP	PA	Biller										
Average Actual Salary	106.65	78.06	85.16	97.67	78.69	59.47	31.85	55.42	73.63	36.02	56.03	39.53	37.18	72.66	72.79	53.21	66.42	61.50	78.80	54.83	39.57	36.41	27.01			38.62%		109.23%		5.860%		
PHASE 2 - PRELIMINARY DESIGN																																
2.1 Predesign Evaluation Studies (NOT USED)																																
2.2 Preliminary Design Production			20				20			5	5				2	4					16			72	3,791.99	1,464.47	5,256.46	5,741.63	10,998.08	644.49		11,642.57
2.2.1 DM 1 - Electrical			20				20			5	5				2	4					8			64	3,475.43	1,342.21	4,817.64	5,262.31	10,079.95	590.69		10,670.64
2.2.2 DM 2 - Instrumentation and Control / Networking Tagging			20				20			5	5				2	4					8			64	3,475.43	1,342.21	4,817.64	5,262.31	10,079.95	590.69		10,670.64
2.2.3 DM 3 - Implementation Plan			20				20			5	5				2	4	80	80			8			224	13,709.03	5,294.43	19,003.46	20,757.48	39,760.93	2,329.99		42,090.92
2.2.4 Preminiary Design Drawings			25		75		202			17	17	25	25		8	13				45				452	21,688.45	8,376.08	30,064.53	32,839.49	62,904.01	3,686.18		66,590.19
2.3 Project Management (6 months)		112	56		28																	21	14	231	16,857.75	6,510.46	23,368.21	25,525.10	48,893.31	2,865.15		51,758.46
2.4 Risk Management		8	16		16																			40	3,246.08	1,253.64	4,499.72	4,915.04	9,414.76	551.70		9,966.46
2.5 PDR Production Workshops and Meetings	8	60	62		40	40				35	35	40	40			10								370	23,165.37	8,946.47	32,111.84	35,075.76	67,187.59	3,937.19	1,000.00	72,124.79
2.6 Quality Control				40					40					40					40					160	12,910.40	4,986.00	17,896.40	19,548.23	37,444.63	2,194.26		39,638.89
2.7 Field Verification					100			100			100													300	19,014.00	7,343.21	26,357.21	28,789.98	55,147.18	3,231.62		58,378.81
Subtotal - Phase 2 - Preliminary Design	**8**	**180**	**239**	**40**	**259**	**40**	**282**	**100**	**40**	**72**	**172**	**65**	**65**	**40**	**16**	**39**	**80**	**80**	**40**	**45**	**40**	**21**	**14**	**1,977**	**121,333.93**	**46,859.16**	**168,193.09**	**183,717.32**	**351,910.41**	**20,621.95**	**1,000.00**	**373,532.36**
PHASE 3 - FINAL DESIGN																																
3.1 Bid Documents (CA, GRs, Tech Specs)			30		30	30	30	30		47	47				80	220								544	31,173.45	12,039.19	43,212.64	47,201.16	90,413.80	5,298.25		95,712.05
3.2 Design Support Documentation (Calc, Cut Sheets)			12		12	12	12	12		46	46				20	20								192	10,481.38	4,047.91	14,529.29	15,870.34	30,399.63	1,781.42		32,181.05
3.3 Design Submittals (Drawings)																																
DS1			152		248	370	617	286		114	114	195	195		18	48	80	80		129	8			2,654	136,904.59	52,872.55	189,777.14	207,293.57	397,070.72	23,268.34		420,339.06
DS2			149		307	463	663	223		105	105	186	186		26	52	80	80		151	8			2,784	145,278.75	56,106.65	201,385.40	219,973.28	421,358.68	24,691.62		446,050.30
DS3			82		125	160	234	68		101	101	182	182		18	41	80	80		114	8			1,576	81,106.91	31,323.49	112,430.40	122,807.72	235,238.12	13,784.95		249,023.08
FDS					67	144	154	74		98	98	125	125		12	30	40	40		84	8			1,099	53,960.40	20,839.51	74,799.91	81,703.94	156,503.84	9,171.13		165,674.97
IFB					40	40	40	40		20	20	30	30		20	20	40	40		40	8			428	23,306.06	9,000.80	32,306.86	35,288.78	67,595.64	3,961.10		71,556.75
3.4 Bid Support Services		16	60		60	20	20	20		30	30	20	20		16	28					24			364	21,914.66	8,463.44	30,378.10	33,182.00	63,560.10	3,724.62		67,284.72
3.5 Project Management (18 months)		288	144		18																	54	36	540	39,099.24	15,100.13	54,199.37	59,201.97	113,401.33	6,645.32		120,046.65
3.6 Risk Management Assistance		8	24		24																			56	4,556.88	1,759.87	6,316.75	6,899.78	13,216.53	774.49		13,991.02
3.7 Workshops and Meetings	8	120	108		65	65				50	50					30								496	34,596.88	13,361.32	47,958.20	52,384.74	100,342.93	5,880.10	1,597.00	107,820.03
3.8 Quality Control				80					96					96					40					312	25,009.44	9,658.65	34,668.09	37,867.95	72,536.04	4,250.61		76,786.65
Subtotal - Phase 3 Final Design	**8**	**432**	**761**	**80**	**996**	**1,304**	**1,770**	**753**	**96**	**611**	**611**	**738**	**738**	**96**	**210**	**489**	**320**	**320**	**40**	**518**	**64**	**54**	**36**	**11,045**	**607,388.64**	**234,573.49**	**841,962.13**	**919,675.24**	**1,761,637.37**	**103,231.95**	**1,597.00**	**1,866,466.32**
TOTAL - PHASES 2 AND 3	**16**	**612**	**1,000**	**120**	**1,255**	**1,344**	**2,052**	**853**	**136**	**683**	**783**	**803**	**803**	**136**	**226**	**528**	**400**	**400**	**80**	**563**	**104**	**75**	**50**	**13,022**	**728,722.57**	**281,432.66**	**1,010,155.23**	**1,103,392.55**	**2,113,547.78**	**123,853.90**	**2,597.00**	**2,239,998.68**
Rounded - Use for Attach E - Fee Proposal Form																									**728,723.00**	**281,433.00**	**1,010,156.00**	**1,103,393.00**	**2,113,549.00**	**123,854.00**	**2,597.00**	**2,240,000.00**

Profit Calculations		
Min Threshold	250,000	10%
Max Threshold	2,500,000	5%
Proposed Burdened Labor & Overh	2,113,549.00	5.86%

Date: 1/14/2020
Final Negotiated