ATTACHMENT B

HUFF'S CORNER IN-CHANNEL REPAIR PROJECT
TECHNICAL PROVISIONS

PROJECT MANUAL

Volume III: Technical Provisions

Huff's Corner In-Channel Repair Project

County of Yolo
Department of Community Services

June 11, 2024*

**Updated Per Addendum #2*

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1. GENERAL

1.1 Scope of Work

The Contractor will be required to perform the site preparation, transportation, excavation, placement, moisture conditioning and control, and compaction of fill and on-site material to the lines, grades, and dimensions shown on the drawings or established by the District Engineer in the field. It is anticipated that the proposed work can be accomplished by conventional earth-moving equipment. During the course of work, it may be necessary for the Project Engineer to adjust the lines, grades, and dimensions from those shown on the drawings.

The Central Valley Regional Water Quality Control Board requests pre-construction sampling and analysis for potential constituents of concern in the excavated channel material to be used as fill on the right bank bench. At the time of bid, the Contractor should include an assumption that all in-channel material for fill is eligible for beneficial reuse to construct the right bank bench as well as disposal of excess in-channel material at the County landfill. Should the results of the sampling and analysis determine that the excavated channel material to be used for fill is unsuitable for these uses, then a revision or change order to the scope of work, budget, and schedule shall be negotiated in good faith at that time.

1.2 Underground Utilities

The Contractor is responsible to locate all underground utilities within the project site and any internal haul routes and shall take necessary precautions to avoid damaging the buried utilities during construction. The Contractor shall be responsible for contacting Underground Services Alert and the property owners to determine the exact location and depth of buried utilities. The approximate location of a buried PG&E line running underneath the channel is shown on the Plans and should be verified by the Contractor.

1.3 Property Damage

In the event damage occurs to any property or to any part of the work being performed due to excavation operations, material hauling, or negligence of the Contractor, the Contractor will be held responsible for damages.

1.4 Permits

The Contractor is responsible to obtain all grading permits, as well as any encroachment permits for any work within the public right-of-way.

The Project Engineer shall provide the Contractor with permits from California Department of Fish and Wildlife (CDFW), Central Valley Flood Protection Board (CVFPB), United States Army Corps of Engineers (USACE), and the Central Valley Regional Water Quality Control Board (CVRWQCB) prior to the start of construction. All conditions from the project permits shall be satisfied.

1.5 Project Property Upkeep

1.5.1 Leaks and Spills

Motorized equipment and vehicles shall be checked and maintained regularly to prevent leaks of materials that could be deleterious to aquatic and terrestrial life or riparian habitat. Onsite storage, maintenance and/or refueling of vehicles or equipment shall be restricted to designated areas located far enough away from drainage courses to prevent any spills from contaminating aquatic or riparian habitat, either directly or via stormwater runoff. If equipment maintenance or refueling must occur near sensitive habitat, a secondary containment structure shall be used. Drip pans or absorbent materials shall be placed under vehicles and equipment when not in use.

Stationary equipment such as motors, pumps, generators, and welders shall be positioned over drip pans and/or other secondary containment structures. The Contractor shall ensure that any secondary containment is sufficient to handle any potential spill or leak.

Spills resulting from hauling operations shall be removed immediately by the Contractor at no additional cost to the Project. All ditches shall be kept clean and free from obstructions. Any deviation from this practice shall have prior approval from the Project Engineer.

1.5.2 Vehicle Parking

Vehicles may enter and exit the work area as necessary for project activities, but may not be parked overnight within ten (10) feet of the drip line of any trees; nor shall vehicles be parked where mechanical fluid leaks may potentially pass into waters of the state (Fish & G. Code § 89.1), the stream bed, bank, or channel (including but not limited to dry, ponded, flowing, or wetland areas), drainages, lakes, or other sensitive habitat.

1.5.3 Building Material Storage

Project building material and/or construction equipment shall not be placed where materials could pass into waters of the state (Fish & G. Code § 89.1), the stream bed, bank, or channel (including but not limited to dry, ponded, flowing, or wetland areas), drainages, lakes, other sensitive habitat, or where they may cover aquatic or riparian vegetation.

1.5.4 Decontamination of Project Equipment

The Contractor shall decontaminate all tools, waders and boots, and other equipment that will enter the water prior to entering and exiting the project site to avoid the introduction and transfer of organisms. Permittee shall decontaminate project gear and equipment utilizing one of three methods: drying, using a hot water soak, or freezing, as appropriate to the type of gear or equipment.

For all methods, the Contractor shall begin the decontamination process by thoroughly scrubbing equipment, paying close attention to small crevices such as boot laces, seams, net corners, etc., with a stiff -bristled brush to remove all organisms.

To decontaminate by drying, the Contractor shall allow equipment to dry thoroughly (i.e., until there is a complete absence of water), preferably in the sun, for a minimum of 48 hours.

To decontaminate using a hot water soak, the Contractor shall immerse equipment in 140 degrees Fahrenheit or hotter water and soak for a minimum of 5 minutes.

To decontaminate by freezing, the contractor shall place equipment in a freezer 32 degrees Fahrenheit or colder for a minimum of eight (8) hours.

Repeat decontamination is required only if the equipment/clothing is removed from the site, used within a different waterbody, and returned to the project site.

1.5.5 Decontamination Sites

The Contractor shall perform decontamination of vehicles, watercraft, and other project gear and equipment in a designated location where runoff can be contained and not allowed to pass into waters of the state (Fish & G. Code § 89.1), the stream bed, bank, or channel (including but not limited to dry, ponded, flowing, or wetland areas), drainages, lakes, or other sensitive habitat.

1.5.6 Equipment Maintenance and Fueling

No equipment maintenance or fueling shall be done where petroleum products or other pollutants from the equipment may pass into waters of the state (Fish & G. Code § 89.1), the stream bed, bank, or channel (including but not limited to dry, ponded, flowing, or wetland areas), drainages, lakes, or other sensitive habitat.

1.5.7 Staging and Storage Areas

Staging and storage areas for equipment, materials, fuels, lubricants, and solvents shall be located more than 150 feet from waters of the state (Fish & G. Code § 89.1), the stream bed, bank, or channel (including but not limited to dry, ponded, flowing, or wetland areas), drainages, lakes, other sensitive habitat, unless otherwise approved by CDFW in writing. All equipment and fuel stored on site shall be properly contained and protected from rain.

1.5.8 Completion of Work

The Contractor, upon completion of work, shall restore all Project access, private haul and levee roads used during the project to a condition equal to or better than the condition that existed prior to the commencement of work.

1.6 Project Meetings

Project meetings will be held as often as is deemed necessary by Yolo County or the Project Engineer. Representatives of the Contractor shall attend. The purpose of the meetings will be to discuss compliance with the Contract plans and specifications, progress, coordination, submittals, project safety, and job-related problems and changes.

1.7 OSHA Regulations

It is the responsibility of the Contractor to perform all work in accordance with applicable OSHA regulations. The Contractor agrees that he shall assume sole and complete responsibility for job site conditions during the course of construction of this Project, including the safety of all persons property; that this requirement shall apply continuously and not be limited to normal working hours; and that the contractor shall defend, indemnify and hold the Project and the Engineer harmless from any and all liability, real or alleged, in connected with the performance for work.

1.8 Mitigation Measures

The Contractor coordinate with the County to ensure implementation of all Mitigation Measures shown below. These Mitigation Measures are included in the CEQA Mitigated Negative Declaration and Mitigation Monitoring and Reporting Program. Where the Mitigation Measures listed below differ from the CEQA Mitigation Native Declaration, the table below takes precedence.

Table 1: Mitigation Measures

Number	Title	Mitigation Measure Description
BIO-1	Species Impacts	Yolo County shall implement the relevant provisions of the Yolo HCP/NCCP and its incorporation of the Cache Creek Resources Management Plan (Section 6.5.8.1.1) to mitigate impacts on Covered Species, including valley elderberry longhorn beetle, Swainson's hawk, and white-tailed kite. The Project is exempt from HCP/NCCP land cover fees and from the compensatory mitigation described in AMM12 of the HCP/NCCP (Minimize Take and Adverse Effects on Habitat of Valley Elderberry Longhorn Beetle), but will benefit from the ongoing implementation of the Cache Creek Management Plan (CCRMP), which is designed to protect and enhance habitat for these, and other, special-status species. AMMs that address disturbances to covered species, such as AMM 16, will apply to the Project.
BIO-2	Swainson's Hawk and White-Tailed Kite Habitat Impacts	Yolo County shall implement Yolo HCP/NCCP AMM16 (Minimize Take and Adverse Effects on Habitat of Swainson's Hawk and White-Tailed Kite).
BIO-3	Preconstruction Surveys	Concurrent with implementation of AMM16, Yolo County will conduct preconstruction surveys for northern harrier within the Project area and implement similar avoidance protocols or coordination with CDFW in the event active nests are found.
BIO-4	Riparian or Covered Species Habitat Impacts	Yolo County shall implement relevant provisions of the Yolo HCP/NCCP to avoid and minimize potential impacts to covered species and other wildlife, including AMMs 3, 4, 5, 6, 7, 8, and 18. To address

		mitigation for impacts on riparian habitat and other sensitive natural communities that may provide habitat for covered species, the Yolo HCP/NCCP incorporates the Cache Creek Resources Management Plan (Section 6.5.8.1.1). The Project is exempt from HCP/NCCP land cover fees and from the compensatory mitigation described in AMM12 of the HCP/NCCP (Minimize Take and Adverse Effects on Habitat of Valley Elderberry Longhorn Beetle), but will benefit from the ongoing implementation of the CCRMP, which is designed to protect and enhance riparian habitat and other sensitive natural communities, and provide habitat for covered species, including valley elderberry longhorn beetle.
BIO-5	Federally Protected Wetlands	Yolo County shall implement Yolo HCP/NCCP AMM10 (Avoid and Minimize Effects on Wetlands and Waters).
BIO-6	Work Area	Yolo County shall implement Yolo HCP/NCCP AMM3 (Confine and Delineate Work Area).
BIO-7	Trench and Hole Impacts	Yolo County shall implement Yolo HCP/NCP AMM4 (Cover Trenches and Holes during Construction and Maintenance).
BIO-8	Dust Control	Yolo County shall implement Yolo HCP/NCPP AMM5 (Control Fugitive Dust).
BIO-9	Worker Training	Yolo County shall implement Yolo HCP/NCCP AMM6 (Conduct Worker Training).
BIO-10	Nighttime Lighting	Yolo County shall implement Yolo HCP/NCCP AMM7 (Control Nighttime Lighting of Project Construction Sites).
BIO-11	Construction Staging and Temporary Work Areas	Yolo County shall implement Yolo HCP/NCCP AMM8 (Avoid and Minimize Effects of Construction Staging Areas and Temporary Work Area).
CUL-1	Contractor Awareness Training	The County shall retain a qualified professional archaeologist to disseminate a contractor awareness training program to all construction supervisors prior to the start of construction. The program will provide information about requirements for tribal monitoring (see TCR-1) and archaeological monitoring (see CUL-2), notification procedures when potential archaeological or tribal material is discovered (as specified in CUL-3), procedures for communication between construction personnel and monitoring personnel, and information about other treatment or issues that may arise if cultural resources (including human remains) are discovered during Project construction. Subsequent training of construction personnel will be provided as needed by the tribal monitor.
CUL-2	Archaeological Monitoring	All vegetation removal, soil excavation, and activity that has the potential to disturb more than six inches of original ground should be monitored by a qualified professional archaeologist working under the direction of a professional archaeologist that meets the Secretary of the Interior's Professional Qualifications Standards for archaeology. The monitor must be given a minimum of 48 hours' notice of the opportunity to be present during these activities, to observe work activities, and to assist in ensuring that any archaeological resources, if present, are addressed in accordance with applicable law upon discovery. The monitor must be given a reasonable opportunity to inspect soil and other material as work proceeds to assist in determining if resources are present. If potential resources are discovered, a reasonable work pause or redirection of work by the contractor may be requested until the procedures in CUL-3 are implemented. Monitoring will not occur for equipment set-up or tear-down that does not disturb the ground surface

		more than six inches in depth; hydroseeding; paving; placement of imported fill/gravel/rock; restoration; or backfilling of previously excavated areas that were already monitored.
CUL-3	Post-Review Discoveries	If subsurface deposits believed to be cultural or human in origin are discovered during construction, all work must halt within a 100-foot radius of the discovery. A qualified professional archaeologist, meeting the Secretary of the Interior's Professional Qualification Standards for pre-contact and historic archaeologist, shall be retained to evaluate the significance of the find, and shall have the authority to modify the no-work radius as appropriate, using professional judgment. The following notifications shall apply, depending on the nature of the find: • If the professional archaeologist determines that the find does not represent a cultural resource, work may resume immediately, and no agency notifications are required. • If the professional archaeologist determines that the find does represent a cultural resource from any time period or cultural affiliation, they shall immediately notify the USACE and County. The agencies shall consult on a finding of eligibility, and implement appropriate treatment measures, if the find is determined to be an Historical Resource under CEQA or a historic property under Section 106 NHPA. Work may not resume within the no-work radius until the lead agencies, through consultation as appropriate, determine that the site either: 1) is not an Historical Resource under CEQA or a Historic Property under Section 106; or 2) that the treatment measures have been completed to their satisfaction. • If the find includes human remains, or remains that are potentially human, the Contractor shall ensure reasonable protection measures are taken to protect the discovery from disturbance (AB 2641). The archaeologist shall notify the Yolo County Coroner (as per § 7050.5 of the Health and Safety Code). The provisions of § 7050.5 of the California Health and Safety Code, § 5097.98 of the California PRC, and AB 2641 will be implemented. If the Coroner determines the remains are Native American and not the result of a crime scene, the Coroner will notify the NAHC, which then will designate a Native American Most Likely Descendant (MLD) for the project (§5097.98 of the PRC). The designated MLD will have 48 hours from the time access to the property is granted to make recommendations concerning treatment of the remains. If the landowner does not agree with the recommendations of the MLD, the NAHC can mediate (§ 5097.94 of the PRC). If no agreement is reached, the landowner must rebury the remains where they will not be further disturbed (§ 5097.98 of the PRC). This will also include either recording the site with the NAHC or

		the appropriate Information Center; using an open space or conservation zoning designation or easement; or recording a reinternment document with the county in which the property is located (AB 2641). Work may not resume within the no- work radius until the lead agencies, through consultation as appropriate, determine that the treatment measures have been completed to their satisfaction.
TCR-1	Tribal Monitoring	All vegetation removal, soil excavation, and any activity that has the potential to disturb more than six inches of original ground should be monitored by a qualified tribal monitor representing a consulting tribe. The monitor must be given a minimum of 48 hours' notice of the opportunity to be present during these activities and to coordinate closely with the archaeological monitor, to observe work activities, and assist in ensuring that sensitive tribal resources are not impacted. The monitor must be given a reasonable opportunity to inspect soil and other material as work proceeds to assist in determining if resources significant to the tribes are present. If potential tribal resources are discovered, a reasonable work pause or redirection of work by the contractor may be requested. If the tribe cannot recommend a monitor or if the tribal monitor does not report at the scheduled time, then all work will continue as long as the specified notice was provided. Tribal monitoring will not occur for equipment set-up or tear-down that does not disturb the ground surface more than six inches in depth; hydroseeding; paving; placement of imported fill/gravel/rock; restoration; or backfilling of previously excavated areas that were already monitored. Excavated sediment from the river channel will not be subjected to screening; however, any observed cultural materials will be collected and treated in accordance with the unanticipated discovery measures in CUL-3.

2. SUBMITTALS

The Contractor shall furnish a certified weight or load slip to the Project Engineer for each load of excavated material hauled from the site. Loads per site, or tags per site will be recorded by the Contractor for submittal to the Project Engineer.

The Contractor shall furnish submittals to the Project Engineer detailing materials proposed for use for installation of channel bed and bank erosion protection features, temporary erosion control, and seeding and planting including source and qualities of each construction material sufficient to determine that the construction materials specified herein are satisfied.

The Project Engineer will provide the Contractor with a conceptual diversion and dewatering plan. The Contractor shall submit a detailed diversion and dewatering plan to the Project Engineer prior to the start of construction.

3. LINES AND GRADES

3.1 Survey Control

The Project Engineer will furnish the following survey points for the project site: Horizontal Control Point(s). The Contractor shall establish all other lines and grades.

All ground surfaces shall be finished to uniform grades and slopes as per the drawings and in such a manner as to drain properly and be free from depressions, which may cause areas of standing water. Conforms shall form a smooth, pond-free, transition between existing and new roadway. All scars resulting from construction operations shall be repaired, with the ground surface graded to blend with adjacent contours of finished or existing ground. Compaction of such repaired areas shall be in accordance with these Specifications.

3.2 Tolerances

All slope surfaces shall be graded to a tolerance of one-tenths (0.10) foot above or below the elevation and/or grades shown on the drawings. Slopes shall be in accordance with the lines and grades shown on the drawings.

4. EARTHWORK

4.1 General

The work performed under this section shall consist of furnishing all labor, materials, tools, transportation, supplies, equipment, appurtenances, fuel and power, unless specifically excepted, necessary or required to perform the work. These include but are not limited to: site preparation, excavation, soil stockpiling, fill placement, backfill, compaction, post-grading surface preparation for seeding and planting, disposal or excavated materials, and tree removal, as shown on the drawings and described in the Specifications.

4.2 Work Sequence

The general sequence of work shall be as follows:

1. Preparing haul routes.
2. Site Preparation including clearing, grubbing, stripping fill areas, and tree removal.
3. Excavating areas of cut and prepare surface for seeding and planting.
4. Over-excavating right bank to place fill and RSP.
5. Over-excavating trench at toe of slope to place 1-ton boulders

6. Excavation and stockpiling excavated material from borrow pit.
7. Compacting areas to receive fill.
8. Placement of fill, RSP, and 1-ton boulders.
9. Dress repaired slope with topsoil by water jetting
10. Installing erosion control fabric.
11. Seeding and planting.
12. Site Cleanup & Restoration.

4.3 Clearing, Grubbing, and Stripping

4.3.1 General

Clearing, grubbing, and stripping shall be performed in advance of any excavation or fill placement within the project site. Under no circumstances shall cleared, grubbed, stripped materials or fill materials be disposed of by dumping into adjacent waterways.

4.3.2 Clearing

All brush, vegetation, rubbish, debris, and foreign material shall be removed within the limits of the project work area. A reasonable effort shall be made not to disturb vegetation outside the work area along with trees have been identified to remain. Vegetation to be removed within the clearing limits shall consist of all stumps, grass, weeds, brush and vines, and buried logs.

4.3.3 Stripping and Grubbing

Vegetation to be removed within the clearing limits shall consist of all stumps, grass, weeds, brush and vines, and buried logs. Stripping shall consist of the removal of vegetation and dense root mass within the topsoil as required. Grubbing includes removing roots ½-inch or more in diameter to a minimum depth of 1.5 feet below existing ground surface.

4.3.4 Removal and Disposal of Cleared Material

The cleared material shall be stockpiled on the crown of the levee, outside of the work area, as designated on the plans or as directed by the District or the Project Engineer. All cleared, grubbed, and stripped materials must be handled or disposed of in accordance with existing Federal, State and County regulations governing such activities. All burning permits and air quality requirements are the Contractor's responsibility. Stockpiled vegetation (grasses, weeds, and minor vegetation) may be spread in a thin lift (maximum 12-inch thickness) over the finished slopes after the earthwork has been completed. Grubbed material shall be completely removed and disposed.

4.4 Earthwork and Excavations

Channel, riparian, and floodplain topography shall be constructed to meet the grades exhibited in the Design Plan Sheets. Design grades should be attained to within +/- 0.1 ft. To the extent practicable, blend, cut and fill slopes into existing topography. Distribute routing of earthmoving equipment to avoid over compacting upper 3 feet of terrace embankments. Produce a natural-looking final surface in the dimensions of the Design Plan Sheets with no ruts deeper than 0.1 feet.

Perform excavations in side channel areas with a bladed bucket, or other means which do not disturb the proposed channel subgrade.
Shape, trim, and finish cut slopes to conform with lines, grades, and cross-sections shown, with proper allowance for topsoil or slope protection, where shown.

Excavate bank slope fill material from the borrow pit footprint area indicated in the plans. Borrow pit excavation should proceed no deeper than 3 feet below existing grade. Before completion of project, side slopes of borrow pit should be graded to a slope equal to or shallower than 10:1 (H:V).

Remove stones and rock that are loose and may roll down slope unless embedded in slope greater than 60 percent of diameter. Remove exposed roots from cut slopes.

4.5 Stockpiling Excavated Material

Stockpile excavated material that is suitable for use as fill or backfill until material as needed.

Post signs indicating proposed use of material stockpiled. Post signs that are readable from all directions of approach to each stockpile. Signs should be clearly worded and readable by equipment operators from their normal seated position.

Confine stockpiles to areas within the LOD. Do not obstruct roads or streets.

Do not stockpile excavated material adjacent to channelized features and other excavations, unless excavation side slopes and excavation support systems are designed, constructed, and maintained for stockpile loads.

Do not stockpile excavated materials near or over existing facilities, adjacent property, or completed Work, if weight of stockpiled material could induce excessive settlement.

4.6 Disposal of Soil

Dispose of excavated materials, which are unsuitable or exceed quantity needed for fill or backfill, offsite in disposal locations as approved by County of Yolo. The Contractor shall obtain all permissions and applicable permits necessary to dispose of the excess excavated materials.

Dispose of debris resulting from removal of organic matter, trash, refuse, and junk offsite in disposal locations as approved by County of Yolo.

4.7 Fill and Backfill

All fill material shall be free from rocks larger than 6 inches, from roots and other organic matter, ashes, cinders, trash, debris, and other deleterious materials. For the soil fill placed over RSP, material containing more than 10 percent gravel or cobble particles is unacceptable unless otherwise approved by the Project Engineer.

Keep placement surfaces free of water, debris, and foreign material during placement and compaction of fill and backfill materials.

Place and spread fill and backfill materials in horizontal lifts of uniform thickness, in a manner that avoids segregation, and compact each lift to specified densities prior to placing succeeding lifts. Slope lifts only where necessary to conform to final grades or as necessary to keep placement surfaces drained of water.

Final lines and grades will be constructed to a tolerance of 0.1 foot unless dimensions or grades are shown or specified otherwise.

Grade to establish and maintain slopes and drainage as shown. Reverse slopes are not permitted.

Settlement: Correct and repair any subsequent damage to channel bed or bank protection structures caused by settlement of fill or backfill material.

4.7.1 Soil Cover Fill

Backfill with earth fill to lines and grades shown, with proper allowance for topsoil thickness where shown. Place in lifts of 6 -inch maximum thickness and compact each lift to minimum 95 percent relative compaction as determined in accordance with ASTM D698 (Test Method for Compaction Characteristics of Soil (12,400 ft-lbf/ft3 (600 kN-m/m3))) or as approved by the Project Engineer.

Unless otherwise shown, place earth fill as follows:

- Maximum 6-inch-thick lifts.
- Place and compact fill across full width of embankment.
- Compact to minimum 85 percent relative compaction as determined in accordance with ASTM D698 (Test Method for Compaction Characteristics of Soil Using (12,400 ft-lbf/ft3 (600 kN-m/m3))) or as approved by the Project Engineer.

4.7.2 Native Gravel Fill

Backfill with excavated gravels fill to lines and grades shown, with proper allowance for RSP and topsoil thickness where shown. Place in lifts of 18-inch maximum thickness and compact each lift by track-walking over lift with heavy equipment or as approved by the Project Engineer.

4.8 Post-Grading Dressing and Surface Preparation

After RSP is installed, the fill slope will be dressed with minimum 12 inch topsoil cover. This 12-inch cover should be measured beginning at the rough line along the top edge of the RSP layer and does not include void space. This topsoil should be hydraulically jetted into the RSP voids and track walked to compact to extent practical, as approved by Project Engineer. Areas designated for seeding and planting shall be ripped. The contractor shall perform seeding and mulching after ripping. The intent is to accommodate seeding to proper depth, to provide sufficient infiltration of precipitation for soil storage of moisture, and to decrease runoff and erosion. On slopes, ripping along contours shall be accomplished to slow runoff and promote infiltration. If methods used to rip surfaces result in furrows, furrow height shall be no more than 6 inches tall and shall be oriented parallel to the river and downslope to the greatest degree possible, such that direct surface runoff will drain back to the river.

5. INSTALLATION OF CHANNEL BED AND BANK EROSION PROTECTION FEATURES

5.1 Implementation Criteria

Channel bank protection features provide stability and habitat. These features shall be constructed during applicable work period restrictions, if required by permits. Examples of in-channel features include, but are not limited to: rock toe protection, vegetated rock toe protection, channel bed material, RSP, RSP fabric, and erosion control fabric. These are located at upstream and downstream ends of the project site, along the channel toe, on the channel banks, or other areas.

5.2 Rock Toe Protection Installation

Rock shall be native to the Cache Creek watershed, with a specific weight of no less than 135 pounds per cubic foot (dry). Rock shall be hard and durable stone free from fractures, bedding planes, pronounced weathering, and earth or other adherent coatings.

Rock toe protection shall be composed of angular stones sized as indicated in Table 2.

Table 2: Rock Toe Protection Sizing

Feature	Minimum Diameter (inches)
Toe Rock	48

Construction of channel banks shall occur according to Design Plan Sheets and specifications in Section 4 of these Specifications prior to placement of rock toe protection.

The placement of rock toe protection shall occur as shown on the Design Plan Sheets. The larger stones shall be placed as "footer stones" with rock crest elevations flush with the toe of the bank slope. Stones shall be embedded to a depth of 24 inches into the channel banks. Crest rock and footer rock elevations are as indicated on the tables on the Design Plan Sheets.

Place stones to minimize voids. Smaller pieces shall generally fill voids between larger pieces without either excess or deficiency of one or more sizes of stone.

Backfill behind structure to grades shown, as specified in Section 4.7 of these Specifications.

The surface elevation of completed rock toe installations shall protrude from bank slope elevations. The plus or minus tolerance of the surface of the finished rock toe protection structures shall be 0.1 feet from the lines and grades shown on the Contract Drawings when measured perpendicular to the exterior surface of the stonework.

Placed material not conforming to the specified limits shall be removed and replaced at no additional cost.

5.3 RSP Installation

The contractor shall install the RSP per Caltrans Standard Specifications, Section 72.

5.4 RSP Fabric and Erosion Control Fabric Installation

The RSP fabric and erosion control fabric shall be installed as shown on the Design Plan Sheets. Locations or areas of the materials may be changed slightly due to construction limitations, rock and biotechnical structure locations, or other limiting factors with approval by the Owner's Representative. In general, RSP fabric and erosion control fabric shall be required on the disturbed slopes of the right bank. Installation procedures, if not specified herein, shall be in accordance with the manufacturer's specifications.

Secure RSP fabric and erosion control fabric by stapling the panels and seams in accordance with the manufacturer's specifications. *Overlaps at seams should be 12 inches minimum or manufacturer's specification, whichever is greater.*

Avoid damage to the RSP fabric and erosion control fabric as a result of the installation process. Should the fabric become damaged during installation, a fabric patch shall be placed over the damaged area extending three (3) feet beyond the perimeter of the damage. The patch shall be held in place by 6-inch staples placed at all corners and six (6) inches apart along the edges and 12 inches apart in the field.

The Contractor shall maintain the areas covered with RSP fabric and erosion control fabric until final acceptance of the project. Prior to final acceptance, any damaged areas shall be reshaped as necessary with the RSP fabric and erosion control fabric satisfactorily repaired or replaced.

5.5 Vegetated Rock Toe Protection Installation

Install rock toe elements and structures as indicated Design Plan Sheets and specifications in Section 5 of these Specifications. In general, the following installation methods should be employed:

Installation of vegetated rock toe protection should be accomplished by:

- Place lowest layer of RSP as indicated on Design Plan Sheets.
- Install first row of live stakes at spacing indicated on Design Plan Sheets making the smallest possible incisions in RSP fabric to facilitate installation.
- Carefully backfill above first row of live stakes ensuring no damage to stakes occurs.
- Repeat process for subsequent rows of live stakes.
- Live stakes should protrude 8 inches to 12 inches beyond the face of the slope.
- Live stakes should be installed approximately perpendicular to finished grade.

6. TEMPORARY EROSION CONTROL AND IMPLEMENTATION

6.1 General Requirements

At a minimum, the Contractor shall install and maintain temporary erosion and sediment control measures in accordance with the manufacturer's recommendations as required by these Technical Specifications.

The Contractor shall implement additional measures as needed to control erosion from exposed soil surfaces and to reduce sediment runoff from the project site. These measures shall be implemented and maintained through the construction period.

During the construction period, the Contractor shall maintain onsite sufficient quantities of erosion and sediment control materials to be installed in the event that rain is forecast, and for rapid response to failures or emergencies. The Contractor shall consult the local weather forecast daily.

The Contractor shall actively implement best management practices (BMPs) to minimize turbidity and siltation and prevent erosion and the discharge of sediment where it may pass into waters of the state (Fish & G. Code § 89.1), the stream bed, bank, or channel (including but not limited to dry, ponded, flowing, or wetland areas), drainages, lakes, other sensitive habitat during project activities. Precautions shall include, but are not limited to: pre-construction planning to identify site specific turbidity and siltation minimization measures; best management erosion control practices during project activity; and settling, filtering, or otherwise treating silty and turbid water prior to discharge into a stream or storm drain. This may require the placement of silt fencing, coir

logs, coir rolls, straw bale dikes, or other siltation barriers so that silt and/or other deleterious materials are not allowed to pass to downstream reaches.

6.1.1 Monitoring

BMPs shall be monitored daily and repaired if necessary to ensure maximum erosion and sediment control.

6.1.2 Implementation

Passage of sediment beyond the sediment barrier(s) is prohibited. If any sediment barrier fails to retain sediment, corrective measures shall be taken. The sediment barrier(s) shall be maintained in good operating condition throughout the construction period and the following rainy season. Maintenance includes, but is not limited to, removal of accumulated silt and/or replacement of damaged silt fencing, coir logs, coir rolls, and/or straw bale dikes. Upon the CDFW's determination that turbidity/siltation levels resulting from project-related activities constitute a threat to aquatic life, activities associated with the turbidity/siltation shall be halted until effective CDFW-approved control devices are installed or abatement procedures are initiated.

6.2 Coir/Straw Wattles

Coir/straw wattles shall be installed on all areas disturbed during construction.

Install coir/straw wattles subsequent to completion of fine grading in an area, and in all cases by October 1. Maintain coir/straw wattles throughout the construction period. Following each rain event, inspect coir wattles and replace anchoring stakes and/or coir wattles as needed.

Install coir wattle in accordance with manufacturer's recommendations and the following requirements:

- Embed the wattle a minimum of 4 inches below grade. Install wattles by excavating a 4-inch-deep by 10-inch-wide trench, placing the wattle into the trench, and backfilling with soil or gravel, as needed for proper anchoring.

- Stake the wattle at three (3) feet on center. Install additional stakes as needed to completely anchor the wattle.

- Align wattle installations along elevation contours.

- Turn last 10 feet of wattle at right angles in upslope direction (in "L" shape), to allow for capture and dispersion of surface runoff.

6.3 Silt Fences

Silt fences shall be used and installed as necessary during the project construction period as a temporary measure for sediment and erosion control.

At a minimum, install silt fences to enclose soil stockpiles if rain is forecast and at the perimeter of the grading area.

Silt fence placement to be coordinated and approved by the Project Engineer.
Install silt fence in accordance with manufacturer's recommendations.

7. MATERIALS

7.1 General

The Contractor shall furnish all equipment, material, parts, supplies, and tools necessary for the performance of the work in this contract unless otherwise specified. Materials and supplies procured by the Contractor shall meet the specifications, standards listed in these contract documents. The Project Engineer may at any time take and test samples of materials to be used in the work performed under this contract. The Contractor shall assist the Project Engineer as necessary to obtain the samples and at no additional cost to the Government.

7.2 Seeding, Live Cutting, and Planting Materials

7.2.1 Seeding Material

Seed shall be procured within Yolo County as approved by the Project Engineer. The original source of the seed collection must fall within Yolo County. Records of purchase locations shall be maintained and provided to the Project Engineer before seeding.

Seed will be tested to demonstrate the purity and germination for percent PLS.

Table 3, Table 4, Table 5, and
provide the bulk seed rates required for all habitats. The seeds shall be stored by species prior to prepping the seed mixes for each habitat area. The Project Engineer shall review the amount of seed collected as well as the seed test information and may revise the bulk rates and/or seed mixes for each habitat area.

Once collection and test information is reviewed by the Project Engineer, the seed mixes will be supplied premixed to the bulk rates in Table 3, Table 5, and
(or revised tables as per previous specification) before delivery. All bags will have tags declaring each species' bulk weight, purity and germination, and total weight of the contents.

7.2.2 Live Cutting Plant Material

The Contractor shall be responsible for furnishing all of the cutting material in the quantities specified for each species in Table 4.

Cuttings shall be procured within Yolo County as approved by the Project Engineer to preserve regional genetic diversity.

Collection of cuttings shall be made no more than 48 hours prior to installation on the site and shall be soaked in fresh water and moist until installation.

Cuttings for willow species shall be made from branches between 3/8 and 5/8-inch in diameter and shall be between 6-8 feet in length.

7.2.3 Native Grass Seed Mix

The native grass seed shall be composed of the species as stated in Table 3 through
.

The Contractor shall be responsible for delivery and maintenance of native grass seed mix prior to installation.

7.3 Rock Materials

Rock used for construction of Rock Toe Protection and Rock Slope Protection (RSP) shall be obtained by the contractor from a suitable quarry. Rock will be native to the Cache Creek watershed, and conform to the specifications stated in Section 5.2 of this document.

RSP shall consist of Caltrans Class III RSP as defined by the Caltrans Standard Specifications, Section 72.

7.4 Fabric Materials

RSP fabric shall consist of Caltrans Class 8 RSP fabric as defined by the Caltrans Standard Specifications, Section 96. The contractor shall be responsible for furnishing the RSP fabric.

Erosion control fabric shall consist of 100% biodegradable woven coir fabric. Manufacturer: Nedia KoirWrap^{TM} 1200 or approved equal. The contractor shall be responsible for furnishing the erosion control fabric.

7.5 Temporary Erosion Control

The Contractor shall not use temporary or permanent erosion control devices containing plastic netting, including photo- or bio-degradable plastic netting. These items are commonly found in straw waddles (fiber rolls) and erosion control blankets.

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. 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.

Silt fences shall consist of 100% biodegradable woven fabric and wooden or steel posts three (3) feet high minimum (does not include embedment). The contractor shall be responsible for furnishing the silt fence materials.

Coir/straw wattles shall consist of 100% biodegradable straw or coir and have a 10-inch minimum diameter. Manufacturer: North American Green Sediment STOP, or approved equivalent. The contractor shall be responsible for furnishing the coir/straw wattle materials.

7.6 Product Delivery, Handling, and Storage

Products shall be delivered to the designated Contractor's use area. Materials storage and stockpiling will occur on the project site within the LOD, or as directed by the Project Engineer. The Contractor shall schedule a joint inspection of products with the Project Engineer.

Products shall be stored in unopened manufacturer's standard containers bearing original labels showing quantity, analysis, and name of manufacturer and protected from weather or other conditions that would damage or impair the effectiveness of the product.

The Contractor shall furnish all equipment, material, parts, supplies, and tools necessary for the performance of the work in this contract unless otherwise specified.

Plants shall be inspected by a representative of the Contractor and the Project Engineer upon delivery of the plants to the site. All rejected plants shall be removed from the project site immediately.

Plants shall be protected from damaging sun and wind while being stored on the project site and maintained in a suitable condition until planting to avoid drying. Plants staged at the project site shall be watered daily to maintain good moisture in the root ball until planted.

Stored plants shall be inspected by the Project Engineer each day before planting to ensure that the plants remain in good condition. Any plants that have become dry, brittle, or yellow during storage shall be rejected and replaced at the Contractor's expense with plants approved by the Project Engineer.

Seed material shall be stored in airtight containers in a cool, dry place safe from fire, humidity, and predation by rodents and insects.

8. COMPACTION REQUIREMENTS

8.1 Relative Compaction

Compaction shall be performed using compacting rollers, pneumatic or vibratory rollers or other suitable equipment as specified herein. Fill shall be compacted to 95% relative compaction. ASTM D-1557 shall be used to determine reference value for optimum moisture content and relative compaction.

8.2 Moisture Content

All fill materials shall be compacted with a moisture content within the limits of 3 percentage (3%) points above optimum to 2 percentage (2%) points below optimum moisture content as determined by ASTM D-1557. The moisture content of existing soil or fill shall be maintained by sprinkling or other approved means, until covered by a lift of fill, or aggregate base.

Material may require moisture conditioning (increase or decrease the moisture content) prior to placement and compaction. The Contractor shall disk, aerate, or add water and work soil to achieve the recommended moisture content. The cost to moisture condition (either decrease or increase the moisture content) shall be included in the unit cost for project fill materials.

9. FIELD QUALITY CONTROL AND MATERIALS TESTING

General construction shall be performed under the observation and testing of the District and the Project Engineer to assist in determining if the work conforms to these Specifications. The observation and testing will be as frequent as the District or the Project Engineer considers necessary. The Contractor shall cooperate with the District and the Project Engineer in all aspects of the observation and testing. The Contractor shall remove surface material and render such assistance as necessary to facilitate sampling and testing. The Contractor shall take such precautions as necessary to protect the District and the Project Engineer from injury due to the Contractor's operations during the observation and testing operations.

The District and the Project Engineer shall be notified at least 24 hours prior to required observation and testing. Any materials placed or improvements constructed in the absence of the Project Engineer's approval to proceed shall be presumed to be defective, and at the discretion of the Project Engineer, shall be removed and replaced at no cost to the Project.

Field and laboratory observation and testing performed by the Project Engineer shall be at no cost to the Contractor. When observation and testing are required as a result of initially failing test results, improper moisture content, inadequate compaction, unsuitable material, or for other causes necessitating re-observation and retesting, the re-observation and retesting shall be at the expense of the Contractor.

10. EQUIPMENT USE

10.1 Weight of Equipment

Equipment to be used on levee crown roads outside the limits of work shall be limited to a maximum gross loaded axle weight of 16,000 pounds.

10.2 Equipment Speed

The maximum operating speed of all equipment used on the property shall be a maximum of 15 mph. Speed limit signs shall be furnished and installed in compliance with Caltrans and Federal Highway Administration (FHWA) Manual on Uniform Traffic Control Devices (MUTCD) standards for temporary traffic control devices or elements.

11. ACCESS AND HAUL ROADS

The Contractor may use any of the designated access roads, haul roads, and perimeter levee roads as shown on the construction drawings. Other haul roads may be used subject to the approval of the District or the Project Engineer. The Contractor shall keep the haul and levee roads well-watered and graded during construction. In areas where excessive dust, caused by construction operations, is a nuisance to property, the Contractor shall implement dust control per Mitigation Measure BIO-8.

As a finish operation, the Contractor shall blade and grade the haul and levee roads to their pre-project condition, subject to approval by the Project Engineer. Any fill material used to maintain the haul and levee roads shall be subject to approval by the District or the Project Engineer. On a daily basis, the Contractor shall coordinate with the District or the Project Engineer as to the location and estimated quantity of fill material or aggregate base to be placed on haul and perimeter levee roads. The District or the Project Engineer shall approve the location and amounts of fill material. Any fill material placed without approval is subject to rejection. Payment for fill material used for haul and levee road maintenance will be made at the contract unit price per ton for Class 2 AB or the material used, whichever is less.

12. SEEDING AND PLANTING

12.1 Planting Plan

The Contractor shall consult with the Project Engineer on the layout of planting material and shall flag individual plant locations identified in the field with pin-flags that will be color coded as to plant species and mark the outline of the vegetation communities to guide the application of the specified seed mixes.

The Project Engineer shall review the plant flagging placement before planting to confirm that the pin flags have been placed at the appropriate elevations relative to the surface water and/or

groundwater for each species and the outlines for the vegetation communities to guide application of the specified seed mixes before seeding.

Plant installation schedule shall proceed in the following steps:

- Plant layout shall be marked in the field with pin flags; depending on the species, groups of plants may be marked with a single flag to indicate the group. Vegetation community seed mix areas shall be marked in the field with landscape spray paint.
- Planting holes for container plants shall be dug.
- Cutting material for the willow riparian scrub shall be installed.
- Seed shall be applied after cutting material installed but before container plants are installed.

The specified plant palettes for each area are designated below in Table 3 through
.

Table 3: Left Bank (1.7 Acres) Plant List

Botanical Name	Common Name	Percent (%) of Bulk Seed Mix	Bulk Seed Rate per Acre
Leymus triticoides	Creeping wildrye	50%	30-40 lbs/ac
Artemisia douglasiana	Mugwort	25%	
Grindelia camporum	Gumplant	25%	

Table 4: Left and Right Bank Toe of Slope (0.7 Acres) Plant List

Botanical Name	Common Name	Container Size	Plant Spacing
Salix lasiolepis	Sandbar willow	Live stakes	3 rows spaced 4 ft vertically up slope. Plantings 5 ft on center in each row.

Table 5: Right Bank Under Coir Netting (0.5 Acres) Plant List

Botanical Name	Common Name	Percent (%) of Bulk Seed Mix	Bulk Seed Rate per Acre
Leymus triticoides	Creeping wildrye	50%	30-40 lbs/ac
Artemisia douglasiana	Mugwort	25%	
Grindelia camporum	Gumplant	25%	

12.2 Live Cutting Material Plant Installation

All live cuttings are to be planted to the following specifications:

- Planting holes shall be made with a backhoe to a depth to accommodate 2/3 of the length of the cutting (4-6 feet deep).

- Cuttings shall be dipped in a root hormone and vitamin powder immediately prior to planting.

- Cuttings shall be set vertical in the planting hole making sure right side up and so that 2/3 the length of the cutting is in the ground.

- A watering basin shall be provided around each cutting from 18 – 24 inches in diameter.

- Watering basins shall be filled with water twice after planting.

12.3 Seeding Material

Hydroseeding: The right bank slope under the coir netting shall be seeded using a two-step hydroseeding technique. The first step will consist of a hydraulic application of a slurry mixture containing water, cellulose wood fiber, seed, and AM fungi as follows:

- 500 lbs/ac of virgin cellulose wood fiber

- 60 lbs/ac (approximately 3,500,000 live propagules/ac) of AM fungi

- Specified seed mix for each habitat

- The second step shall consist of the following slurry mixture:

- 1,500 lbs/ac of virgin cellulose wood fiber

- 160 lbs/ac organic M-binder

Once the seed and AM inoculums are added to the mixing tank, application of the mixture must be made within one hour. If the temperature will exceed 90 degree Fahrenheit, the second step must be applied within 3 hours of the application of the first step.

Drill-Seeding: The left bank will be drill-seeded with native seed mix per Table 3.

Drill-seeding equipment must be a rangeland drill seeder with a ring roller attached. The seeder must be equipped with a fluffy seed box with agitators to prevent bridging and clogging. The seed box must have metal row dividers and individual box adjustments to meter the seed flow.

Apply drill seed as follows:

- Drill seed in rows no greater than 8 inches apart and to a depth of 1/4 inch.

- Make a minimum of 2 passes in different directions with seeding equipment to reduce any uniform row appearance.

12.4 Site Restoration

All areas and access points exposed or disturbed during project activities shall be restored using conditions as set forth in Section 14. Seeded areas shall be covered with broadcast straw and/or seeded erosion control blankets.

13. PLANT MAINTENANCE

The Contractor shall be responsible for post-construction plant maintenance for 2 years. The plant maintenance criteria and activities that shall take place during the plant maintenance period are described in this section.

13.1 Irrigation

All plants on the right bank and the willows on the left bank shall be watered via a water truck. The water truck may utilize the levee road located along the top of the right bank. Frequency of waterings shall be determined by the contractor in the field after the plant installation, but shall be, at a minimum, once a month until the start of the rain season begins. The plants shall be monitored by the contractor and irrigation frequency shall be adjusted as necessary to ensure the plants are properly watered.

13.2 Survivability

The survival rate of the plants based on a percentage of total original project cover shall be as follows:

- 50% for seeded species

Live willow stakes do not have a specific survival criteria, but shall be maintained with adequate watering to ensure survival through the onset of winter rains.

If the plant survival rate is less than these criteria when monitored June through August in the year following planting, plants shall be replanted in October of the same year to match the as-built project planting plan.

13.3 Weed Management

Weeds shall be managed during the plant maintenance period. Weeds shall be defined as any of the priority non-native and invasive species within the Cache Creek Resources Management Plan (CCRMP) area listed in Table 7.

Table 7: Current (2021) table of priority non-native and invasive species within the CCRMP area[1]

Common Name	Scientific Name
Arundo	Aduno donax
Bull thistle	Cirsium vulgare
Himalayan blackberry	Rubus armeniacus
Italian thistle	Carduus pycnocephalus
Milk thistle	Silybum marianum
Perennial pepperweed	Lepidium latifolium
Poison hemlock	Conium maculatum
Ravenna grass	Saccharum ravennae
Tamarisk	Tamarix spp.
Tree of heaven	Ailanthus altissima
Tree tobacco	Nicotiana glauca
Yellow starthistle	Centaurea solstitialis
Bared goatgrass	Aegilops triuncialis
Canary grass	Phalaris aquatica
Common teasel	Dipsacus fullonum
Edible fig	Ficus carica
Fennel	Foeniculum vulgare
Medusahead	Elymus caput-medusae
Purple loosestrife	Lythrum spp.
Purple starthistle	Centaurea calcitrapa
Water primrose	Ludwigia spp.
Yellow flag iris	Iris pseudacorus
Eucalyptus	Eucalyptus spp.
Fan palm	Washingtonia robusta
Oleander	Nerium oleander
Pampas grass	Cortaderia selloana
Stinkwort	Dittrichia graveolens

14. CLEANUP

14.1 General

Throughout all phases of construction, including suspension of work, and until final acceptance of the project, the Contractor shall keep the premises occupied by them in a clean and orderly condition, disposing of refuse in a manner satisfactory to the District and the Project Engineer and in accordance with existing governmental regulations.

[1] https://www.yolocounty.org/home/showpublisheddocument/72535/637801722880900000

14.2 Detailed Requirements

Excess or unsuitable earth or backfill material, or other waste material shall be removed from the jobsite and disposed of by the Contractor at no additional cost to the Project, unless otherwise directed by Yolo County or the Project Engineer. Spills resulting from hauling operations along or across existing waterways, streets, roads, ramps, or ferry decks shall be removed immediately by the Contractor.

All gutters and roadside ditches shall be clean and free from any obstructions. Any deviation from this practice shall have the prior approval of the Project Engineer. Any areas of the landside levee slope and existing levee road that are disturbed shall be restored to at least the condition that existed prior to construction or better at no additional cost to the Project.

14.2.1 Final Cleanup of Premises and Work Site

As a final condition of acceptance of the work, the Contractor shall carefully cleanup the work and the premises, remove all temporary structures built by them or for them, remove all surplus construction materials, debris, and rubbish of all kinds from the grounds, which they have occupied, and leave them in a neat condition. The entire project shall be left in a condition that will present a pleasing appearance as viewed in general and in a manner satisfactory to the Project Engineer.

14.3 Completion

The Contractor, upon completion of all work, shall restore the areas surrounding the work sites and project sites to a condition as good as or better than existed prior to the commencement of work.

14.4 Payment

Full compensation for all costs incurred and the work covered in this section shall be considered as included in the unit price according to the Bid Item "Mobilization/Demobilization" as set forth in the Contractor's bid, and no additional or separate compensation will be allowed therefore.

15. MEASUREMENT

15.1 Imported Rock and Caltrans Class III RSP

15.1.1 General

All imported rock and Caltrans class III RSP materials will be measured for payment by the number of tons (2,000 pounds) of imported material placed and accepted in the completed work. Tonnage will be determined by either displacement measurement or scale weight measurement.

15.1.2 Scale Weight Measurement

Scales used for measurement shall be public scales. Weighing shall be at the point nearest the work at which a public scale is available. Scales shall be standard truck scales of the beam type and shall be equipped with the type registering beam which imprints the weight on the ticket and an "over and under" indicator and be capable of accommodating the entire vehicle. All trucks delivering material must have a certified weight tag.

15.1.3 Weigh Bills and Delivery Tickets

Copies of certified weigh bills or delivery tickets shall be submitted to the Project or its designated representative at the time of delivery. The Contractor shall furnish the Project or its designated representative, scale tickets for each load of material weighed; these tickets shall include tare weight; identification mark of each vehicle weighed; and date, time, and location of loading. Tickets shall be furnished at the point and time individual loads arrive at the work site. A master log of all vehicle loadings shall be furnished for each day of loading operations. The master log of each day's loading operation will be delivered to the site on the following day.

15.2 Excavation, Native Gravel Fill Placement, and Soil Cover Fill Import and Placement

15.2.1 Fill Measurement by Volume

All excavated material, native gravel fill material, and soil cover fill import and placement will be measured for payment by the number cubic yards of material excavated or placed and accepted in the completed work. Volume will be determined by survey.

15.2.2 Survey Measurement

The determination of earthwork quantities will be based upon field cross sections taken at no less than 30-foot intervals perpendicular to the embankment. Contractor is responsible for conducting surveys to determine volumes and these may be checked or duplicated by the Project Engineer. Surveys should be conducted:

- Prior to earthmoving to establish baseline elevations.
- After native gravel fill placement to determine volume of both borrow pit excavation and native gravel fill placement.
- After Class II RSP placement
- After soil cover fill placement to determine volume of soil fill.

16. PAYMENT

16.1 Mobilization/Demobilization

The contract lump sum price paid for mobilization shall not exceed five percent (5%) of the total bid and shall include obtaining all bonds, permits, and licenses and full compensation for furnishing labor, materials, tools, equipment, and incidentals, and for doing all work involved in mobilization as specified herein. Payment for mobilization will be prorated as follows:

- When the Monthly Progress Payment Request of the amount earned, not including the amount earned for mobilization, is five percent (5%) or more of the original contract amount, fifty percent (50%) of the contract item price for mobilization will be paid for mobilization.

- When the Monthly Progress Payment Request of the amount earned, not including the amount earned for mobilization, is twenty-five percent (25%) or more of the original contract amount, seventy-five percent (75%) of the contract item price for mobilization will be paid for mobilization.

- When the Monthly Progress Payment Request of the amount earned, not including the amount earned for mobilization, is fifty percent (50%) or more of the original contract amount, eighty-five percent (85%) of the contract item price for mobilization will be paid for mobilization.

- The remaining fifteen percent (15%) or amount due for mobilization will be paid for after completion of all contract work; removal from the site of all plant and equipment; final cleanup of the project; and acceptance therein.

- Payment for Mobilization and Demobilization will be paid at the lump sum contract unit price. Payment shall constitute full compensation for contractor mobilization/demobilization of necessary equipment to support construction activities associated with in-channel stabilization actions, as specified in the specifications and plans.

16.2 Temporary Erosion Prevention Plan and Implementation

Payment for the temporary erosion prevention plan and implementation, measured as specified, will be made at the contract lump sum unit price for "Temporary Erosion Prevention Plan and Implementation", which price shall include all costs of developing a Stormwater Pollution Prevention Plan (SWPPP), submittal to the Owner's Representative for approval, and implementation of the SWPPP including: installing, inspecting, and maintaining all supplemental stormwater BMPs that the Contractor deems necessary for SWPPP compliance during construction and throughout the erosion control maintenance period.

16.3 Clearing and Grubbing

Payment for clearing and grubbing will be paid for at the lump sum contract unit price. Payment shall constitute full compensation for excavation, ripping, scarifying, loading, hauling, disposing, and all other incidental expenses to clear, grub, and prepare areas to complete the work in these specifications.

16.4 Excavation of Borrow Pit

Payment for excavation, measured as specified, will be made at the contract unit price per cubic yard for "Excavation," which price shall include all cost of subgrade preparation and excavation of material as specified herein.

16.5 Native Gravel Fill Placement

Payment for fill, measured as specified, will be made at the contract unit price per cubic yard for "Native Gravel Fill Placement," which price shall include all cost of subgrade preparation, placing the fill material, and compaction as specified herein.

16.6 Soil Cover Fill Import and Placement

Payment for fill, measured as specified, will be made at the contract unit price per cubic yard for "Soil Cover Fill Import and Placement," which price shall include all related costs including, but not limited to: imported fill material procurement, transport, subgrade preparation, and placement/compaction of the imported soil fill material.

16.7 Caltrans Class III RSP

Payment for Class III RSP, measured as specified, will be made at the contract unit price per ton for "Caltrans Class III RSP," which price shall include all cost of procuring Caltrans Class III rock slope protection and placing the material in accordance with the Design Plans.

16.8 Caltrans Class 8 RSP Fabric

Payment for Caltrans Class 8 RSP fabric, measured as specified, will be made at the contract unit price per square yard for "Caltrans Class 8 RSP Fabric," which price shall include all cost of the purchase, fabric staking, installation, trench excavation, backfill and compaction.

16.9 Erosion Control Fabric

Payment for erosion control fabric, measured as specified, will be made at the contract unit price per square yard for "Erosion Control Fabric," which price shall include all cost of the purchase, fabric staking, installation, trench excavation, backfill and compaction.

16.10 1-Ton Rock

Payment for 1-ton rock, measured as specified, will be made at the contract unit price per ton for "1-Ton Rock," which price shall include all cost of the purchase, transportation, excavation, installation, backfill and compaction.

16.11 Revegetation

Payment for revegetation, measured as specified, will be made at the contract lump sum unit price for "Revegetation," which price shall include all cost of the purchase of live stakes and seeding, transportation, proper care and handling, excavation, installation of live stakes, application of seeding, irrigation design, irrigation water source establishment, and irrigation installation.

*****END OF TECHNICAL PROVISIONS*****