SACRAMENTO AREA SEWER DISTRICT
SERVING YOU 24/7

SEPTEMBER 2025

CONTRACT DOCUMENTS FOR THE CONSTRUCTION OF
ECHOWATER RESOURCE RECOVERY FACILITY

LDLD ROAD REHABILITATION PROJECT

BID SET

PART B – SPECIFICATIONS
VOLUME 1 OF 2

8517

RFB NUMBER

SECTION 00 01 10

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SECTION 00 73 19

HEALTH AND SAFETY REQUIREMENTS

1.01 GENERAL

A. All operations shall conform to applicable occupational safety and health standards, rules, regulations and orders which include, but are not limited to: Title 29 of the Code of Federal Regulations and the Electrical, Construction, Tunnel and General Industry Safety Orders issued by the Division of Industrial Safety (Cal/OSHA) of the State of California. In the event of a conflict between the requirements in the referenced standards, the most stringent standard shall prevail.

B. In addition to this specification, the contractor shall adhere to all the requirements of Section 12 of the Sacramento County Standard Construction Specifications.

C. The Contractor shall submit their Injury and Illness Prevention Program (IIPP) for review and approval.

D. The Contractor shall submit proof of equipment training certifications for all persons operating equipment used on the project.

E. All contractors, vendors and visitors will wear hardhats and safety vests at all times while in construction areas. In addition, if necessary, but not limited to: appropriate foot, eye and ear protection shall be worn.

F. Contractor shall have a Site Specific Safety Plan that has been specifically prepared for the contemplated work. Site Specific Safety Plan shall comply with section 3203 of Cal/OSHA and shall be applicable to all individuals engaged in the Work, including the Contractor's subcontractors, suppliers and others.

G. An Emergency Action Plan and a Fire Prevention Plan in accordance with sections 3220 and 3221 respectively of Cal/OSHA shall be included in Site Specific Safety Plan.

H. The responsibility for safety rests with the Contractor who must provide a safe work site for workers and other individuals entering the area.

I. District reserves the right to stop any work activity that creates a serious safety violation as defined by Cal/OSHA,

1.02 PROJECT SPECIFIC SAFETY PROGRAM

A. Project Specific Safety Program shall include:

1. Designation of Safety Manager.

2. Detailed description of Project Specific Safety Plan.

3. Policies and procedures to ensure compliance with regulations.

4. Staffing plan and organization chart for implementation of the safety program.

5. Training program including new employee orientation.

6. List of equipment, supplies, materials and personal protective devices that will be available and utilized.

7. Description of accountability for foreman and supervisors.

8. Site Specific Emergency Response Plan for accidents/incidents and injuries.

9. Description of accident investigation and reporting procedures.

10. Description and frequency of tailgate and regular safety meetings.

11. Participation of subcontractors, suppliers and others in Project Safety Program.

12. Method of identifying, correcting, or remedying situations that are unsafe or not in compliance with Project Safety Program.

13. Provisions for excavation safety.

14. Procedure for preparation of Work Permits.

15. Method to remedy nonconforming situations.

B. Project Specific Safety Program and revisions shall be reviewed by a full time Safety Professional. The full time Safety Professional shall state that the Project Specific Safety Program is adequate and complies with the regulations applicable to the Work. The Project Specific Safety Program shall be submitted to the District Representative, for review, prior to commencement of work and shall remain in effect until the Work has been completed. Project Specific Safety Plan shall be reviewed, updated, and changes submitted as they occur.

1.03 SAFETY MANAGER

A. A Safety Manager shall be designated who has responsibility for safety of the Work and who has the duty to implement and secure compliance with the Site Specific Safety Plan. Safety Manager shall have the authority to remedy or correct any unsafe or noncompliance situations or problems.

B. Safety Manager or designated alternate individual shall be on site when Work is being pursued. Contractor will be permitted to designate an alternate individual to act on behalf of Safety Manager when Safety Manager is absent from the work site.

C. Safety Manager shall have 5 years construction experience on projects similar to the Work. Three years of this experience shall involve full-time, construction site safety

responsibilities. Safety Manager shall be knowledgeable of occupational health and safety rules and regulations.

1.04 PROTECTION OF WORKERS

A. The EchoWater Facility receives sewage and industrial waste. There is a possibility that solvents, fuels and hazardous material may be in the wastewater. The wastewater and the associated facilities should be considered contaminated. Individuals who contact wastewater, debris or existing facilities should take appropriate safety and health precautions such as personal protective equipment and inoculations for disease.

B. Safety equipment and precautions shall be utilized to protect workers, District personnel, and the general public during the work.

C. NIGHTTIME LIGHTING CONTROL

1. If nighttime construction lighting is required, the construction contractor shall shield and orient lighting downward and directed away from any nearby biological receptors to minimize effects. Lighting shall be directed toward active construction areas only, and shall have the minimum brightness necessary to ensure worker safety.

1.05 WORK PERMITS

A. There are areas and operations at the EchoWater Facility which are potentially hazardous or dangerous if the appropriate precautions are not taken. The Work Permit process is utilized to review proposed work activities and to ensure good work practices and appropriate safety measures are followed. Contractor is required to prepare Work Permits and comply with the stipulated conditions. A Work Permit shall provide a detailed description of the proposed activities and sequencing.

B. The Work Permit procedure is described in the COORDINATION WITH OCCUPANTS Section (01 14 16). Examples of activities which require a Work Permit are:

1. Operations that have open flames, the potential for sparks or activities that may result in high temperatures. Examples include welding, cutting, grinding and electrical work.

2. The use of tools or electrical equipment in classified areas.

3. Work on equipment or piping which contains, or has contained, a flammable or hazardous material, chemical or gas. Work on or in proximity to chemical or gas storage facilities.

4. The use of hazardous materials.

5. Activities which involve electricity at greater than 500 volts.

6. Activities that involve pressures greater than 150 psi.

7. Activities that involve work in a confined space including the opening of vaults and manholes.

8. Activities that include silica dust.

9. Activities that involve special precautions required by Cal/OSHA.

1.06 REPORTING

A. Safety Manager shall prepare and submit a narrative report describing actions, incidents, near-misses and topics related to safety. The report shall indicate past events and proposed future activities. A summary of events of weekly job site tours shall be included.

B. All incidents that are reportable on OSHA Form 300 or that result in property damage in excess of $1,000 shall be promptly reported to District. A detailed description of the incident including names and statements of witnesses shall be provided within 5 days of the occurrence.

C. Contractor shall inform the District within 5 days of any claims, suits, or citations of violations that may arise from an incident or injury.

1.07 NON COMPLIANCE

A. When a serious hazard is identified, the Contractor will receive a verbal notification of the problem and a request to rectify the situation. If the situation is not corrected in the allotted time or reoccurs, a written notification will be issued to the Contractor that will clearly describe the condition, date Contractor initially was notified, the recommended action and the expected date of compliance. If the situation is not corrected, the Contractor's worker's compensation insurance carrier will be notified.

****END OF SECTION****

SECTION 01 14 13

ACCESS TO SITE

1.01 PROJECT LOCATION

A. The work specified under this Contract will be performed at the EchoWater Resource Recovery Facility (EchoWater Facility). The EchoWater Facility is located south of the Sacramento City limits, west of Franklin Boulevard and north of Sims Road at 8521 Laguna Station Road, Elk Grove, California 95758.

1.02 SITE ACCESS AND ACCESS ROADS

A. Access to the Plant for construction related traffic shall be via either the Dwight Road Security Gate or the Laguna Station Road Security Gate. If special access is required coordinate with the District Representative.

B. Contractor is required to submit an Access Request (AR) for District approval prior to mobilizing any equipment or facilities onto the construction site in accordance with the COORDINATION WITH OCCUPANTS Section (01 14 16). Contractor's AR for mobilization shall include but not limited to a site plan showing access routes, office location, sanitary facilities location, storage yard, parking areas, temporary construction fencing, and temporary walkways around construction site. Contractor shall coordinate with the District Representative prior to submitting the AR.

C. Contractor shall be aware that Dwight Road and other roads within the site will be utilized by other contractors and EchoWater Facility personnel during the duration of this contract.

D. The Contractor's personnel will be required to park personal vehicles in the approved or designated areas. Each Contractor shall be responsible for policing the common parking area for cleanliness and efficient parking procedures to ensure use by all. Existing parking in the process area may not be used by the Contractor's workers.

E. The Contractor will maintain a visitor log to document the arrival and departure of all delivery personnel and periodic visitors. In the event that a staff member leaves the site before end of shift, this action will be recorded in the Contractor's visitor log.

F. In the event of an evacuation, the contractor and all staff, subcontractors, delivery personnel and visitors will report to the congregation area with copies of the attendance sheets and visitor log for roll call. All personnel will remain at the congregation area until released by authorized District Management.

1.03 CONTRACTOR IDENTIFICATION BADGE POLICY AND PROCEDURES

A. IDENTIFICATION:

1. All Contractor and subcontractor staff assigned to work at the EchoWater Facility shall obtain an identification badge after completion of safety training and shall carry their badges at all times while at the EchoWater Facility.

B. TRAINING:

1. All Contractor staff must attend EchoWater Facility Safety Orientation and badge use training at a minimum prior to issuance of badges. Training is anticipated to be 3 hours total in duration and will include the environmental and cultural education training.

C. BADGE SECURITY LEVELS:

1. Contractors and subcontractors will have different access authority levels through process security gates depending upon the time of day, and/or their assigned duties.

2. If access is denied, contact the District Representative.

D. FORGOTTEN BADGE:

1. If a person forgets their badge, they will have to enter the EchoWater Facility as a visitor. This requires checking in and out of the EchoWater Facility with the security guard at the gate.

    a. Use the inside entry lane (closest to the guard station).

    b. Guard will ask visitor's name and other information.

    a. Guard will require visitor to contact someone from their company or project to meet them at the gate and escort them onsite.

    b. Visitor will need to report to reception to get a visitor's badge for the day. The visitor badge must be picked up and dropped off every day at reception until a replacement badge is received.

    c. Leave facility using inside exit lane (closet to guard station).

E. LOST BADGE:

1. A badge categorized as forgotten will be considered lost after 72 hours. Lost badges shall be reported to the District Representative as soon as the loss is realized. A replacement badge will be issued and the lost badge will be deactivated and will no longer work in the security system. If found, the lost badge shall be turned into the District Representative.

1.04 MAIN GATE ENTRY/EXIT PROCEDURES

A. GENERAL:

1. Badges are required to enter or exit through the guard gate stations. Every vehicle must badge through the gates, no "piggy backing" of other vehicles is allowed.

2. There are three entrance and three exit lanes at the Dwight Road Security Gate:

   a. The outside lanes are exclusively for persons with badges.

   b. The **inner lanes** are to be used by

      1) Visitors;

      2) Deliveries; and

      3) Employees without badges

3. There are three “cell-phone pullout” areas outside of the Dwight Road Security Gate. For the ingress traffic, a single pullout area is provided on the east side of Dwight Road to allow visiting vehicles and trucks to park and obtain additional information from the receiving party, if needed prior to reaching the gate. Unexpected visitors who proceed to the gate without prior notification to receiving parties could be directed to use the reject route to turn around at the gate., They would then utilize either of the two pullout areas provided for the egress traffic on the west side of Dwight Road to contact a receiving party for permission to enter. If permission is granted, the receiving party shall notify the guard at the gate to allow entry of the visitor.

****END OF SECTION****

SECTION 01 14 16

COORDINATION WITH OCCUPANTS

1.01 GENERAL

A. Contractor work activities that impact existing District operations, property or facilities (such as pipelines, ductbanks, manholes, treatment processes, environmental resources, and access roads to District facilities) require an approved, signed Access Request (AR) prior to commencement of work. Interruption of flow or connection to an existing system or interceptor requires a Shutdown Plan and Location Map to be included with the Access Request. In addition to the Shutdown Plan, any activity that requires special safety precautions to be taken will require a Safety Work Plan to be included with the Access Request.

B. Access Request:

1. Allows District Operations time to review the proposed work and to schedule and coordinate necessary process or equipment shutdowns,

2. Allows District Safety office review of proposed work and contractors' safe work practices related to the specific work to be performed,

3. Informs the contractor of any special hazards or exposures related to the specific work.

C. The District maintains permits to collect, treat and discharge wastewater. These permits establish discharge limits for wastewater, storm water, and air emissions and establish spill reporting requirements and fines. Violation of District permits shall not result from the Contractor's work. Any unauthorized discharge or spill shall immediately be reported to the EchoWater Facility Plant Control Center (916-875-9400). The District will require the Contractor to stop or restrict any activity that has or could result in an unauthorized discharge or permit violation. The District will prevent or remedy the situation by the most expeditious means. The Contractor will be responsible for all costs incurred including fines.

1.02 REQUIREMENTS

A. COORDINATION AND ACCESS:

1. Activities that affect the operation of existing District equipment, including EchoWater Facility processes, Interceptor pipelines or facilities, or access to District property will require coordination between District and Contractor.

2. Access Requests are generally required based on impending work activities discussed at weekly construction coordination meetings, and approval is issued jointly by the District O&M Support office and District Safety Office.

3. Unrestricted access for District personnel and equipment shall be provided at all times to existing facilities, unless a reduced level of access is explicitly allowed in the approved Access Request.

1.03 SCOPE

A. An Access Request provides notification of a Work Item or other activity proposed by the Contractor. An Access Request describes the contemplated work including when, where and how it will be accomplished. An Access Request shall be submitted by a qualified representative of the Contractor who is familiar with all aspects of the work and pertinent safety requirements. An Access Request may be required whenever any of the following conditions are contained in or will be affected by Contractor's work:

1. General Project mobilization or District property access,

2. Work in, connection to, or removal of any pipeline, manhole, pump station, asset or wastewater process or equipment.

3. Any work that may impact environmental resources on District property,

4. Any work that may impact or disrupt other activities on District property such as leased agricultural operations, scientific studies, or concurrent construction projects,

5. Excavation on District property by location, dewatering of any excavation, structure, tank, vessel, or piping system

6. Installation or removal of bulkheads, cofferdams and isolation devices

B. Depending on the activities within the project, multiple Access Requests may be required.

C. A fully completed Access Request form shall be submitted in accordance with the ELECTRONIC COMMUNICATION PROTOCOLS Section (01 31 26) at least 10 working days prior to the date proposed for commencement of work. An Access Request meeting may be required prior to the approval of the work or upon the District's request.

D. Contractors are required to describe the proposed work activity, indicate the property, system or equipment that will be affected, list the labor and equipment to be utilized, indicate the date, time

and duration of the work, describe measures that will be implemented to reduce impacts to District property and facilities, and describe safety precautions to be observed. Drawing and section numbers shall be indicated where appropriate. A Shutdown plan shall be included with the Access Request when the work affects an existing system or process.

E. The Contractor shall plan and schedule Access Requests as early as possible. An Access Request will be reviewed and returned within 10 working days after submission of all necessary information. Sufficient information and detail shall be included with an Access Request to permit District to evaluate the proposed operation and the associated risks. Insufficient information on an Access Request may delay approval within 10 working days.

F. Contractor shall not be allowed to proceed with any work, or any portion of the work, described in an Access Request without complying with all the conditions, in their entirety, of the Access Request approval. All conditions of approval, including additional safety precautions added by the District Safety Office, shall be complied with and effectively communicated to Contractor's personnel and subcontractors. If the Contractor does not agree with the additional safety requirements, work shall not start until resolution is attained. Changes in the proposed activities or field conditions of an Access Request, or delay of the work, will require the submission of a new or revised Access Request.

1.04 SHUTDOWN PLAN

A. A Shutdown Plan shall be included with an Access Request whenever an existing operating system or facility such as a pipeline, basin, tank, channel, power supply, control circuit, instrumentation, equipment, pump, meter, or structure is affected. Shutdowns shall be planned and coordinated to minimize the number and duration of activities that affect existing operations.

B. The District will limit the duration of shutdowns for critical systems. Stated durations are the total time period between when the system is made available to Contractor and when it is ready for return to service. If the Contractor cannot complete the work within the allowed time, Contractor shall immediately request an extension from the District. If the District does not approve the requested extension, Contractor shall complete the work or return the system to operable condition. The District will complete the work if Contractor does not return the system to operable condition as directed. Contractor is responsible for extra costs or damages incurred by the Contractor or the District to meet these requirements.

C. Requirements:

1. Designate the equipment or system that will be affected or removed from service. Describe the work to be undertaken. Identify the portion of the system that will be isolated, dewatered, decommissioned, de-energized, depressurized, or drained.

2. List the labor, equipment, materials, tools, utilities and incidental items to be used.

3. Indicate measures to prevent discharge of wastewater, stormwater pollution, odor or disruption of treatment processes.

4. Indicate dewatering method and means for disposal of leakage water.
5. Provide details for bulkheads, cofferdams and isolation devices.
6. Describe safety precautions and equipment.
7. Describe recovery plan if the shutdown cannot be completed as planned
8. List activities to be done by the District.
9. Indicate the time estimated to complete the shutdown.

**** END OF SECTION ***

SACRAMENTO AREA SEWER DISTRICT

ACCESS REQUEST

This document shall remain at the work site until work/tasks listed are completed

Prime Contractor	Contract #	Date:
Sub-Contractor	AR #	Revision
Contact for Contractor	Work Item #	CPM Activity #
Phone	☐ Work Plan Attached	☐ Drawing Attached

PART 1 - CONTRACTOR WORK PERMIT

Start Date/Time	Completion Date/Time
Reference Contract Drawings/Specifications	
Equipment or System to be Worked On	
Location of Work	
Provide Change Management Package (CMP) # if appropriate:	

Type of Work (check all that apply)	☐ Civil	☐ Mechanical	☐ Electrical	☐ Instrumentation
	☐ Process	☐ Coating	☐ Hotwork	☐ Other (specify)
	☐ Mobilization	☐ Traffic/Ped, Access	☐ Shutdown	

Description of Work
Anticipated Hazards

Tools/Equipment to be used	☐ Cutting/Welding Torches	☐ Arc Welders	☐ Jack Hammers
	☐ Power Saws	☐ Grinders	☐ Pneumatic Tools
	☐ Backhoe	☐ Crane	☐ Radioactive Test Device
	☐ Other		

Access Request Instructions:

1. Follow processing instructions in Access Request Procedure for either Capitol Improvement Project (CIP) or non CIP.

PART 2- CONTRACTOR SAFETY PRECAUTIONS

All items checked will be complied with/used in accordance with applicable safety standards (CalOSHA, UFC, etc.) and requested contractor's safety program.

HOT WORK PLAN
- ☐ Isolate Combustibles
- ☐ Fire Watch
- ☐ Fire Extinguishers
- ☐ Flash Protection

REVIEW EMERGENCY PROCEDURES/ALARMS
- ☐ Gas Management Areas
- ☐ Other _____

_____

AIR MONITORING
- ☐ Continous
- ☐ Periodic
- ☐ Frequency _____

HOUSEKEEPING
- ☐ Debris Removal
- ☐ Dust Control
- ☐ Maintain access to/through worksite

POTENTIAL ATMOSPHERIC HAZARDS TO BE MONITORED
- ☐ Oxygen Deficiency
- ☐ Oxygen Enrichment
- ☐ Combustible Gases
- ☐ Toxic Gases
- ☐ Other _____

EXCAVATION/TRENCHES
- ☐ Shoring
- ☐ Sloping
- ☐ Benching
- ☐ Barricades
- ☐ Excavation Plan Submittal Number _____

HAZARDOUS MATERIALS TRAINING
- ☐ Substance(s) _____

ELEVATED AREAS
- ☐ Fall Protection
- ☐ Guardrails

ENERGY CONTROL PROCEDURES
- ☐ Lockout
- ☐ Blockout
- ☐ Tagout

PIPING/EQUIPMENT OPENING AND/OR ENTRY
(ensure prior to opening)
- ☐ Effectively Isolated
- ☐ Depressurized
- ☐ Drained
- ☐ Purged/Flushed of Hazardous Substances

VENTILATION
- ☐ Natural Only
- ☐ Auxiliary, Continuous

ABATEMENT ACTIVITIES
- ☐ Asbestos (Article 4 § 1529)
- ☐ Lead (Article 4 § 1532.1)

CONFINED SPACE PROCEDURES
- ☐ Permit Required
- ☐ Non-permit
- ☐ C-5
- ☐ Entry Permit @ site
- ☐ Personnel Retrieval System
- ☐ Communication w/Entrant
- ☐ Rescue personnel @ site
- ☐ Supplied Air

OTHER SAFETY PRECAUTIONS
- ☐ _____
- ☐ _____
- ☐ _____
- ☐ _____

AR SUBMITTAL SIGNATURE BLOCK

Contractor signs below after page 1 and 2 are filled out with sufficient detail to allow AR to be reviewed. Contractor identifies all anticipated safety items prior to signing below. Safety Office will initial next to any additional safety items that have been checked off during the AR review process.

Contractor Representative	Date

RE Comments	☐ See Attachment
Reviewed by Resident Engineer	Date
Part 3 - APPROVERS' REMARKS	
Area Supervisor Comments	☐ See Attachment
Approved by Area Supervisor	Date
Safety Office Comments	☐ See Attachment
Approved by: SacSewer Safety Office	Date
District Representative, Ops Support, Engineering Comments	☐ See Attachment
Approved by: District Representative, Ops Support, Engineering	Date

SIGNATURE BLOCK

The work described by this Access Request has been reviewed. The work methods described and identified in Parts 1 & 2, and the additional safety precautions identified in Parts 2 & 3 will be complied with and effectively communicated to personnel assigned this task. If the contractor does not agree with additional safety precautions, work shall not start until resolution is attained.

Contractor Representative	Date

Distribution:

☐ Operation Support
☐ Safety Office Representative
☐ Resident Engineer
☐ O&M Manager 1 / 2
☐ Process Team Leader
☐ Other _____
☐ Electrical Supervisor
☐ Facility Manager
☐ Project Engineer
Contractor (supplied by RE/District Representative)

***Note - Provide copies of approved ARs to applicable sections, always include O&M Manager I's in the distribution.**

**** END OF SECTION ****

SECTION 01 14 19

USE OF SITE

PART 1 -- GENERAL

1.01 GENERAL REQUIREMENTS

A. The District's operating personnel will be responsible for operating the existing treatment plant throughout the execution of this contract. Do not adjust or operate serviceable or functioning equipment or systems.

B. Equipment presently installed in the treatment plant must be safely available to plant personnel at all times for use, maintenance, and repair.

C. If it is necessary in the course of operating the plant for the Contractor to move its equipment, materials, or any material included in the work, it shall be done promptly. The equipment or material shall be placed in an area which does not interfere with the plant operation.

D. Requirements of this section include, but are not limited to, requirements specified in the COORDINATION WITH OCCUPANTS Section (01 14 16).

E. The existing treatment plant will remain in operation throughout the execution of this contract. Schedule and conduct work to minimize necessary shutdowns and interference with normal plant operations and maintenance. An Access Request Form included and described in the COORDINATION WITH OCCUPANTS Section (01 14 16) shall be submitted to the District Representative each time access to existing facilities is necessary.

F. Comply with the safety requirements of the EchoWater Resource Recovery Facility (EchoWater Facility) Safety Manual as a minimum when working in the Plant process area. Provide additional safety considerations which are deemed necessary to protect Contractor and District employees during the conduct of the work.

G. Provide notice to the District Representative, in accordance with the COORDINATION WITH OCCUPANTS Section (01 14 16), 2 weeks prior to taking out of service any existing tank, pipeline, channel, electrical circuit, equipment or structure. Provide whatever temporary piping, pumping, power, and control facilities as required to maintain continuous plant operation and complete treatment except as otherwise specified. The integrity of existing plant utilities shall be maintained at all times.

H. Contractor laydown area within the project site is designated on the design drawings.

I. The Contractor's work force shall not use existing washrooms during the conduct of the work. The Contractor shall be responsible for keeping areas in the existing treatment

plant where work is done clean and safely accessible for the District's operating personnel.

****END OF SECTION****

SECTION 01 57 23

TEMPORARY STORM WATER POLLUTION CONTROL

PART 1 -- GENERAL

1.01 GENERAL REQUIREMENTS

A. This section specifies the requirements for Stormwater Pollution Prevention which includes a Water Pollution Control Plan (WPCP) for a project resulting in less than one acre of soil disturbance, any size project fully within the EchoWater Resource Recovery Facility (EchoWater Facility) process area, or any project that is not otherwise subject to the requirements of the State Water Resources Control Board (SWRCB), Water Quality Order No. 2022-0057-DWQ, National Pollutant Discharge Elimination System (NPDES), General Permit No. CAS000002, General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities (Construction General Permit) to control storm water discharges from construction and other land disturbance sites.

B. Contractor may opt to implement a more restrictive program than that which is required. The Contractor must then conform to all requirements of both the minimum applicable program and the more restrictive program.

C. Contractor will avoid and minimize permanent and temporary impacts to habitats and land cover types used by sensitive species potentially occurring in the Project Area. Avoidance and minimization of habitat areas will be accomplished during construction by implementing best management practices, including establishment of buffer zones, and implementation of a WPCP to reduce the potential for sediments or contaminants to enter sensitive habitats.

D. Contractor shall implement Best Management Practices (BMPs) including good housekeeping practices and erosion and sediment control, to prevent the direct and indirect contribution of any contaminants into the storm drain system or waters of the United States.

E. BMPs shall be implemented according to the California Stormwater Quality Association BMP Handbook – Construction (2019) BMP fact sheets. Non-structural and structural BMPs shall be acceptable to the District Representative and instituted or placed, as appropriate, before commencement of each phase of clearing, grading, excavation, trenching, or staging of materials that may be potential pollutants.

F. Furnish all labor, materials, equipment, and incidentals necessary to perform all installation, maintenance, removal, and area cleanup related to erosion and sediment control BMPs necessary to prevent the movement of sediment from the construction site

to off-site areas including roadways, surface waters, storm drains, disposal locations, and flood control facilities.

G. Contractor shall be responsible and fully bear costs incurred by the District as a result of violations under the Federal Clean Water Act, the State Porter-Cologne Water Quality Control Act, or for unauthorized release or discharge from the work including but not limited to penalties assessed or levied, third party claims, citizen suits, labor, materials, analytical analyses, and handling of waste. Fines shall be deducted from contract payments specified in the PROGRESS PAYMENT PROCEDURES Section (01 29 76).

1.02 REFERENCES

A. The publications referred to hereinafter form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only. The latest edition of the referenced publications in effect at the time of the bid shall govern. In case of conflict between the requirements of this section and the listed references, the requirements of this section shall govern.

Reference	Title
California Stormwater Quality Association (CASQA)	California Stormwater BMP Handbook – Construction 2019

1.03 SUBMITTALS

A. The following information shall be submitted for review and approval in accordance with the SUBMITTAL PROCEDURES Section (01 33 00):

1. A copy of this specification section, with addenda updates, with each paragraph check marked to show specification compliance or marked to show deviation.

2. The Contractor shall designate a Storm Water Pollution Prevention Coordinator. This person shall have previous experience in erosion and sediment control with similar type and size projects and shall submit a resume to the District Representative for approval. This person will be responsible for preparing and implementing the WPCP.

3. The WPCP shall be submitted to the District within 10 days of the NTP and prior to the commencement of the Work.

4. Completed inspection and maintenance reports within 3 working days of preparation.

5. Upon completion of the project, submit the complete WPCP and relevant documents and amendments to the District Representative.

PART 2 -- PRODUCTS

2.01 EROSION CONTROL MATERIAL

A. All fiber rolls, straw wattles, and/or hay bales utilized within and adjacent to the project site shall be free of non-native plant materials. Fiber rolls or erosion control mesh shall be made of loose-weave mesh that is not fused at the intersections of the weave, such as jute, or coconut (coir) fiber, or other products without welded weaves. Coconut coir matting and fiber rolls with burlap are examples of acceptable erosion control materials. Products with plastic monofilament or cross joints in the netting that are bound/stitched (such as found in straw wattles/fiber rolls and some erosion control blankets), which may cause entrapment of wildlife, shall not be allowed.

PART 3 -- EXECUTION

3.01 GENERAL

A. The Contractor shall assume responsibility for stormwater runoff management and erosion and sediment control at the project site during construction. Fully comply with all applicable state and local regulations, and requirements related to stormwater management, erosion and sediment control.

B. Prior to commencement of any land disturbing activity, the contractor shall submit the WPCP to the District Representative. No activity having the potential to cause water pollution, as determined by the District Representative, shall be performed until the District Representative has approved the WPCP and appropriate BMPs have been installed by the Contractor.

3.02 WATER POLLUTION CONTROL PLAN

A. Develop a Water Pollution Control Plan (WPCP) to identify potential pollutants associated with each phase of construction activity and non-structural and structural BMPs appropriate to each phase of the work. The WPCP shall detail the following, if applicable:

- Schedule
- Location of soil stockpiles
- Location of solid waste containers
- Vehicle and equipment fueling, servicing, cleaning and storage areas
- Material storage areas
- Chemicals, potential pollutants and hazardous materials to be used and methods for safekeeping

- Site drainage during execution of the Work
- Stabilization of vehicle access to site
- De-watering operations
- Methods for spill prevention and control
- Secondary containment
- Handling and disposal of solid waste
- Storage and dispensing of fuel and lubricants
- Clean out and disposal of ready mix concrete
- Sanitation provisions
- Disposal location for excess excavated material
- Haul Routes

B. The WPCP shall include BMPs to prevent an unauthorized release or discharge of pollutants, contaminants, chemicals, hazardous substances or materials. The BMPs will be described in both narrative form and proper placement illustrated on figures.

1. Stockpiled soil shall be stored in a clear area of the construction site where it would not have the potential to affect agricultural or biological resources. Stockpiled soil shall be covered with a tarp at all times to prevent generation of fugitive dust.

C. Maintain one copy of the WPCP and amendments at the project site. The WPCP shall be made available upon request by a representative of the Regional Water Quality Control Board (RWQCB), State Water Resources Control Board (SWRCB), United States Environmental Protection Agency (USEPA), or the local stormwater management agency. Requests by the public shall be directed to the District Representative. At completion of construction, submit the complete WPCP, amendments, inspection and maintenance records, and any other relevant documents to the District's Representative.

3.03 INSPECTIONS AND MAINTENANCE

A. Make a visual inspection of all BMPs as necessary to ensure proper operation but not less than once per week. For rain events predicted at a 50 percent (50%) chance or higher (as reported at https://www.weather.gov/sto/), inspections are to be conducted within 48 hours before. For rain events measuring 0.50 inches or greater (as reported at https://www.weather.gov/sto/), inspections are to be conducted at least every 48 hours during and within 48 hours after. If such inspection reveals that existing measures are damaged or that additional measures are needed to prevent movement of sediment to off-

site areas, promptly repair, replace or install additional devices as needed within 24 hours of notification. Sediment controls in need of maintenance shall be repaired within 24 hours of notification.

B. Maintenance of BMPs shall be per the Construction BMP Handbook. Perform routine maintenance consisting of debris removal, silt/sediment removal, clearing of vegetation around flow control devices to prevent clogging, and maintenance of healthy vegetative cover.

C. The Contractor shall be responsible for preparing and maintaining inspection and maintenance records. Inspection and maintenance reports are to be submitted to the District Representative within 3 working days.

3.04 DISPOSAL OF EXCESS EXCAVATED MATERIAL

A. Excess excavated material is defined as material from onsite excavations that are beyond the volumes necessary to meet the finish grades shown on the Contract Documents.

B. The Contractor shall be responsible for the disposal of excess excavated material. The Contractor shall be responsible for hauling excess excavated material offsite in accordance with laws and regulations regarding disposal of such material.

3.05 NOTIFICATION AND REPORTING

A. The Contractor is responsible for identifying and bringing to the attention of the District's Representative all activities that may result in a non-stormwater discharge prior to commencing with such work. Any uncontrolled non-stormwater discharge shall be reported to the District Representative immediately.

3.06 REMOVAL AND FINAL CLEANUP

A. Once the site has been fully stabilized against erosion, remove sediment control devices and all accumulated silt. Dispose of silt and waste materials in proper manner.

B. Provide post-construction erosion controls, including soil stabilization, in accordance with the Contract Documents. Materials subject to degradability shall have a minimal functional longevity of 12-months.

****END OF SECTION****

SECTION 32 00 01

FULL DEPTH RECLAMATION-CEMENT

PART 1 -- GENERAL

1.1 GENERAL REQUIREMENTS

A. SCOPE:

1. This section includes specifications for constructing a full depth reclamation base layer with the use of cement. Reference to full depth reclamation with cement shall be referred to as FDR-cement.
2. Constructing an FDR base includes:
    a. Pulverizing existing gravel road and underlying materials. Note: existing gravel road may include broken up chunks of asphalt concrete, 2-5 inches in size.
    b. Mixing with water, cement, and if specified, supplementary aggregate.
    c. Grading and compacting the mixture.
    d. Applying asphaltic emulsion.

1.2 DEFINITIONS:

1. OMC: Optimum moisture content (OMC) determined under California Test 216
2. FDR or FDR-Cement: Full Depth Reclamation-Cement

1.3 QUALITY ASSURANCE:

A. General

Relative compaction must be determined under California Test 231 and the following:

1. Test in 0.50-foot depth intervals from the bottom of the FDR layer regardless of the layer thickness.
2. Correction for oversize material does not apply.
3. A sample must contain no more than 5 percent retained on the 2-inch sieve and 15 percent retained on the 1-1/2 inch sieve.
4. Use the laboratory wet test maximum density closest in proximity to the lot to determine relative compaction. If the relative compaction for a lot is less than 97 percent, perform California Test 216 and California Test 226 for each noncompliant lot and recalculate the relative compaction.
5. The District tests each test strip under section, “TESTING,” of this specification.

1.4 FDR-CEMENT MIX DESIGN:

A. For bidding purposes, the Contractor shall assume a cement content of 3% percent by dry weight of FDR with a dry unit weight of 140 lb/cu ft. However, the contractor, prior to commencing field work shall perform sampling and submit mix designs to confirm or modify final spread rate of the cement.

1.5 SUBMITTALS:

A. The following information shall be submitted for review and approval in accordance with Sacramento County Standard Construction Specifications, Section 5-8, with the additional requirement of including a copy of this specification section, with each paragraph check marked to show specification compliance or marked to show deviations.

1. Contractor Mix Designs

a. Submit each FDR mix design on a form you create specifically for FDR. Each mix design submittal must be sealed and signed by an engineer who is registered as a civil engineer in the State of California.

b. You may submit multiple mix designs to optimize the cement content and adjust for varying underlying materials.

c. Sample and perform a mix design for each location shown on Drawing C-001, or as coordinated with the District. The mix design must produce FDR with an unconfined compressive strength from 650 psi to 800 psi, determined at 7 days under ASTM D 1633, Method A. See Table, "FDR Cement Quality Characteristic Requirements," in the MATERIALS section of this specification for exceptions to ASTM D 1633.

d. The mix design must include 7-day unconfined compressive strength tests on specimens with three (3) separate cement contents using the proposed cement and optimum mixing moisture content. The cement contents must be -1 percent of specified content, specified content, and +1 percent of specified content by dry weight of FDR cement. Manufacture three (3) specimens for each cement content and average the results for each. Plot the average 7-day compressive strengths on the ordinate versus the cement contents in percent on the abscissa on a graph. Indicate the cement contents from the line corresponding to the minimum and maximum 7-day compressive strengths from the specified range.

e. Additionally, each mix design submittal must include:

1) Area represented by the mix design

2) Gradation of the mixture before addition of cement

3) Cement content in percent by weight of the dry mixture and in lb/sq yd surface application rate

4) Supplementary aggregate in percent by weight of the dry mixture if supplementary aggregate is specified

5) Moisture content of the material when mixing, relative to OMC

6) Test results and any worksheets, photographs, and graphs

2. Contractor Quality Control (QC) Reporting Plan

With the daily report, submit the following based on the testing frequencies specified on Drawing C-001.

1) General Information:

a) Weather:

b) Ambient air temperature before starting daily FDR activities including time of temperature reading.

c) Road surface temperature before starting daily FDR activities including time of temperature reading.

2) Average forward speed of pulverizing equipment

3) FDR quality control test results for unconfined compressive strength.

With the daily report, submit the test results for the quality characteristics within the times after sampling shown in the following table:

FDR—Cement Quality Characteristic Test Result Reporting Time Allowances

Quality characteristic	Maximum reporting time allowance
Water sulfates	Before work starts
Water chlorides	
Gradation	24 hours
Moisture content	
Laboratory maximum wet density	
Relative compaction	
Unconfined compressive strength	24 hours after testing specimens

PART 2 -- PRODUCTS

2.1 MATERIALS

A. GENERAL:

1. The quality characteristics for the FDR cement must comply with the requirements shown in the following table:

FDR—Cement Quality Characteristic Requirements

Quality characteristic	Test method	Requirement
Gradation (%, passing) Sieve Size 3 inch 2 inch 1-1/2 inch	California Test 202	 100 95–100 85–100
Moisture content (%)	California Test 226	Mix design ± 2 percent
Unconfined compressive strength (psi)	ASTM D1633[a]	Specified in section 30-4.01D(1)(a)
Laboratory maximum wet density (lb/cu ft)	California Test 216	Use for relative compaction calculation
Relative compaction (min, %) (wet density)[b]	California Test 231	97

[a] Method A, except:

1. Test specimens must be compacted under ASTM D1557, Method A or B.
2. Test specimens must be cured by sealing each specimen with 2 layers of plastic at least 4-mil thick. The plastic must be tight around the specimen. Seal all seams with duct tape to prevent moisture loss. Sealed specimens must be placed in an oven for 7 days at 100 ± 5 degrees F. At the end of the cure period, specimens must be removed from the oven and air-cooled. Duct tape and plastic wrap must be removed before capping. Specimens must not be soaked before testing.

[b]Verify the moisture content reading made under California Test 231 with California Test 226.

B. CEMENT:

1. Cement must be Type II or Type V portland cement specified in ASTM C 150/150M.

C. WATER:

1. The District's water wells are available to the contractor for use but must be tested to verify suitability for use with FDR. Notify the District if an alternate water source is used (other than potable water) and perform testing for chlorides and sulfates.

D. CORE BACKFILL MATERIAL:

1. Material to fill cored holes for thickness measurements must be packaged rapid-hardening cementitious material under ASTM C928, Type R2 or R3.

PART 3 -- EXECUTION

3.1 GENERAL REQUIREMENTS

A. Do not start FDR activities if the ambient air temperature is below 40 degrees F or the road surface is below 40 degrees F. If the ambient air temperature falls below 40 degrees F during FDR activities, you may only compact and finish FDR.

B. EXISTING UTILITIES:

1. Where exiting underground utilities or utility structures lie within the FDR section, the contractor shall verify, by potholing or other means acceptable to, and approved by the District, that there is sufficient cover over the utilities to provide clearance for the FDR mixing process without damage to the existing utilities. This verification shall be carried out where each utility crosses the boundary for the FDR section, and at a minimum of one location in between.

2. A portion of this contract requires the contractor to raise certain utility structures to meet final grades. The Contractor shall be responsible for the protection of existing structures during the FDR work activities. All other utility structures that are not in the FDR section, but are adjacent to the FDR work activities, shall be protected in place. Any such utility that damaged from the FDR work activities performed by the contractor shall be either repaired or replaced to the satisfaction of the District.

C. EQUIPMENT:

1. The FDR machine must have independent and interlocked systems for water and must include the following:
    1. Digital electronic controller system
    2. Pumping system
    3. Spray bar system
2. Storage equipment for water must not leak and must be attached to the FDR machine with a tow bar and hose.
3. Grading and compacting equipment must be self-propelled and reversible. The frequency and amplitude of vibrating rollers must be adjustable and exceed a force of 15 tons in vibratory mode.
4. Hand work or alternate equipment methods will be required in areas of utility structures. Contractor shall provide FDR construction methods in these areas to ensure contract requirements for FDR are met.

D. PULVERIZE:

1. Do not pulverize more material than can be mixed with cement and compacted in one day.
2. Do not leave a wedge where the pulverizing drum cuts into the existing material. The 1st cut width must use the full width of the pulverizing drum. Subsequent cuts must overlap at least 4 inches. Do not leave a gap of unpulverized material between cuts. If an overlap is more than 4 inches, immediately adjust. If an overlap is less than 4 inches, immediately back up and pulverize the deviation along the correct cut line.

3. Mark the existing pavement where the center of the pulverizing drum stops. Start the following cut on this alignment at least 2 feet behind the mark.

E. SPREADING MATERIALS:

1. Spread cement uniformly over the full roadway surface width. Do not spread cement more than 30 minutes before mixing. Do not apply dry cement in windy conditions that will result in dust outside the FDR area. The spread rate must be the mix design rate or the ordered rate in lb/sq yd ± 5 percent.
2. Do not spread cement and supplementary aggregate before pulverizing.

F. MIXING:

1. The overlap requirements in the section above, "Pulverizing," apply to mixing. With each cut, adjust the quantity of water proportionally to the actual cut width. If an overlap is less than 4 inches, immediately back up and pulverize the deviation along the correct line without adding water or cement.
2. Water must be injected through the pulverizing machine. The injection rate of mixing water must be sufficient to produce the FDR material mixing moisture content described in the mix design.
3. Mark where the center of the pulverizing drum stops. Start the following cut on this alignment at least 2 feet behind the mark.

G. COMPACTING AND GRADING:

1. Immediately after pulverizing and mixing, compact FDR to the minimum relative compaction. Do not allow more than 2 hours between final mixing of the pulverized material with cement and completion of compaction with vibratory steel drum rollers.
2. During grading and final compaction with vibratory steel drum rollers, add water to maintain the mixing moisture content as described in the mix design.

H. FINISHING:

1. Immediately after compaction, apply water and roll with pneumatic-tired rollers or steel drum roller with no vibration. The finished surface must be free of ruts, bumps, indentations, segregation, raveling, and any loose material.
2. Keep the compacted surface damp by lightly watering until asphaltic emulsion is applied.
3. During the period from 48 to 72 hours after compaction, microcrack the surface by applying 4 single passes with a 12-ton vibratory steel drum roller at maximum amplitude travelling from 2 to 3 mph, regardless of whether asphaltic emulsion has been applied.
4. Apply a coat of diluted asphaltic emulsion to the finished surface when it is damp but free of standing water. The application rate of asphaltic emulsion must be from 0.13 to 0.25 gal/sq yd. Do not water after applying asphaltic emulsion. Do not open to traffic without authorization.
5. Maintain the FDR surface free of ruts, bumps, indentations, raveling, and segregation.

3.2 **TESTING**

A. Assign a ground supervisor whose sole purpose is to monitor the FDR activities, advise project personnel, and interface with the quality control testing personnel. The ground supervisor must not have any sampling or testing duties.

B. Test the quality characteristics of FDR shown in the following table:

FDR—Cement Quality Characteristic Sampling Locations and Testing Frequencies

Quality characteristic	Test method	Minimum sampling and testing frequency	Sampling location
Gradation	California Test 202	Test strip and 1 per location shown on Drawing C-001	Loose mix after pulverizing and mixing
Moisture content	California Test 226	Test strip and 1 per location shown on Drawing C-001[a]	Loose mix after pulverizing and mixing [b]
Unconfined compressive strength	ASTM D1633	Test strip and 1 per location shown on Drawing C-001	Loose mix after pulverizing and mixing [b]
Laboratory maximum wet density	California Test 216	Test strip and 1 per location shown on Drawing C-001	Same location as a California Test 231 test
Relative compaction [c]	California Test 231	Test strip and 1 per location shown on Drawing C-001	Compacted mix

[a]If test fails, the minimum test frequency is 1 per roadway (i.e. Road N, Road G, etc.).
[b] Sample immediately after mixing is complete
[c]Verify the moisture content reading made under California Test 231 with California Test 226.

Measure and record the actual cut depth at both ends of the pulverizing drum at least once every 1,000 feet along the cut length. Take measurements in the District's presence.

C. DISTRICT ACCEPTANCE:

The District accepts FDR based on:

1. Visual inspection for the following:

1.1. Segregation, raveling, and loose material

1.2. Variance of more than 0.05 foot measured from the lower edge of a 12-foot straightedge

1.3. Uniform surface texture throughout the work limits

1.4. Repaired areas

2. Compliance with the quality characteristics shown in the following table:

FDR—Cement Requirements for Acceptance

Quality characteristic	Test method	Value
Cement application rate (lb/sq yd)	Calibrated tray or equal	Mix design rate ± 5%
Relative compaction (min, %, wet density)	California Test 231	97
Thickness (ft) [a]	Core measurements	±0.05 of the thickness shown

[a] Take 4- or 6-inch diameter cores from random locations the District selects. The District may require 1-2 locations per roadway. At time of coring, coordinate with the District for measurement verification.

****END OF SECTION****