ATTACHMENT “A2”

SCOPE OF WORK

Operations Building Replacement at Plant No. 2

ATTACHMENT "A2"

Operations and Maintenance Facility Improvements at Plant No. 2
Project No. P2-138

Operations Building Replacement at Plant No. 2

Attachment “A2” – Scope of Work

TABLE OF CONTENTS

1. PROJECT REQUIREMENTS

1.0 SUMMARY

1.0.1 PROFESSIONAL DESIGN ENGINEERING SERVICES

A. CONSULTANT shall provide professional engineering services for the Preliminary Engineering, design, and preparation of Contract Documents suitable for bidding of the project described herein. The services include the following:

1. Programmatic Study and Siting Study for Program Evaluation Studies
2. Preliminary Design Services that will include Concept Design, Schematic Design and Design Development
3. Final Design Services
4. Permitting assistance
5. Preparation of Bid Documents

1.0.2 PROFESSIONAL LICENSING REQUIREMENTS

A. CONSULTANT shall secure the services of a Professional Architect licensed in the State of California to determine the architectural requirements, develop and prepare preliminary design documents, and prepare final plans and specifications for the Operations Center Building.

B. All non-architectural plans and specifications shall be prepared by a professional engineer licensed in the State of California of the associated discipline.

C. CONSULTANT shall secure the services of a Professional Fire Protection Engineer licensed in the State of California to determine fire protection requirements, develop and prepare preliminary design documents, and prepare final plans and specifications.

D. CONSULTANT shall secure the services of a Professional Landscape Architect licensed in the State of California to determine landscaping requirements, develop and prepare preliminary design documents, and prepare final plans and specifications.

1.1 BACKGROUND

Orange County Sanitation District (OC SAN) Treatment Plant No. 2, located in Huntington Beach, CA, consists of both process and support facilities. The support facilities include the Operations Center, Maintenance Building, Engineering Construction Trailer Complex, cart barns, and parking. The existing Operation Center and Maintenance Buildings have seismic and geotechnical deficiencies. OC SAN has determined the most cost-effective solution is to construct a new Operations building (detailed in this SOW Attachment A2) and retrofit the existing Maintenance building (detailed in SOW Attachment A1). The new Operations building is to include the Risk Management staff who are currently located in the Engineering/Construction Management Trailers adjacent to the existing Operations Center. The existing Plant No. 2 main entrance gate does not support traffic traveling south when exiting the plant. The project includes a new main entrance with a signalized intersection at Banning Avenue that will provide protected entry and exit at Brookhurst for OC SAN traffic.

OC SAN completed planning study, PS18-05 Plant No. 2 Future Site Plan Development in July 2020, which illustrated future site layout options for the new Operation and Maintenance Complex and a realigned entrance at the Banning Gate. It was later determined that the preferred location did not maximize space for future treatment processes and was over a seismic fault. Project P2-126 Warehouse, Electrical Substation and 12kV Service Center Replacement at Plant No. 2, evaluated siting options for a warehouse, Operation and Maintenance Facility, and replaced SCE Substation and 12kV Service Center, and revised Banning Entrance. It was decided during the P2-126 project that a warehouse at Plant No. 2 could be replaced with satellite warehouses and material lockers, so the P2-

126 project was cancelled. The Plant No. 2 SCE Substation and 12kV Service Center will be replaced by a future project.

Background studies for the new Operations Building also include PS17-03 Active Fault Study at Plant No. 2. The Active Fault Study identifies areas within the Plant No. 2 site that are known to have active faults, prohibiting the construction of an occupied structure within those limits. During this scope of work development, Jacobs performed a brief Operations and Maintenance Building Complex spacing evaluation to determine approximate building(s) size for preliminary cost estimating.

1.2 GENERAL PROJECT DESCRIPTION

This design engineering services contract will involve the development of the programmatic study, siting study, preliminary design, final design, and construction documents for the following:

- Operation and Maintenance (O & M) Facilities at Plant No. 2 that will include a new Operations Building and planning for the future Maintenance Building, SCE Substation, and 12kV Service Center
- New Plant No. 2 Banning Entrance to Brookhurst at the existing Banning Street gate
- Consideration for traffic flow, parking, deliveries, and security to support the proposed facilities
- Site improvements for grading, utilities relocations, and storm drainage in the O & M Facilities area
- Demolition of existing Operations Center and cart barn

Project boundary of the proposed O & M Facilities for this project is illustrated in the following Figure 1:

Figure 1 – Plant No. 2 Project Site

1.3 PROJECT EXECUTION PHASES

In general, the work for the Operations Building, Banning Entrance and site work shall be completed in accordance with current industry standards for Architectural and Engineering (A/E) building design. OC SAN design standards apply to the Operations Building to the extent that they provide a general understanding of OC SAN design requirements.

The milestone delivery nomenclature utilized in the commercial A/E industry differs from that used by OC SAN. The following table provides a general cross reference for each milestone deliverable.

OC SAN Designation	A/E Industry Designation	Design Level
Program Evaluation Study	-	Programmatic Study/ Site Alignment Study
Preliminary Design Report (PDR) Design Submittal 1 (DS1)	10%	Concept Design
	20%	Schematic Design
	35%	Design Development
Design Submittal 2 (DS 2)	60%	Construction Documents
Design Submittal 3 (DS 3)	95%	
Final Design Submittal (FDS)	100%	
Final Technical Plans and Specs	IFC	Issue for Construction

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

Phase 1 – Project Development (Not in this Scope of Work)

Phase 2 – Preliminary Design (PES, Concept Design, Schematic Design, & Design Development)

Phase 3 – Design (Construction Documents & Issue for Construction)

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)

1.4 DESCRIPTION OF PROJECT ELEMENTS

1.4.1 PROJECT ELEMENT 1 – OPERATIONS BUILDING

A. The new Operations Building is to include space for the Plant No. 2 Operations and Risk Management groups. The standard space allocations established during programmatic study shall be in accordance with OC SAN space standards. The Operations Building includes:

1. Workspaces: offices, cubicles, and field staff station(s)
2. Conference room(s) with one serving as the Emergency Operations Center
3. Lunch/break room
4. Control room / SCADA
5. Service Counter for guests sign in
6. Security office

7. Male and female locker rooms, showers, and restrooms

8. Network closet

9. Electrical room

10. Storage area and mail room

11. Fire sprinkler system/fire protection system

12. Building security system

13. Electrical, standby generator, and uninterruptible power supply (UPS), etc.

14. Server room with independent HVAC system normal and UPS power, etc.

15. Janitor closet with floor sink

16. Covered parking spaces with solar panels, structure for cart barn, electrical charging stations with central charging management system, and heavy-duty outlet plugs for carts

17. Visitor parking and access for delivery vehicles

18. Building shall achieve LEED Gold certification

B. Task work will include conceptual layout for the future new Maintenance Building in the new Operations and Maintenance Facilities area, as well as concept level design for the future new Maintenance building, and siting for the future SCE Substation and 12kV Service Center.

1. Major program components of the conceptual layout (10% design) for the future new Maintenance Building will include:

a. PES (Program Evaluation Study) conducted with OC SAN Maintenance staff to develop a high-level space needs program for each functional group,

b. siting the building to accommodate the required square footage, including an understanding of 3D massing on the site,

c. and planning for major building points-of-entry to include primary/secondary staff entrances, vehicle deliveries, and visitor access, as required.

2. Additional program components within the facility will focus on identifying functional adjacencies, general area requirements, accommodations for major building systems components (i.e.: space for air-handling units, mechanical room, etc., as needed), and indications of general circulation planning (vertical and horizontal) within the facility.

3. Given that the new Maintenance building is not intended for development beyond 10% Concept Design, DS2, DS3, or Final Design for this A2 SOW, the level of design effort will be limited. There will be no detailed floor plans, ceiling plans, plan enlargements, interior layouts, desk layouts, toilet rooms/showers, building sections, wall sections, schedules, building details, industrial equipment (cranes, etc.), material wall assemblies, code research, or other schematic design-related documentation standards.

C. Assumptions for Level of Effort

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

a. Approximately 21,000 square feet for Operations building, two story facility, due to Plant No. 2 limited available space.

b. Approximately 7,000 square feet of space for Operations cart barn.

c. The building first floor slab should be at least at elevation about 13 ft Mean Sea Level (MSL) based on the Climate Resiliency Study.

d. No temporary building will be needed for Operations or Risk Management staff.

e. Parking spaces will meet, at a minimum the City of Huntington Beach guidelines.

1.4.2 PROJECT ELEMENT 2 – BANNING ENTRANCE ALIGNMENT AND PLANT SECURITY

A. New Plant No. 2 Main Entrance at Banning Gate will direct incoming traffic to the north end of the plant to the Operations Building Area. The area north of the Trickling Filter Solid Contact secondary clarifiers will have a physical barrier (wall, fence, etc.) with automatic entrance and exit gates at the roads, to separate the Operations Building area from the plant process areas. The new Banning Entrance includes:

1. Signaled intersection permitted by the City and aligned with Banning Avenue
2. Brookhurst Street and Banning Avenue street improvements
3. Security gate that will be used as the new main entrance (Banning Entrance)
4. Plant exterior wall improvements at the Banning Entrance to tie into the existing perimeter wall
5. Safe entry/exits for all vehicles including rejected vehicles

B. Assumptions for Level of Effort

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

a. Overall traffic volume study is required, including left turn into the new Banning Entrance.

b. The work in the intersection will be designed by CONSULTANT.

c. Improvements to the exterior wall will be limited to the area required to accommodate the new Banning Entrance. Complete replacement of the existing perimeter wall is not included.

1.4.3 PROJECT ELEMENT 3 – SITE IMPROVEMENT AND UTILITIES

C. The Site Improvements work will include general grading, roadways, delivery access, including sufficient drainage design, utilities routing for sewer pipelines, electrical conduits, water pipelines, communications, landscape and irrigations for all new structures, and planning for future utilities for the future buildings in the new O & M Facilities area. The O & M Facilities area is anticipated to be located on the north side of Plant No. 2, north of the existing Operations Center Building. This work will need to consider existing easements and underground duct banks within the project area. Work to be constructed under this element includes:

1. Stormwater pump station replacement and storm drain system
2. Curb and gutter, fire hydrants, and site lighting
3. General grading, roadways, delivery access, including sufficient drainage design
4. Site improvements at all demolished facilities
5. Utilities routing for all new structures built by this project
6. Work to be constructed under future projects but planned for under this element includes:

a. Maintenance Building - Approximately 35,000 to 41,000 square feet for future building, two story facility.

(1) Approximately 12,000 square feet of space for future cart barn.

b. SCE Substation

c. 12kV Service Center

7. Utilities for future buildings/structures in the O & M Facilities area, such as sewer pipelines, electrical conduits, water pipelines, communications, landscaping, and irrigation

8. 12kV and fiber optic duct banks from the future 12kV Service Center to the area at the north end of the existing Tricking Filter Solids Contact area

D. Assumptions for Level of Effort

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

a. The design of the stormwater pump station will be in accordance with J-67 Peak Stormwater Master Plan (2005) and OC SAN design guidelines.

b. Utilities for future facilities (Service Center, Substation, Maintenance Building) will be conceptually planned for and utilities to be installed as part of P2-138 will consider future capacity. However, utilities needed solely for future facilities (such as 12kV duct banks and fiber optic duct banks for future service center) will be planned for but not installed as part of P2-138.

c. The existing OC SAN Potable water system will be the source for the fire hydrants and fire sprinkler system. The existing pipelines will be extended and designed to create a loop. Pressure testing of the existing system is not included in this scope of work.

d. Temporary bypass pipeline may be required for storm water during construction.

e. Existing abandoned oil wells are within the proposed project site (See Figure 1 and Exhibit 19B.4) and need to be abandoned in place or removed.

f. Account for existing easement and underground duct banks within the project area and determine if any relocation work is needed.

1.4.4 PROJECT ELEMENT 4 – DEMOLITION OF FACILITIES

A. Demolish the Operations Center and cart barn

B. Protect the existing outdoor switchgear SWGR-OBB in place to maintain electrical service to the Construction Management Trailers

C. Improvements in the Operations Center and cart barn area include:

1. Drainage, paving and grading for a Construction Management Trailer parking lot

2. Car chargers in the new parking lot for OC SAN and employee vehicles

3. Refeed power and communications (office network) to the existing main entrance gate from the Construction Management Trailers

1.4.5 TEMPORARY FACILITIES DURING CONSTRUCTION

For the existing stormwater pump station, construction sequencing constraints may require the contractor to construct a temporary facility to be used during a certain portion of the construction period. CONSULTANT shall identify in what instances such facilities are required or reasonably warranted and present those instances with implementation plans and construction sequencing constraints to OC SAN for consideration. If such facilities are found to be either required or reasonably warranted, CONSULTANT shall provide sufficiently detailed drawings and specifications to be included in the Bid Documents that bidders understand what is required to provide and potentially operate the temporary facilities and that the reliability and performance of the facilities will meet OC SAN's needs and reasonably mitigate construction risks.

1.4.6 COORDINATION WITH OTHER PROJECTS

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

1. **J-120 & J120A Process Control Systems Upgrade.** This project will be developing control room layouts for the existing Operations Center and future Operations Building.

2. **P2-128, TPAD Digester Facility at Plant No. 2.** This project will enhance the existing anerobic digesters at OC SAN's Plant No. 2 with a temperature-phased anaerobic digester (TPAD) configuration. This project will build six new thermophilic digesters; Class A batch tanks; sludge heating and cooling facilities; associated sludge pumping; digester mixing; gas conveyance and cooling; odor control; power distribution; and controls. Replacement and demolition of existing digesters will be included in a separate project.

3. **GWRS Final Expansion.** This project is constructing the new pump station and two equalization basins, which will be located to the north of tricking filters clarifiers.

1.5 DESIGN CONSIDERATIONS

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

1.5.1 TECHNOLOGY AND CONFIGURATION CHOICES

The project elements in this facility shall be achieved using proven technologies. Alternative means of accomplishing the project elements must be reviewed and accepted by OC SAN prior to detailed evaluation.

1.5.2 DESIGN DECISIONS

Design decisions shall be agreed upon by OC SAN prior to any work being performed by the CONSULTANT in preliminary and detailed design. All design decisions shall be documented.

1.5.3 DESIGN SELECTION CRITERIA

A. Design selection shall consider construction, lifecycle, operation, and maintenance costs. When design recommendations are presented to OC SAN, the design selection criteria shall be clearly identified with the recommendation.

B. The cost estimate shall consist of a life cycle cost analysis for the options proposed, including costs for engineering, construction, start-up, and operational and maintenance, and future rehabilitation and replacement.

C. The construction cost estimate shall be as described in Engineering Design Guidelines Section 01.4.6 included as Exhibits 10a and 10b. Life cycle cost analysis is described in Section 01.2.19 of the Guidelines.

1.5.4 PROJECT ELEMENT DESCRIPTION REVISIONS

CONSULTANT shall review and revise the Project Element Descriptions using track changes at the end of Preliminary Design and at each design submittal. Changes shall be submitted to OC SAN for review.

1.5.5 COST MODEL

A. CONSULTANT shall prepare the cost model to be used to demonstrate the true cost of major project decisions. With each major project decision, the CONSULTANT shall review and update the cost model. The cost model shall be a living document between the CONSULTANT and OC SAN to ensure that all changes are being acknowledged in the overall project cost. CONSULTANT shall assume five (5) cost model revisions in addition to the cost estimates developed for the preliminary design and design submittals.

B. The cost model shall show the implications of the decisions on the life cycle costs and shall be used in the decision-making process. After decisions are made, the updated construction costs, and life cycle costs, shall be submitted for project records.

C. The cost model shall be used to track project changes through final design.

D. The construction cost estimate shall be as described in Engineering Design Guidelines Section 01.4.6 included as Exhibit 10b - Sample Construction Cost Estimate Format.

1.6 PROJECT SCHEDULE

1.6.1 GENERAL

A. The table below list the time frame associated with the major project deliverables and with OC SAN's review and approval of the new Operations Building, Banning Entrance, and site work in this SOW Attachment A2. CONSULTANT shall comply with the deadlines indicated in the table.

B. OC SAN Project Manager will issue three (3) Notices to Proceed for each subproject. The CONSULTANT begin preparation of the PMP Plan at NTP.

1. Project Notice to Proceed (NTP)
2. Preliminary Design Notice to Proceed (PDR NTP)
3. Design Notice to Proceed (Final Design NTP)

C. Following OC SAN's acceptance of the PMP, OC SAN's Project Manager will issue a Preliminary Design NTP. OC SAN's Project Manager will also issue a Final Design NTP upon OC SAN's acceptance of the final Preliminary Design Report.

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

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

Operations Building Replacement at Plant No. 2 PROJECT MILESTONE AND DEADLINES	
MILESTONE	**DEADLINE**
Kickoff Meeting and Notice to Proceed	The kickoff meeting will be scheduled to coincide with the NTP.
Submit Project Management Plan (PMP)	10 workdays following Kickoff Meeting.
OC SAN Review of PMP	5 working days from receipt of PMP. CONSULTANT shall issue a revised PMP within 5 working days of receipt of OC SAN's comments for OC SAN approval.
Submit Draft Programmatic Study	50 working days from receipt of NTP.
Submit Draft Site Configuration Evaluation Study	100 working days from receipt of NTP.
OC SAN Review of Program Evaluation Study	10 working days from receipt of Program Evaluation Study
Submit Final Program Evaluation Study	20 working days

Operations Building Replacement at Plant No. 2 PROJECT MILESTONE AND DEADLINES	
MILESTONE	**DEADLINE**
Concept Design NTP	CONSULTANT's schedule shall allow 15 working days from submittal of the Final Program Evaluation Study to receipt of the PDR NTP.
Submit Concept Design Package (10%)	60 working days from receipt of Concept Design NTP.
OC SAN Review of Final Concept Design Package	15 workdays from receipt of 10% Concept Design Package.
Submit Schematic Design Package (20%)	80 workdays from receipt of Final Concept Review Comments.
OC SAN Review Schematic Design Package	20 workdays from receipt of Schematic Design Package.
Submit Design Development Package (35%)	60 workdays from receipt of Schematic Design Review Comments.
OC SAN Review of Design Development Package	20 workdays from receipt of Design Development Package.
CEQA Approval	Design shall not proceed beyond Design Development without the project obtaining CEQA approval.
Gate 4 Construction Document Start	OC SAN shall review the 35% design with Management to gain consensus the project is ready to proceed to Construction Document Phase. CEQA must be complete for Gate 4.
Submit 60% Construction Document (CD) Package	120 workdays from Construction Document Phase NTP.
OC SAN Review of 60% CD Package Submittal	20 workdays from receipt of 60% CD Package.
Submit 95% Construction Document Package	120 workdays from receipt of OC SAN comments on 60% CD Submittal.
OC SAN Review of 95% CD Submittal	20 workdays from receipt of 95% CD Submittal.
Submit 100% Construction Document Package for Jurisdictional Permit Review	15 workdays from receipt of OC SAN comments on 95% Submittal.
Jurisdictional Review	60 workdays from submittal of Permit Set (Approx) (assume three review cycles with City).
Submit Final Issue for Construction (IFC) Package	25 workdays from receipt of Jurisdictional comments.

2. PHASE 2 – PRELIMINARY DESIGN

The preliminary design phase will define the project. The final deliverable of this phase will be a Preliminary Design Report (PDR) with the basis of design for all elements of the project.

2.0 PRELIMINARY DESIGN EXECUTION

2.0.1 MAJOR DECISIONS

A. The CONSULTANT shall plan the resolution of major decisions through the following process:

1. Identify major decisions early and the timing required to prevent impacts to the project schedule.

2. Identity the decision-making method that will be used to gain OC SAN concurrence and provide appropriate opportunities for OC SAN provide input.

3. Identify and schedule at the start of the project the workshops, technical design meetings and focused meetings where major decisions will be made and include a list of required attendees.

B. These decisions should be tracked on the Decision Log and flagged as a major decision.

2.1 PROGRAM EVALUATION STUDIES

2.1.1 PROGRAMMATIC STUDY

A. The Programmatic Study work conducted by the CONSULTANT shall include survey and/or review of existing studies, interviewing the relevant OC SAN staff, and conducting field observations/research to obtain the information to include in a draft Programmatic Study Report for OC SAN review. The Programmatic Study shall include programming requirements for the Operations Building to be constructed under this project and the space requirements for the future Maintenance Building that is not in this project. A final report shall be submitted in accordance with the schedule in this SOW. The Programmatic Study report at a minimum shall include the following information:

1. Number and size of cubicles, offices, conference rooms, field staff station(s), storage areas, control room, reception area, server rooms, break room, etc. for the Operations and Risk Management staff in one building and Maintenance staff in a future building. Also compile programmatic requirements for the Construction Management staff for an option to expand building in the future.

2. Number of people and % growth

3. Number of huddle rooms for staff

4. Number of delivery trucks per day, types of trucks (warehouse inventory delivery trucks and frequency (including delivery trucks for warehouse vending machines or cubby holes, food waste, chemical, wastewater hauler, biosolid trucks))

2.1.2 SITE CONFIGURATION EVALUATION STUDY

A. A Site Configuration Evaluation Study shall be conducted as described below.

B. CONSULTANT shall identify and develop at least three (3) alternatives for the layouts and configurations that document the following conclusions below.

1. With the continued reduction in Plant No. 2 space, provide approximate sizes, layouts, and configurations of the new Operations Building and future Maintenance building, maintenance work bay, cart barn, SCE Substation, 12kV Service Center, and any other existing and future structures in accordance with this SOW. For sizing of the future SCE Substation and 12kV Service Center, reference Project No. PS16-02, SCE Feed Reliability Improvements Study. New facilities are to be designed to withstand a flood elevation of approximately 13 feet above sea level.

2. Approximate site grading and drainage, stormwater pump station, and connections to existing storm drain facilities.

3. The approximate alignment of required buried and above-ground utilities including duct banks, SCE power lines, water lines, sewers, and storm drains.

4. Preliminary design configuration of the new Banning entrance and the traffic access routes within and through the project area during construction, as well as permanent access once the construction is completed, including SCE and Orange County Water District (OCWD/GWRS) ingress and egress.

5. Proposed sequencing of construction based on the schedules, conflicts with other projects, construction staging areas, and demolitions of existing facilities per this SOW. Consultant shall provide a general timeline for other facilities in the project area.

6. Temporary provisions to facilitate construction and ensure that there is no major outage or interruptions to the day-to-day operations of the treatment plant and OC SAN staff that may be impacted by this Project.

7. Include the existing SCE overhead pole lines and City of Newport Beach water line that runs east to west at the Banning Entrance. Consider options to reroute and underground SCE power lines.

8. With the continued reduction in Plant No. 2 space, provide maximized space benefit for construction contractor parking and possible construction laydown area.

2.1.3 WORKSHOPS AND MEETINGS FOR PROGRAM EVALUATION STUDIES

A. General

1. CONSULTANT shall hold meetings and workshops to obtain OC SAN input into the evaluation studies and to assist OC SAN in making key decisions. This task defines the major meetings and workshops to be held by the CONSULTANT.

2. Requirements for planning, agendas, and minutes of workshops and meetings shall be as specified under **Exhibit 5 - Workshop and Meeting Requirements**.

B. Meetings and Workshops

1. A series of evaluation meetings and workshops shall be held during the Predesign Evaluation Studies phase to review project progress and make key decisions. The meetings for the evaluation studies shall be assumed to be 1 hour in duration. The workshop title and subjects to be covered in each workshop are discussed below. Each workshop shall be approximately 2 to 3 hours in length.

2. During alternatives development, evaluation meetings, and workshops, CONSULTANT shall prepare and provide a preview of materials, a week in advance, to OC SAN Engineering team to validate that the materials, to be presented in the workshops, are sufficient and well-organized.

3. The viable alternatives (minimum of 3) shall identify combinations of site layouts, facility configurations and sizing, traffic flow control and assessment, existing and new utilities and easements, site grading, construction sequencing, gate(s)/entrance(s) configurations, etc., and ultimately recommend one option at the Final Recommendation workshop for OC SAN Executive Management Team (EMT) approval.

4. OC SAN engineering team will present the recommended option to the EMT. If needed, one CONSULTANT may be requested to participate in this presentation to the EMT.

5. The suggested meetings and workshops are listed in the table below.

Description	Topics	M	W	F
Programmatic Study	Information reviews/verifications & research	6	1	1
Site Configuration Evaluation Study	Validation of assumptions, issues, existing conditions	4	1	2

Description	Topics	M	W	F
	Alternative Developments & Evaluations	2	2	1
	Alternative Selections	2	2	0
	Final Recommendation	0	1	0

M = # of Meetings; W = # of Workshops; F = # of Field Visits

C. Focused Meetings

1. The workshops and meetings listed above are just to accomplish the Program Evaluation Study and obtain consensus. A number of other meetings shall be held to discuss discipline-specific technical topics with a more limited number of OC SAN's team members, before and/or after each workshop, as well as to review work-in-progress, and to review/resolve comments.

2.1.4 DRAFT AND FINAL PROGRAM EVALUATION STUDY REPORT

CONSULTANT shall submit the Programmatic Study and Site Configuration Evaluation Study as individual reports for OC SAN to have 20 working days for review. The studies shall include a table of contents and executive summary. The studies shall be finalized and resubmitted.

2.2 PRELIMINARY DESIGN PHASE

2.2.1 GENERAL

A. In addition to the project deliverables described in this Scope of Work, the CONSULTANT shall also refer to Exhibit 1a of this Scope of Work for documentation standards and level of detail requirements for deliverables in each Phase of the project.

B. Preliminary Design involves the preparation of basis of design, drawings, calculations, and other supporting material resulting in the Preliminary Design Submittals.

2.2.2 CONCEPT DESIGN (10%)

A. The Concept Design shall demonstrate full compliance with the Building Program identified in the Programmatic Study for both the Operations and Maintenance Buildings. The Concept Design layout shall consider the ultimate future O & M Facilities buildout (space tabulation of building program) including all adjacency and functional requirements. Building Systems and Building Envelope appropriate for the level of conceptual design must be defined to evaluate the effectiveness and efficiency related to operation, maintenance, and energy consumption.

B. The Concept submittal shall define the macro level elements of the design including, but are not limited to, siting, building massing, and preliminary layout of the building floor plans for the Operations & Maintenance Building. Building massing for the future Maintenance Building will be incorporated at a conceptual level only.

C. In this phase, the CONSULTANT shall develop their design strategy for achieving LEED certification as defined by the U.S. Green Building Council for the Operations Building.

D. CONSULTANT shall submit preliminary concept documents consisting of a minimum of three (3) alternative schemes for both building massing and site layout along with 3-D exterior renderings of three (3) different architectural design styles. The level of presentation detail for each scheme shall be determined by the CONSULTANT. Based on the review of the preliminary concept documents, OC SAN will provide direction to CONSULTANT for the preferred design to develop to final concept design. The final 10% concept design shall be a formally developed concept design package for the new Operations Building, future

Maintenance Building, Banning Entrance, and the site work for the O&M Facilities area, based on the selected preferred design scheme.

E. Conceptual Design Content and Organization

1. The Consultant shall prepare documents required for the Final 10% Concept Design Phase that shall include:

a. Site Plan: Site boundaries, approximate topography, existing buildings as appropriate, setbacks, and easements. Define new building location and massing, parking and service areas, and relationships to adjacent roadways and egress paths. Define security boundary and building and plant access points (vehicle and pedestrian). Define proposed ADA egress and parking. The site plan shall be large enough to depict conceptual improvements to the new Banning entrance to Plant No. 2. Define rudimentary locations for landscape.

b. Floor Plans for new Operations Building and massing for future Maintenance building: Define entrances, lobbies, corridors, stairways, office areas, elevators, special spaces, mechanical rooms for major equipment, electrical rooms, and any other service spaces. Provide critical dimensions as required.

c. 3-D Exterior Renderings: Provide (3) images of different sides of building. Provide images of office mockups. Alternative, provide 3-D electronic massing model in Sketch-Up, or other agreed to software.

d. Building Sections: Provide if needed to demonstrate unusual internal spatial relationships.

e. Basis of Design: Provide a narrative.

f. Each discipline's documents must demonstrate an equal level of completion and comply with the requirements in Exhibit 1a.

g. Material boards and other visual references to assist OC SAN in selecting the desired design scheme.

h. Two Construction Cost Estimates:

(1) One at the beginning of the Concept Design for OC SAN budgeting purposes.

(2) One as part of the final Concept Design submittal.

2.2.3 SCHEMATIC DESIGN (20%) SUBMITTAL:

A. The Schematic Design Package will constitute (20%) of the overall project design and engineering package. The Schematic Design Package will be generated for the single option that was selected during the concept design phase. This submittal will demonstrate a thorough explanation of all the key decision factors for the overall project. The Design Package (20%) will provide enough information to confirm the general arrangement of relevant buildings, conceptual floor plans of the operations building, arrangement of the Banning Entrance, and truck access routes.

2.2.4 DESIGN DEVELOPMENT (35%) SUBMITTAL:

A. The Design Development Package will constitute (35%) of the overall project design and engineering package. This submittal will continue to clarify and elaborate on all of the key decision factors for the overall project. Each discipline's documents must demonstrate an equal level of completion and comply with the requirements of Exhibit 1a. Documents not meeting compliance will be returned to the CONSULTANT until full compliance is reached at no additional cost to OC SAN.

2.2.5 PRELIMINARY DESIGN SUBMITTALS

A. Submit in searchable PDF format legible on-screen and as a hard copy. The number of hard copies is indicated in **Exhibit 9 - Deliverables Quantities**. The labeling and organization of the PDF submittal shall be in accordance with **Exhibit 14 - Bluebeam Designer Training for Submission**.

B. The OC SAN Project Manager may request that the CONSULTANT submit an electronic proof set prior to hard copy production to initially confirm that the submittal is ready.

C. Include decision logs and meeting minutes associated with each submittal.

2.2.6 PRELIMINARY DESIGN CONSTRUCTION COST ESTIMATE

A. The CONSULTANT shall prepare an AACE International Class 3 cost estimate per OC SAN's Engineering Design Guidelines, Chapter 01 for the 20% and 35% submittals. A sample construction cost estimate format is provided in Exhibit 10.

B. Data used to prepare the cost estimate, including vendor quotations, shall be included as an attachment to the Basis of Design.

2.3 PRELIMINARY DESIGN ACTIVITIES

2.3.1 BASIS OF DESIGN

A. The Basis of Design is an organized compilation of detailed narratives by each discipline (e.g., Architectural, Civil, Landscape, Structural, Mechanical, Electrical, Fire Protection, Instrumentation & Control, LEED, IT/Comm, A/V, etc.) describing their work on the project, including items such as:

1. General understanding and scope of work.
2. Applicable codes
3. Programming requirements
4. Seismic design criteria for structural, mechanical, and electrical systems
5. Description of building systems and materials
6. Provide updated images of office mockups.
7. Preliminary calculations

B. The Basis of Design shall also include:

1. Stormwater Requirements
    a. CONSULTANT shall assess the impacts of stormwater run-off.
2. Electrical
    a. CONSULTANT shall obtain and adhere to OC SAN's most recent Electrical Design Guidelines on the following subjects before proceeding with the preliminary electrical design. Particular subjects of concern include the following:
        (1) Tagging procedures
        (2) Relay protection guidelines
        (3) Neutral grounding
        (4) Power cable type
        (5) Surge suppression
        (6) Electrical equipment naming conventions
        (7) Distribution equipment naming convention

b. CONSULTANT shall coordinate the electrical system design with other on-going OC SAN 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.

c. CONSULTANT shall perform preliminary calculations of existing equipment (i.e., panelboards and motor control centers) early in PDR, prior to taking any load measurements to determine if there is adequate spare capacity for the new loads. Consultant shall develop a list of loads load measurements that need to be taken to perform load calculation.

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

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

3. Instrumentation and Control (I&C)

   a. In addition to the individual control systems for various equipment and systems (e.g., elevators, fire alarms, building mechanical systems, etc.), on this project OC SAN has specific instrumentation and control requirements for the stormwater pump station, weather station, and UPS. OC SAN will be supervising and controlling via OC SANs SCADA. Other building control systems will be monitored/controlled via the administrative network system.

4. Tag Numbering System

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

5. Facility Operation and Maintenance

   a. Within the context of the stormwater design, this basis of design shall include the following material:

      (1) Operating Philosophies which include process control descriptions with information on normal, abnormal, and emergency operating criteria. See Engineering Design Guidelines, Appendix A, Section A.3.7 “Operating Philosophy” for requirements.

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

6. Implementation Plan

   a. This Basis of Design requirement shall address issues affecting and affected by the implementation of the proposed project. Contents of the basis of design shall include the following issues:

   b. Identification of Adjacent Projects

      (1) The CONSULTANT shall identify and describe projects which might impact or be impacted by this project. Adjacent projects may include OC SAN and any other known non-OC SAN 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 basis of design shall

describe the type of coordination required to minimize negative impacts on all of the projects.

7. Preliminary Commissioning Checklist

   a. There will be two components of commissioning on this project.

      (1) LEED/Operations Building commissioning requirements

      (2) OC SAN process commissioning requirements related to any equipment connected to the plant process and electrical control system.

   b. For the OC SAN process commissioning requirements, the CONSULTANT shall develop a spreadsheet identifying all major process, mechanical, electrical, and instrumentation equipment listed in rows. For each row, the prerequisites to testing and commissioning of that piece of equipment shall be listed. At least one column shall be provided for a description of the immediate predecessor to the equipment being placed into service. The remaining columns should include tests, training, certifications, etc. that are required to start and complete commissioning. These columns would be used to identify which items apply or not. The intent of preparing a Preliminary Commissioning Checklist in the Preliminary Design Phase is to verify that all relevant sequencing constraints are identified early in the project.

8. Preliminary Construction Sequencing Plan.

   a. The plan shall include the following material:

      (1) Description of sequencing constraints and the reasons for those constraints.

      (2) Implementation alternatives that might expedite construction and commissioning, avoid sequencing constraints, and/or mitigate schedule and cost risks.

      (3) 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.

      (4) A Critical Path Method (CPM) construction schedule showing the interrelationships of the elements of the project schedule shall be prepared using software intended for schedule projects. Examples of acceptable software packages include Microsoft Project and Primavera.

9. Review of Constructability Issues

   a. Describe all project-specific issues that might impact bidding, construction, and commissioning. Describe the following aspects of each issue:

      (1) The consequence of the issue occurring.

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

      (3) Suggested mitigation measures and when mitigation measures might be implemented.

      (4) Potential project changes and approaches that may be warranted to address the issue.

2.3.2 FIRE PROTECTION

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

B. Fire Flow Analysis: Evaluate existing potable water system for adequate pressure and volume to supply the required sprinkler systems and hydrants.

2.3.3 HAZARDOUS MATERIAL SURVEY, MITIGATION AND CONTROL

A. The CONSULTANT shall provide qualified professionals to investigate the facilities to be demolished as part of this project for the presence of asbestos-containing materials, lead, or other hazardous materials. This Scope of Work includes sampling and analysis for potentially hazardous materials.

B. The findings shall be documented and summarized in a Field Investigation Report. The report shall include detailed descriptions of where the material of concern is located and identify concentrations of the regulated contaminants at each specific location and quantify the affected materials.

C. The report shall also include photos and annotated drawings to clearly indicate the locations of the materials of concern. It is advisable to include photos that would allow CONSULTANT to add extra identifiers to the affected materials on the construction contract drawings (e.g., color, size, texture, composition) to help the contractor to differentiate between different instances of materials. For example, different tile textures may help distinguish problem tiles on one wall from adjacent non-hazardous tiles.

D. The Field Investigation Report shall be included as part of the Basis of Design. The Basis of Design itself shall address how the hazardous materials mitigation and control should be handled, the estimated cost for removing the material and placing it into OC SAN furnished containers, and, separately, the cost for final disposal of the material in the containers by a separate OC SAN hired contractor.

2.3.4 UTILITY INVESTIGATION

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

B. Review of OC SAN Records

1. OC SAN's "As-built/Record" plans may be incomplete or inaccurate with respect to the routing of individual utilities, pipelines, etc. in the vicinity of the project. CONSULTANT shall check OC SAN records against those of the other agencies, companies, and utilities. These may include, but not be limited to, oil, gas, fuel, water, and sewer pipelines, traffic control facilities, telephone and electrical conduit and duct banks, storm drains, manholes, and other structures.

C. Review of Outside Agency Records

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

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

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

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

D. On-Site Inspection

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

E. Utilities for Adjacent Properties

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

a. List all utilities anticipated or each adjacent property.

b. Indicate whether or not each such utility was found on as-built drawings of any agency, with an identification of the agencies identifying such utility.

c. Indicate whether the utility was field located by utility through USA process, and, if so, by which agency.

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

G. Subsurface Utility Investigations

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

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

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

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

d. **Quality Level A:** Precise horizontal and vertical location of utilities obtained by the actual exposure (or verification of previously exposed subsurface and surveyed utilities) and subsequent measurement of subsurface utilities, usually at a specific point.

Minimally intrusive excavation equipment is typically used to minimize the potential for utility damage. A precise horizontal and vertical location, as well as other utility attributes, is shown on the plan documents. Accuracy is typically set to 15-mm vertical and to applicable horizontal survey and mapping accuracy.

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

3. CONSULTANT shall determine all utilities impacted by the work for all applicable Project Elements of this Scope of Work. Utilities include all in-plant utilities; utility company-owned, and public agency-owned piping, duct banks, and other interferences. All utilities encountered during the preliminary design shall be shown on the plans.

4. Subsurface investigation for all utilities in and around the work area shall be performed to Quality Level D and Quality Level C. All utilities shall be plotted both in plan and profile on a scaled drawing that can later be incorporated into scaled (1" = 40') plan drawings.

5. CONSULTANT shall submit, for acceptance by OC SAN, recommendations on which utilities should be investigated to Quality Level A and where Quality Level B investigations should be performed. As part of the submittal, a Potholing Plan and Geophysical Investigation Plan shall be developed including proposed pothole locations and type of geophysical investigation.

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

H. Potholes and Geophysical Investigation

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

2. CONSULTANT shall "pothole" and perform geophysical investigation on all utilities described and shown in the accepted Potholing Plan/Geophysical Investigation Plan. CONSULTANT's staff shall be on-site during potholing to provide direction to potholing crew. OC SAN staff shall also be present during potholing. Field investigations include visiting the project work site and each utility to verify the location of all interferences.

3. CONSULTANT shall provide all the related work necessary, including, but not limited to:

   a. Documentation of information

   b. Notification of USA's "Dig Alert"

   c. Providing field survey

   d. Obtaining required permits

   e. Submission of traffic control plans

   f. Setting up traffic control

   g. Soft dig potholing

   h. Ground-penetrating radar

   i. Excavating

   j. Backfilling

   k. Repairing pavement to local jurisdiction requirements

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

5. Potholing subcontractor shall measure and document the depth of pavement and of base material at each pothole, and every five feet along crosscut trenches.

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

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

8. The results of potholing and geophysical efforts shall be summarized in a field findings report.

9. CONSULTANT shall backfill and repair potholes consistent with the requirements of the local jurisdiction. If CONSULTANT is unable to determine local jurisdiction requirements prior to the proposal, CONSULTANT shall assume the following requirements:

a. The materials removed from the excavation may not be used for backfilling, unless approved by the local jurisdiction. If approved, excavated material used to fill potholes shall be placed with a maximum lift thickness of four inches and mechanically compacted.

b. If not approved, the CONSULTANT shall be responsible for hauling off and disposing of excavated pothole material. In this case, excavation holes shall be filled with a cement slurry mix from the bottom up. The excavated materials shall be tested for hazardous materials and disposed of offsite accordingly. Testing shall be the minimum required for classifying the materials. The potholing samples shall be tested by a California Environmental Laboratory Accreditation Program (ELAP) certified laboratory to identify characteristics of hazardous waste. A substance shall be considered hazardous if it possesses properties of toxicity, ignitability, corrosivity and/or reactivity per California Code of Regulations Title 22, Section 66261. In addition, Minimum the laboratory testing shall include an on-site Organic Vapor Analyzer (OVA) test for potential hydrocarbon contaminants. Should the OVA reading be equal to or greater than 45 ppm, further laboratory Minimum testing shall be performed to include Benzene, Toluene, Ethyl Benzene, and Xylene (BTEX) test per EPA guideline 8020 and Total Hydrocarbons (TPH) tests per EPA guideline. should the OVA reading be equal to or greater than 45 ppm.

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

d. Concrete pavement shall be replaced to full depth plus two inches with Portland cement unless otherwise required by City of Huntington Beach.

I. Quantitative Assumptions

1. CONSULTANT's fee proposal shall include a cost for potholes and unit cost for additional potholes. The cost shall provide for a minimum of 20 potholes during preliminary design and 5 potholes during final design.

2. CONSULTANT's fee proposal shall include a cost for geophysical investigation. The cost shall provide for a minimum of 150,000 square feet during preliminary design.

J. Depiction of Utilities and Potholes on Plans

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

K. Relocation of Existing Utilities

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

2.3.5 GEOTECHNICAL INVESTIGATION

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

B. Soil Explorations

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

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

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

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

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

C. Soil Sampling

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

D. Ground Water Pump Testing

1. Conduct ground water pump testing to determine dewatering parameters for inclusion of the specifications.

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

E. Groundwater Contamination Testing

1. Conduct ground water sampling and analysis to determine dewatering treatment parameters for inclusion of the specifications. At a minimum, the ground water shall be

sampled and tested for the contaminants identified in Ordinance 53, Table 1 to demonstrate compliance with the discharge requirements.

F. Soil Exploration Locations

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

2. Explorations shall be located strategically within the footprint of the proposed excavation or on the centerline of proposed pipeline alignments. A total of six (6) borings shall be cased and converted into water level monitoring wells for use during construction according to local agency requirements. CONSULTANT shall obtain all necessary permits for the installation of monitoring wells. CONSULTANT shall also be responsible for abandoning the wells after the construction is completed and the monitoring wells are no longer useful.

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

G. Report Recommendations for Specifications

1. The Geotechnical Data Report shall make recommendations regarding the provisions to be included in the construction specifications. Recommendations shall be prepared for the following topics: dewatering, trench shoring, backfill compaction, and road repairs.

H. Geotechnical Data Report Recommendations for Design

1. The Geotechnical Data Report shall make recommendations regarding the design of the facilities. Recommendations shall include active, at-rest, passive and dynamic earth pressures, foundation type, allowable bearing pressure, coefficient of friction between the foundation and soils/subgrade, pile or mat foundation design data, settlement potential, pipe bedding and trench shoring/maximum cut slope requirements, soil contamination/corrosion potential, structural needs, pipe stability, expected earthquake displacement, and other CONSULTANT design requirements.

2.3.6 TOPOGRAPHIC SURVEY

A. CONSULTANT shall conduct field and aerial surveys as required. Topographic information used on the construction plans shall be generated from a field survey and an aerial mapping process.

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

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

1. The final product shall be delivered in AutoCAD.

2. The aerial shall be based on the Plant No. 2 coordinate system.

3. The CAD file shall adhere to the CAD Manual. OC SAN shall be given the opportunity to review and comment on the compliance to the CAD Manual.

4. Site contours shall be in 0.5-foot intervals.

5. Contour and spot elevations shall be 3D; all other features shall be 2D.

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

2.3.7 VALUE ENGINEERING ASSISTANCE

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

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

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

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

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

4. Day Two (2) will be used by the VE Consultant to gather additional information that the VE Consultant might need. OC SAN stakeholders may also be available to answer questions.

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

6. CONSULTANT shall participate in the workshop as described herein, evaluate the VE Report recommendations, conduct additional engineering analyses as determined by OC SAN, and meet with OC SAN to discuss the results of the engineering analyses and incorporation of all additional recommendations into a Final VE Report.

2.3.8 ENVIRONMENTAL DOCUMENTATION

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

B. CEQA Documentation Support

1. The CONSULTANT shall also respond to the inquiries from the preparer of any EIR updating regarding project data and information.

C. Review of Existing CEQA Documentation

1. OC SAN has adopted the CEQA documentation in the course of various programs and projects. These CEQA documents may cover or impact the proposed work on this project.

a. CEQA Programmatic Environmental Impact Report for CEQA - Facilities Master Plan, Project PS17- 08CEQA Programmatic Environmental Impact Report for 2017 Facilities Master Plan.

2. CONSULTANT shall identify features of the proposed Project Work as described in the Preliminary Design Report that would require revisions to these CEQA documents. CONSULTANT shall also recommend what further studies or CEQA work would be warranted by the changes.

D. Mitigation, Monitoring and Reporting Program Compliance

1. CONSULTANTS shall prepare the material related to compliance with the Mitigation, Monitoring, and Reporting Program (MMRP) using the template in the Exhibit 13.

E. The checklist shall include the following:

1. Applicable EIR Mitigation Measure numbers
2. Descriptions of Mitigation Measures
3. How Mitigation Measures will be included in Bid Documents
4. Frequency of monitoring during construction
5. Notes

F. See Exhibit 13 - MMRP Log Template.

G. CONSULTANT shall also provide OC SAN a list of special equipment, specialty inspector qualifications, or sampling or testing firms that may be needed by OC SAN for enforcement of the MMRL during construction. This information shall be included in narrative form attached to the MMRL.

H. CONSULTANT shall attend three (3) OC SAN meetings to discuss the environmental documentation and two (2) public meetings to assist OC SAN in presenting the project to the community. Public meetings may occur after normal business hours.

2.3.9 PERMITTING ASSISTANCE

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

B. For all applicable Project Elements of this Scope of Work, CONSULTANT shall provide Bid Documents that ensure that the facility features and the facility performance, and construction procedures comply with all conditions of existing permits and permits required to construct this project. Construction drawings, specifications and supplemental drawings shall be prepared, as necessary, in the format required to obtain all permits.

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

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

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

F. Coastal Commission Permit

1. The CONSULTANT shall prepare packages for coastal commission submission and assist in the application process. This process typically takes six to nine months and requires two additional submissions for comments and modifications. This work will be done through the City of Huntington Beach Planning Department.

2. The CONSULTANT shall assume four meetings at two hours each.

G. Building Permits

1. The CONSULTANT shall assist in coordination with the City of Huntington Beach for any fire sprinkler systems designed. The CONSULTANT will be responsible for providing specifications that will be used as the basis of the design to be completed by the Contractor.

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2. The CONSULTANT shall assume two meetings at two hours each.

3. The CONSULTANT shall assist in preparing permit applications to the City of Huntington Beach for any modifications or additions made to the fire hydrant system.

4. The CONSULTANT shall assume two meetings at two hours each.

H. Stormwater Permitting

1. Stormwater permitting is not required. This project will utilize OC SAN Section 02271 Stormwater Pollution Control Plan, which is required for onsite projects and less than one acre of offsite work.

2.3.10 PROJECT MANAGEMENT

A. CONSULTANT shall be responsible for managing CONSULTANT's project execution, schedule, budget, subconsultants, and coordination with other projects. The CONSULTANT shall perform the project management requirements in accordance with **Exhibit 3 - Project Management Requirements** with the project specific options identified below.

B. Project Management Plan (PMP):

☐Not required

☒Required

☐PMP approval prior to beginning technical work on the project.

C. Project Logs

☒Major Decision Log

☒Project Decision Log

☒Action Item Log

☒Decision Issues Log

☒Meeting Log

☒Risk Management Log

D. Progress Report, Status of Cost Model

☐Not required

☒Required

E. Project Invoices

1. Costs for invoicing shall be grouped into the following work packages:

Work Package	Description	Tasks
3142	Program Evaluation Report	**Task 2.1.2**
3146	Preliminary Design	**All Phase 2 tasks, except above.**
3158	Environmental Documentation	**Task 2.4**
3250	CONSULTANT Services During Design	**Tasks 3.1 through 3.3**
3252	Design Submittal 2	**Tasks 3.1 through 3.3**
3253	Design Submittal 3	
3254	Bid Support Services	**Task 3.4**

F. Management of Subconsultants

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

2.3.11 RISK MANAGEMENT

A. When required below, CONSULTANT shall provide risk management in accordance with **Exhibit 4 - Risk Management Requirements** with the project specific options identified below.

B. Risk Management:

☐Not required
☒Required
☒Initial Risk Workshop
☒PDR Risk Management Workshop: 4 hours. (held 4 weeks prior to draft PDR at OC SAN)

C. CONSULTANT shall conduct the Workshops defined in **Exhibit 4 - Risk Management Requirements**.

1. The Preliminary Design Risk Management Workshop shall be planned and scheduled for a duration of four (4) hours and will be held via MS Teams meetings.

2.3.12 QUALITY CONTROL

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

2.4 PRELIMINARY DESIGN WORKSHOPS AND MEETINGS

2.4.1 GENERAL

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

2.4.2 10% CONCEPT DESIGN WORKSHOPS AND MEETINGS

A. CONSULTANT shall hold meetings and workshops to obtain OC SAN input into the validation of the building program and to assist OC SAN in making key decisions. Requirements for planning, agendas, and minutes of workshops and meetings shall be as specified under **Exhibit 5 - Workshop and Meeting Requirements.** CONSULTANT shall also hold additional meetings

as required to keep OC SAN apprised of the job, to review work-in-progress, and to receive and resolve comments.

B. Workshops

Workshops shall be held during Concept 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
Program Validation Meetings	5
Building Design and Vision	2

C. Preliminary and Final Concept Design Presentation Meetings

1. These meetings shall be held immediately following delivery of the Preliminary and Final Concept Design submittals. The purpose of these meetings is for the CONSULTANT to present the Concept Design and provide additional background to assist OC SAN in selecting and establishing the basis for continued design development.

2.4.3 20% AND 35% WORKSHOPS

A. 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.

PDR PRODUCTION WORKSHOPS	
TOPIC	**NUMBER OF WORKSHOPS**
PDR Production Kickoff	1
PDR Production Workshops	
O&M Facilities layout alternatives (including Banning entrance, supporting facilities and traffic access)	4
Existing and new utilities alignments (including easements)	2
Geotechnical and grading & paving (including stormwater management system)	2
Implementation Plan and Construction Sequencing & Constraints	3
Electrical, I&C (including temporary power if needed)	1
Hazardous Materials handling and relocation	1
Demolition, relocation, regrading, and reconnection	1
Construction coordination	1
Entry and exit, and traffic flow alternatives	3
Coordination with other projects and their construction schedules	1

2.4.4 REVIEW WORKSHOPS

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

1. Presentation Workshop

2. Review Workshop

3. Validation Workshop

2.4.5 EQUIPMENT AND PROCESS REDUNDANCY WORKSHOP

A. An equipment and process redundancy workshop shall be held after the draft process flow diagrams have been developed to review the proposed redundancy requirements and equipment sizing versus equipment quantity for the systems provided by the project. The equipment and processes shall be designed to include sufficient redundancy in process trains and standby equipment to allow for serviceability without disruption in plant operations. Philosophies to be discussed shall include the following:

1. Equipment which may be difficult, costly, or time consuming to maintain may require additional redundancy to mitigate reliability issues.

2. In general, there is a trade off on the size of the selected equipment. Large equipment reduces the total quantity of equipment to perform the function. This helps with reducing the number of equipment pieces that must be maintained but may result in burdensome and lengthy downtime periods for repair. Small equipment provides the reverse. More equipment is needed for the function creating more things to maintain. However, it provides for more flexibility and typically has a shorter down time.

3. Considerations must be provided to avoid single points of failure. For example, redundancy in mechanical equipment can be negated if all equipment is powered on a single common MCC.

4. The Consultant shall develop and establish the reliability and redundancy criteria through workshops and evaluation and design memoranda.

5. Operations and Maintenance (O&M) staff including staff from Maintenance Reliability and Planning must be involved in the establishment of the maintainability design rules.

B. The equipment and process redundancy workshop shall be held at OC SAN's facilities and shall generally be two (2) hours in length. The CONSULTANT shall facilitate this workshop and OC SAN and CONSULTANT staff shall attend.

C. A follow up workshop shall be held at OC SAN's facilities to review the final equipment and process redundancy requirements.

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

1. Prepare package for the equipment and process redundancy workshop participants. The package shall consist of process flow diagrams and other information selected by CONSULTANT.

2. Prepare presentation on the project.

3. Summarize the equipment and process redundancy workshop comments and action taken on each comment in a memorandum.

4. All comments and recommendations of the workshop shall be incorporated into the Process Design Configuration basis of design and the bid documents.

2.4.6 MAINTAINABILITY WORKSHOPS

A. A maintainability workshop shall be held after draft floor plans have been developed to:

1. Review the working space around equipment, accessibility requirements, specific activities required to be performed by maintenance staff, ease of servicing for equipment and devices, means to removing equipment from the point of installation to a location outside the facility.

B. The maintainability workshop shall be held at OC SAN's facilities and shall generally be four hours in length. OC SAN and CONSULTANT staff shall attend this workshop.

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

1. Prepare package for the maintainability workshop participants. The package shall consist of plans and other information selected by CONSULTANT.

2. Prepare presentation on the project.

3. Summarize the maintainability review workshop comments and action taken on each comment in a memorandum.

2.4.7 CONSTRUCTABILITY WORKSHOP

A. A constructability workshop shall be held after the 20% Schematic Design submittal review to identify any fatal flaws in the design relative to constructability. Some of the subjects that shall be covered in this workshop include the following: conflicts between design disciplines, geotechnical considerations, construction sequencing, power outages, equipment shutdowns, viability of equipment relocation, safety, operational requirements, access for maintenance, size-critical equipment requirements and constraints, permitting, public nuisance issues, other local conditions, and constraints.

B. This workshop shall be held at OC SAN facilities and shall generally be 4 hours in length. OC SAN and CONSULTANT staff shall attend this workshop.

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

1. Prepare package for constructability review workshop participants. The package shall consist of latest plans and specifications and other information selected by CONSULTANT.

2. Prepare presentation on the project.

3. Summarize the constructability review workshop comments and action taken on each comment in a memorandum.

4. All comments and recommendations of the workshop shall be incorporated into Implementation Plan Design Memo and the Bid Documents.

2.4.8 TECHNICAL PROGRESS MEETINGS

A. Technical Progress Meetings shall be held every 4 weeks to review various issues with OC SAN's project team. A total of 14 (maximum) meeting shall be held during Preliminary Design Phase. The CONSULTANT shall coordinate with the OC SAN Project Manager to determine what topics will be covered in what meetings, and what OC SAN and CONSULTANT team members are required for each.

2.4.9 FOCUSED MEETINGS

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

1. Site survey
2. Site utility coordination
3. Geotechnical report
4. Quality control plan
5. Common names for facilities and equipment
6. Process Flow diagram/Operating Philosophy (several meetings as needed)

7. Permits
8. OC SAN Safety Standards, confined space, and other safety requirements
9. Fire Department requirements
10. City requirements
11. Fire protection
12. Landscaping plan
13. Architectural concepts
14. Survey and geotechnical requirements
15. Potholing
16. Hazardous Area classification (with OC SAN Authority Having Jurisdiction representative participating)
17. Utilities and utility tie-ins
18. Technical Definitions/equipment data sheets
19. Control concepts
20. Instrumentation and control upgrades
21. Sample P&ID; basis for equipment tag numbering
22. Sample control descriptions
23. Sample EID database
24. Sample SAT database
25. Data network block diagram/network connection diagram
26. I/O relocation plan
27. Electrical distribution system, system controls and the related upgrades
28. Single-line diagrams and electrical demolition
29. Modes and analyses cases for electrical studies
30. Criticality Table update
31. Standby power
32. Construction sequencing
33. Special studies
34. Coordination with other projects
35. Additional meetings as necessary

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

2.4.10 COORDINATION WITH OTHER PROJECTS MEETINGS

A. The project shall be a complete and fully functional facility that is integrated with existing facilities and coordinated with other construction projects. CONSULTANT shall coordinate potential conflicts with the following adjacent projects and participate in the number of meetings indicated in the following table:

PROJECT COORDINATION MEETINGS		
PROJECT	**PROJECT DESCRIPTION**	**COORDINATION MEETINGS**
P2-128	TPAD Digester Facility at Plant No. 2	2 meetings @ 2 hours
P2-138A	Maintenance Building Seismic Retrofit at Plant No. 2	4 meetings @ 2 hours
J-117B	Outfall Low Flow Pump Station	4 meetings @ 2 hours
GWRS	Final Expansion	2 meetings @ 2 hours

2.4.11 STORMWATER COMPLIANCE MEETING

A. A formal meeting shall be held with OC SAN's stormwater compliance staff to review the project scope and identify all issues during and after construction affecting compliance with stormwater regulatory requirements and OC SAN's policies and practices.

2.4.12 PUBLIC RELATIONS

A. The CONSULTANT shall support OC SAN who will lead all public outreach activities required during preliminary and design phases. Support will require the production of graphics, meeting information, and visual aids, including 3D renderings.
B. OC SAN's Public Affairs Office will share with the public the general scope of the project during design, construction impacts for design and construction activities and the project's progress.
C. The primary goal of the public outreach effort is to inform local residents, City of Huntington Beach, and elected officials about the project need, construction impacts, and steps that can be taken to minimize those impacts.
D. The CONSULTANT shall assist OC SAN by providing public information proactively through written and electronic media sources and providing quick responses and resolutions to community concerns to keep the project/program moving forward. The public outreach program is an effective tool for building partnerships and reaching affected audiences during and in preparation for construction documents.
E. The CONSULTANT shall coordinate with Public Relations for public outreach work with cities, agencies, and the public with OC SAN's Public Affairs Office.
F. The team selected will be required to attend and participate in technical team meeting as appropriate.
G. Stakeholders that will require early coordination include:
1. City of Huntington Beach
2. Residents in Huntington Beach
3. Residents in Costa Mesa and Newport Beach (across Santa Anna River)

3. PHASE 3 – DESIGN

3.0 BID DOCUMENTS

3.0.1 GENERAL

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

3.0.2 ENGINEERING DESIGN GUIDELINE UPDATES

A. All changes in OC SAN's Engineering Standards, OC SAN's Design Guidelines, and/or changes in design concepts and facility layouts as a result of OC SAN comments that may occur

up to transmittal of OC SAN comments on Design Submittal 2 (60%), shall be incorporated into the Design by CONSULTANT with no increase in CONSULTANT's Not-to-Exceed upper limit on fees.

3.0.3 GENERAL REQUIREMENTS AND ADDITIONAL GENERAL REQUIREMENTS

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

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

3.0.4 DESIGN SUBMITTALS

A. The CONSULTANT shall produce the following design submittals as indicated below in accordance with **Exhibit 2 – Design Requirements.**

B. If a design submittal is eliminated, then the design submittal shall include the requirements associated with the required design submittal along with the requirements associated with the previous unchecked design submittals.

☐Design Submittal 1 (35%)
☒Design Submittal 2 (60%)
☒Design Submittal 3 (95%)
☒Final Design Submittal (100%)

C. Continuing Work After Design Submittal Submission

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

3.0.5 CABLE AND CONDUIT SCHEDULE

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

3.0.6 COMMISSIONING PLAN MATERIALS

A. The CONSULTANT shall provide a commissioning plan material for any signals, instruments, and equipment that interface with the plant process and electrical control system (i.e., weather station and stormwater pump station) in accordance **Exhibit 2 – Design Requirements.** The

CONSULTANT shall coordinate commissioning requirements for the LEED Enhanced Building Commissioning and OC SANs commissioning requirements noted below. The CONSULTANT shall integrate the LEED commissioning specifications with OC SAN's commissioning specification (Master Specification section 01810) and include in the Bid Documents. The CONSULTANT shall also estimate in detail the durations required for pre-commissioning and commissioning activities.

B. LEED Enhanced Building Commissioning Procedures

C. **Exhibit 2 – Design Requirements**

1. Specification Section 01810, Commissioning

   ☐OC SAN will prepare Section 01810
   ☒CONSULTANT shall edit Section 01810

2. ORT Procedures

   ☐OC SAN will prepare ORT procedures
   ☒CONSULTANT shall prepare ORT procedures using OC SAN's ORT procedure generator
   ☐CONSULTANT shall prepare new ORT procedures

3. Pre-FAT Procedures

   ☐Pre-FAT procedures not required
   ☐OC SAN will prepare Pre-FAT procedures
   ☒CONSULTANT shall prepare Pre-FAT procedures

4. FAT Procedures

   ☐OC SAN will prepare FAT procedures
   ☒CONSULTANT shall prepare FAT procedures

5. RAT Procedures

   ☐RAT procedures not required
   ☐OC SAN will prepare RAT procedures
   ☒CONSULTANT shall prepare RAT procedures

6. PAT Procedures

   ☒PAT procedures not required
   ☐OC SAN will prepare PAT procedures
   ☐CONSULTANT shall prepare PAT procedures

3.0.7 EQUIPMENT AND INSTRUMENTATION DATABASE (EID)

☐EID is not required.
☐OC SAN will develop the EID in accordance **Exhibit 2 – Design Requirements**.
☒CONSULTANT shall develop EID in accordance **Exhibit 2 – Design Requirements**.

3.0.8 SCADA ADMINISTRATION TOOL (SAT)

A. The CONSULTANT shall utilize SAT for all input and output signals that are connected to OC SAN's process control system.

☐SAT is not required.
☒OC SAN will develop the SAT in accordance with Exhibit 2 – Design Requirements.
☐CONSULTANT shall develop the SAT in accordance with Exhibit 2 – Design Requirements

3.0.9 CONSTRUCTION SUBMITTAL ITEMS LIST

☐OC SAN will develop the Construction Submittal Items List in accordance with **Exhibit 2 – Design Requirements**.
☒CONSULTANT shall develop the Construction Submittal Items List in accordance with **Exhibit 2 – Design Requirements**.

3.0.10 TEMPORARY FACILITIES DURING CONSTRUCTION

☐Temporary facilities and bypass pumping are not required.
☐Temporary facilities and bypassing during construction are required, as described under the "Temporary Facilities During Construction" paragraph under the Project Elements and shall be described in words on the drawings and technical specifications.
☒Detailed plans and work sequence for temporary facilities and bypassing during construction, as described under the "Temporary Facilities During Construction" paragraph under the Project Elements.

3.1 DESIGN SUPPORT DOCUMENTATION

3.1.1 DESIGN SUBMITTAL SUPPORT DOCUMENTATION

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

B. Design Information

1. CONSULTANT shall include the following material with each Design Submittal:

   a. CONSULTANT shall maintain the Project Logs specified under Phase 2 Project Management through Phase 3. Current copies of all logs shall be included with each Design Submittal.

   b. Written response log to OC SAN comments on the previous submittal.

   c. CEQA and Regulatory Compliance Matrix. This matrix shall list each applicable CEQA mitigation requirement and all known permit requirements with the corresponding description of how each requirement is to be satisfied. Measures to satisfy requirements might be in the GRs, Additional GRs, particular specification requirements, or actions taken separately from the construction contract.

   d. Calculations

   e. Draft or final Geotechnical Reports not submitted in the previous submittal and those revised since the previous submittal.

   f. Proposed list of suppliers to be named in the specifications for major equipment

   g. Draft or final Fire Protection Reports not submitted in the previous submittal and those revised since the previous submittal.

   h. Draft or final Field Findings Reports not submitted in the previous submittal and those revised since the previous submittal.

   i. Equipment data sheets

   j. Equipment catalog cuts and vendor quotations.

   k. Commissioning Package List: The Preliminary Commissioning Package List first developed in the PDR Production Phase shall be updated in each Design Submittal and used as a starting point to develop the list of commissioning procedures.

   l. All memos that may have been prepared since the previous submittal was delivered.

C. Facility Operation and Maintenance

☐ Not required.

☒ Update operating philosophies

☐ Update estimates of Operation and Maintenance staffing requirements

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

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

D. Electrical Design Documentation

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

E. Power System Studies

☒ETAP not required.
☐Plant ETAP model for the project performed by OC SAN.
☐Plant ETAP model for the project performed by CONSULTANT.
☐Electrical Systems Analysis Report performed by CONSULTANT.

3.1.2 CONSTRUCTION COST ESTIMATE

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

☐Design Submittal 1
☒Design Submittal 2
☒Design Submittal 3
☒Final Design Submittal

3.1.3 CONSTRUCTION SCHEDULE

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

☐Construction Schedule is not Required
☐Design Submittal 1
☒Design Submittal 2
☒Design Submittal 3
☒Final Design Submittal

3.1.4 PROCUREMENT ALTERNATIVES

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

☒Procurement alternatives not required
☐Procurement alternatives required

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

OC SAN typically sole sources the following equipment and materials:

- Programmable logic controllers
- Power monitors (ION 7550)
- Network routers and switches
- Fiber optic tube cables and fiber cables (Sumitomo)
- Security Access Control Systems
- Door lock sets (Schlage)
- Fire Alarm Systems (Edwards)

OC SAN may elect to pre-quality key equipment which is essential to the project. CONSULTANT shall provide the following services to assist with the pre-qualification process:

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

C. Identify any unusual FF&E requirements. FF&E will be in the Construction Contract.

3.1.5 SPECIALITY SERVICES

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

A. Fire Protection Services

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

B. Final Design Submittal Utility Coordination Reviews

Thirty to sixty days prior to the FDS submittal, the CONSULTANT shall meet with outside agencies to verify any changes made by agency during final design period and compare them with the Contract Drawings. CONSULTANT shall follow through with due diligence on utilities that do not participate in the USA program, unknown owner of a facility and/or abandoned utilities.

Thirty to sixty days prior to the FDS submittal, an on-site inspection shall be made in the project area. During the on-site inspection, a senior-level CONSULTANT representative shall walk the site accompanied by OC SAN's Project Engineer and Supervising Inspector. The CONSULTANT's representative shall be experienced in the location and identification of utilities

in the field. During the on-site inspection the CONSULTANT shall document all visible features that indicate utilities within the project area and compare them with the Contract Drawings.

C. Landscape Architecture

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

3.2 DESIGN ACTIVITIES

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

3.2.1 EASEMENTS, PROPERTY BOUNDARIES AND WORK AREA LIMITS

A. CONSULTANT services related to Easements, Property Boundaries and Work Area Limits on the project are specified in Phase 2 – Preliminary Design and those services shall continue during Phase 3 – Design as required. CONSULTANT shall allocate the budgeted hours between Phase 2 and Phase 3 based on when these services will be required.

3.2.2 TOPOGRAPHIC SURVEY

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

3.2.3 GEOTECHNICAL BASELINE REPORT

1. CONSULTANT shall prepare a Geotechnical Baseline Report (GBR). The GBR shall be prepared by the prime CONSULTANT, rather than by the Geotechnical Subconsultant that prepared the Geotechnical Data Report.

2. The Geotechnical Baseline Report (GBR) shall conform to the most recent issue of the American Society of Civil Engineers (ASCE) “Geotechnical Baseline Reports of Underground Construction: Guidelines and Practices”.

3. The GBR shall be site specific and shall include a narrative of all known soil conditions and subsurface expected constraints. The GBR shall establish quantitative thresholds and shall make specific recommendations to the Contractor regarding actions to be taken by the Contractor during construction, such as dewatering, removal of boulders by size, all other excavation and backfill stages, etc. Thresholds expressed as ranges of values will not be acceptable to OC SAN (i.e., 100-200 gpm, or 5-10 CY). All thresholds shall be expressed in the form of one number (i.e., 150 gpm, or 7 CY).

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

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

3.2.4 UTILITY INVESTIGATION

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

B. Final Design Submittal Utility Coordination Reviews

1. During DS3 submittal review, the CONSULTANT shall meet with outside agencies to verify any changes made by agency during final design period and compare them with the Contract Drawings. CONSULTANT shall follow through with due diligence on utilities that do not participate in the USA program, unknown owner of a facility and/or abandoned utilities.

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

3.2.5 FIRE PROTECTION SERVICES

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

3.2.6 NOISE EVALUATION SERVICES

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

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

3.2.7 PUBLIC RELATIONS

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

3.2.8 ENVIRONMENTAL DOCUMENTATION

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

3.2.9 PERMITTING ASSISTANCE

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

3.2.10 PROJECT MANAGEMENT

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

3.2.11 RISK MANAGEMENT

A. CONSULTANT shall provide risk management in accordance with **Exhibit 4 - Risk Management Requirements**. Moderator shall be as specified for Phase 2 – Preliminary Design.

B. Risk Management:

☐Not required
☒Required
☐DS1 Risk Workshops:
☒DS2 Risk Workshops: **1** hour (held during OC SAN's review of DS2 at OC SAN)
☒DS3 Risk Workshop: **2** hours (held during OC SAN's review of DS3 at OC SAN)

3.2.12 QUALITY CONTROL

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

☒Independent Multi-Discipline Design Workshop is not required.
☐Independent Multi-Discipline Design Workshop is required. (minimum duration of **[4]** days)

3.3 DESIGN WORKSHOPS AND MEETINGS

3.3.1 GENERAL

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

3.3.2 DESIGN PHASE WORKSHOPS

A. 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 workshops listed below in Phase 3 – Design. The CONSULTANT shall allow the following time for each workshop:

DESIGN PHASE WORKSHOPS	
WORKSHOP TYPE	**DURATION**
Design Kickoff Workshop	4 hours
Design Review Meetings	2 hours per discipline
Design Validation Meeting	4 hours

B. The following Design Review Meetings shall include the following topics, as applicable to the project:

1. Electrical
2. I&C
3. Civil/Yard
4. Construction
5. Maintainability

C. A single workshop shall be provided for the Design Review Meetings.

D. During final design, design review and validation workshops shall be held after each design submittal, except FDS.

3.3.3 PRE-DS2 CONSTRUCTABILITY WORKSHOP

A. A constructability workshop shall be held after receipt of DS1 comments but prior to the DS2 submittal and shall be a three (3) day workshop. The constructability review is intended to provide OC SAN with an objective third-party review of the documents for effectiveness in communicating information to prospective bidders. The review shall determine if the Bid Documents have sufficient information needed to bid and construct the project and avoid misunderstandings and misinterpretations that may lead to conflict, confusion or claims during construction. This review is not a comprehensive plan check, a dimensional check, or a value engineering assignment. Further, it is recognized that comments may only be given on the level of detail provided at this level of design.

B. Constructability review participants shall include highly experienced individuals from construction companies, OC SAN construction management staff and CONSULTANT construction management staff. Specialty Consultants and discipline engineers may also be included. The constructability review participants of the workshop will be arranged and provided by OC SAN.

C. Each constructability review participant shall receive a package at least two weeks in advance. The package shall include plans and specifications, general conditions, the CPM schedule, the construction cost estimate, permits, and other pertinent information.

D. The constructability review shall be held on-site.

E. Day 1 shall start with a site visit, for the reviewers to acquaint themselves with the site conditions. After the site visit, the CONSULTANT shall make a short presentation, followed by a question-and-answer period. This is anticipated to take about 1/2 day. The second half of Day 1, Day 2, and the first half of day three shall be individual workdays for the Constructability Review Team. The CONSULTANT shall not attend, although one designated individual from the CONSULTANT's Design Team shall remain to answers questions and gather additional information that the constructability review team might need.

F. On the afternoon of Day 3, the CONSULTANT shall return and listen to comments from the Constructability Review Team. A designated individual shall record the comments, and take notes from the workshop, to document the process.

G. Topics the Constructability Review Team must consider shall include:

1. Project consistency, discrepancies, and constructability issues
2. Contradictions, bid package strategies, and biddability issues
3. Utility company requirements
4. Construction methods and mitigating impacts
5. Viability of equipment relocation
6. Operational requirements
7. Interim Control Plan
8. Access for maintenance
9. Access to make proper connections
10. User-friendliness and safety
11. Coordination with other projects
12. Draft Commissioning Plan
13. Risk sharing
14. Construction sequencing and schedule, materials storage, and work zone accessibility

15. Clarity of the scope of work, and interface activities
16. Impacts on existing operation
17. Access
18. Cost control
19. Partnering with contractor
20. Other local conditions and constraints

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

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

1. Prepare package for constructability review participants. The package shall consist of detailed plans and specifications and other information selected by CONSULTANT. The package shall be mailed to participants at least two weeks prior to the workshop.
2. Arrange for on-site location for Constructability Review Workshop.
3. Provide for a constructability review facilitator.
4. Prepare presentation on the project for the Constructability Review Team.
5. Meet with Constructability Review Team to receive comments.
6. Provide listing of constructability review comments and action taken on each comment. (The summary report of constructability review comments shall be prepared by the Constructability Review Team.)

J. All comments and recommendations of the workshop shall be considered and responded to by the Consultant. If the comments require re-design work to improve the constructability of the design, additional costs may be required. If the changes are necessary to allow for constructability, changes will be incorporated into the Bid Documents at no additional cost to OC SAN.

3.3.4 DESIGN PHASE MEETINGS

A. Technical Progress Meetings

1. Technical Progress Meetings shall be held every 4 weeks for 2 hours to review various issues with OC SAN's project team. A total of 8 meetings for 2 hours shall be held during Preliminary Design Phase. The CONSULTANT shall coordinate with the OC SAN Project Manager to determine what topics will be covered in what meetings, and what OC SAN and CONSULTANT team members are required for each.

B. Focused Meetings

1. Focused meetings shall be held throughout preliminary design to discuss specific issues in detail and generate comments and direction from OC SAN staff. The following tentative list of topics may be covered in these meetings:
    a. Site survey
    b. Site utility coordination
    c. Geotechnical report
    d. Quality control plan
    e. Common names for facilities and equipment

f. Permits

g. Confined space and other safety requirements

h. Fire Department requirements

i. Fire protection

j. Landscaping plan

k. Architectural concepts

l. Survey and geotechnical requirements

m. Potholing

n. Hazardous Area classification (with OC SAN Authority Having Jurisdiction representative participating)

o. Utilities and utility tie-ins

p. Technical Definitions/equipment data sheets

q. Control concepts

r. Instrumentation and control upgrades

s. Electrical distribution system, system controls and the related upgrades

t. Single-line diagrams and electrical demolition

u. Modes and analyses cases for electrical studies

v. Criticality table update

w. Standby power

x. Construction sequencing

y. Special studies

z. Coordination with other projects

aa. Additional meetings as necessary

2. Each meeting shall generally be 2-4 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 OC SAN staff, as necessary to allow coordination between the CONSULTANT and OC SAN staff.

3.3.5 CONSULTANT OFFICE TECHNICAL MEETINGS (COTMS)

A. OC SAN 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 OC SAN 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 OC SAN's Project Manager and logged into the Decision Log. Action items will be identified.

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

1. One four-hour visit to review CONSULTANT Implementation of CAD standards.
2. One four-hour visit to establish the basic control panel design.
3. One four-hour visit to review the Conduit, Tray and Cable Schedules

4. One two-hour follow up visits for the above.

C. The CONSULTANT shall schedule each of the above COTMs and shall coordinate with OC SAN'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.

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

3.3.6 COORDINATION WITH OTHER PROJECTS MEETINGS

A. The project shall be a complete and fully functional facility that is integrated with existing facilities and coordinated with other construction projects. CONSULTANT shall coordinate potential conflicts with the following adjacent projects and participate in the number of meetings indicated in the following table:

PROJECT COORDINATION MEETINGS		
PROJECT	**PROJECT DESCRIPTION**	**COORDINATION MEETINGS**
J-120	Process Control Systems Upgrade	2 meetings @ 2 hours
P2-128	TPAD Digester Facility at Plant No. 2	2 meetings @ 2 hours
GWRS	Final Expansion	2 meetings @ 2 hours

3.3.7 SAFETY AND RISK MEETING

A. Meet with OC SAN Safety and Risk Management personnel between DS2 and DS3 to review the plans and specifications in accordance with OC SAN safety policies and OC SAN Risk Management goals.

3.3.8 CONSTRUCTION SUBMITTAL ITEMS LIST MEETING

A. Meet with OC SAN between DS2 and DS3 to review the CONSULTANT's approach to developing the project Construction Submittal Items List using and the CONSULTANT-provided specifications and discuss the grouping of submittals in commissioning packages and phases.

3.3.9 STORMWATER COMPLIANCE MEETING

A. A formal meeting shall be held with OC SAN's stormwater compliance staff to review the project scope and identify all issues during and after construction affecting compliance with stormwater regulatory requirements and OC SAN's policies and practices.

3.4 BID PHASE SUPPORT SERVICES

3.4.1 BID PHASE SUPPORT SERVICES

A. CONSULTANT shall provide the following bid period services:

1. Participate in the pre-bid meeting.

2. Prepare project drawing set and project specification addenda to provide clarification and resolve errors and omissions identified prior to bid opening.

3.4.2 BID EVALUATION ASSISTANCE

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

B. Participate in the evaluation of the submitted bids, furnish consultation and advice to OC SAN staff, and assist with all the related equipment, cost, and other analyses as required to finalize the award decision.

3.4.3 CONFORMED DOCUMENT PREPARATION

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

4. PHASE 4 – CONSTRUCTION AND INSTALLATION SERVICES

Not in this Scope of Work.

5. PHASE 5 – COMMISSIONING SERVICES

Not in this Scope of Work.

6. PHASE 6 – CLOSE OUT

Not in this Scope of Work.

7. GENERAL REQUIREMENTS

7.0 GENERAL

7.0.1 OC SAN ENGINEERING DESIGN GUIDELINES AND STRATEGIC PLAN

A. CONSULTANT shall refer to and adhere to the requirements of OC SAN Safety Standards, OC SAN Engineering Design Guidelines, any deviations to the Engineering Design Guidelines listed below, and other OC SAN's Design Standards referenced therein. **Exhibit 17 - OC SAN Engineering Design Guidelines and Standards** is a complete set of the OC SAN Safety Standards and OC SAN Design Standards, the latest edition at the time of the design proposal stage.

B. The Engineering Guidelines define what plant design concepts/tools/methods and project management requirements shall be adhered to and in what manner they shall be used/provided by Consultants, e.g., requirements regarding design concepts, submittals, documentation details, use of OC SAN Master Specifications, and other related OC SAN Standards, etc.

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

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

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

F. The project Scope of Work and OC SAN Engineering Design Guidelines impact CONSULTANT's project cost.

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

H. In addition, OC SAN will require the CONSULTANT to follow subsequent revisions of OC SAN Safety Standards, OC SAN Engineering Design Guidelines, and other OC SAN Design Standards up to transmittal by OC SAN 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.

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

J. The CONSULTANT shall not begin editing the project specifications until the project team meets with OC SAN'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 OC SAN's master specifications, and where other sources will be utilized.

7.0.2 PROJECT PHASES AND TASKS

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

7.0.3 CONSTRUCTION SEQUENCING AND CONSTRAINTS

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

7.0.4 WORKING HOURS

A. Meetings with OC SAN staff shall be scheduled from Monday through Thursday between the hours of 8:00 AM and 4:00 PM. Any CONSULTANT staff working on-site shall conform to OC SAN work schedules. CONSULTANT shall refer to the Engineering Design Guidelines, Chapter 01, Section 01.3.5 "CONSULTANT Inspection of Treatment Facilities" for further requirements.

7.0.5 STANDARD DRAWINGS AND TYPICAL DETAILS

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

7.0.6 SOFTWARE

A. The CONSULTANT is expected to develop and provide the deliverables using the standard software currently approved for use by OC SAN. For Project P2-138, the use of Revit is considered to be an approved software. Additional details of Revit requirements are included in Part B. The standard OC SAN software includes, but is not limited to, the following:

(1) Oracle 9i client

(2) ESRI software (Arc GIS latest version)

(3) AutoCAD P&ID (for P&ID drawings only)

(4) AutoCAD (for all other drawings)

(5) Microsoft Office (latest version)

(6) Bluebeam Revu (latest version)

(7) Primavera P6 for scheduling

(8) PMWEB for Construction Documents

(9) Additional software approval may be granted by OC SAN under Article B.

B. For each design deliverable, CONSULTANT shall submit:

1. Drawings produced using Revit

   a. Revit Model (not .dwg files)

2. Drawings developed using Civil 3D

   a. Unbound .dwg files conforming to OC SAN CAD Standards

3. Drawings developed using AutoCAD

   a. Unbound .dwg files conforming to OC SAN CAD Standards

4. PDFs of all drawings

C. For Conformed drawings submittal, CONSULTANT shall submit:

1. Drawings produced using Revit

   a. Revit Model

   b. .dwg extractions generated by Revit. These .dwg extractions will be viable through AutoCAD, but will not conform to OC SAN CAD Standards

   c. The .dwg extractions will have the file names saved to match the drawing numbers.

   d. The .dwg extractions will be saved in separator folders from other .dwg so they can be distinguished from other AutoCAD files.

2. Drawings using Civil 3D or AutoCAD

   a. Submit unbound .dwg files conforming to OC SAN CAD Standards.

3. PDF of all drawings

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

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

7.0.7 SUBMITTAL REVIEW USING BLUEBEAM

A. OC SAN has standardized on the use of Bluebeam Revu for reviewing and providing comments to PDF files. PDF files will be hosted in a Bluebeam cloud-based studio session for review. See **Exhibit 15 - Bluebeam Designer User Training** for a detailed explanation on how Bluebeam will be used to provide, validate, and close submittal review comments.

B. Prior to submitting electronic PDF files, format them as indicated in **Exhibit 14 - Bluebeam Designer Training for Submission** and “OC SAN CAD Standards Manual” prior to submission.

C. A one-hour training session on the use of Bluebeam and custom status menu will be provided by OC SAN. All Consultant team members responsible for quality control and reconciliation of submittal comments shall attend.

7.0.8 WORD TRACK CHANGES

A. Specifications documents and other MS-Word based deliverables will be hosted in OC SAN Teams environment for review. The guidelines for reviewing and commenting on MS-Word files, including Specifications reviews, can be found in **Exhibit 16 - Spec Review using Microsoft Word and Teams.**

7.0.9 GIS SUBMITTALS

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

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

- Fuel pipeline
- 12 kV Electrical

g. Asphalt (Polygon)

(1) Asphalt to be replaced

7.0.10 PMWEB PROCEDURES

A. This Agreement shall utilize PMWeb as the Project Control Management System (PCMS) for overall management of the Agreement. All PCMS related documents requiring formal signatures shall be digital, and all copies digitally distributed. The PCMS conforms to the requirements set forth in California Government Code section 16.5 regarding digital signatures; therefore, digital signatures are in full force and effect and are legally the same as a hand-written signature. At least one PCMS account shall have the authority to approve Amendments.

B. OC SAN shall maintain the PCMS and serve as the administrator for the duration of this Agreement. OC SAN will provide the CONSULTANT with user access for approved personnel as needed for the duration of the Agreement. OC SAN shall control access to the PCMS by assigning user profiles and login credentials. Notify OC SAN of any changes to personnel. Access modifications shall be coordinated as needed throughout the Agreement. Do not to share PCMS account passwords with anyone inside or outside of the company.

C. Routine maintenance of the PCMS system may be required during the Agreement. Access to the PCMS system may be restricted or unavailable at these times and will be scheduled outside of typical working hours whenever possible.

D. The PCMS is a web-based environment and is therefore subject to the inherent speed and connectivity problems of the Internet. The CONSULTANT is responsible for its own connectivity to the Internet. PCMS response time is dependent on the CONSULTANT's equipment, including processor speed, Internet access speed, Internet traffic, etc.

E. OC SAN will not be liable for any delays associated with the utilization of the PCMS including, but not limited to slow response time, down time periods, connectivity problems, or loss of information.

F. The OC SAN will provide a one-time free training session of up to two (2) hours to train CONSULTANT's designated staff on general system requirements, procedures, and methods.

G. Automated system notifications generated via PCMS (e.g., in-system notices, system generated email, or email with attachment) shall constitute a formal written notification in compliance with the Professional Design Service Agreement (PDSA), Professional Construction Service Agreement (PCSA), or Task Order (TO) Agreement

7.0.11 CONSULTANT TRAINING

A. The CONSULANT shall attend the following OC SAN training before starting any design:

a. P&ID Development: 1 hour

b. EID Development and/or Demolition: 1 hour

c. CAD Training: 2 hours

d. OC SAN Tagging Procedures Training: 2 hours

e. Commissioning Package List Training: 1 hour

f. Bluebeam Training/Refresher for Design Submittal Comments: 2 hours

g. PCI SAT Training: 2 hours

8. STAFF ASSISTANCE

OC SAN staff member or designee assigned to work with CONSULTANT on the design of this project is Charlie Guess at 949-562-2310, e-mail to: cguess@ocsan.gov.

9. EXHIBITS

Exhibit 1 - Preliminary Design Report Requirements

Exhibit 1a – Documentation Standards by Discipline and Phase

Exhibit 2 – Design Requirements

Exhibit 3 - Project Management Requirements

Exhibit 4 - Risk Management Requirements

Exhibit 5 - Workshop and Meeting Requirements

Exhibit 6 - Quality Control Requirements

Exhibit 7 - Design Submittal Requirements Matrix

Exhibit 8 - Project Schedule Calculation

Exhibit 9 - Deliverables Quantities

Exhibit 10 - Sample Construction Cost Estimate Format

Exhibit 11 - Sample Full Project Safety Review Plan

Exhibit 12 - Sample Risk Management Check List

Exhibit 13 - MMRP Log Template

Exhibit 14 - Bluebeam Designer Training for Submission

Exhibit 15 - Bluebeam Designer User Training

Exhibit 16 - Spec Review using Microsoft Word and Teams

Exhibit 17 - OC SAN Engineering Design Guidelines and Standards – Available online at https://www.OC SAN.com/about-us/transparency/document-central/-folder-917

Exhibit 18 – Not Used

Exhibit 19B - Project Reference Material

1. PS17-03 Active Fault Study at Plant No. 2
2. PS18-05 Plant No. 2 Future Site Plan Development
3. Ordinance 53 - Table 1
4. Locations of Abandoned oil wells