Construction Specifications

Seiad Creek Habitat Enhancement Project
Siskiyou County, California

for
Karuk Tribe of California

January 29, 2016
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GeoEngineers

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Construction Specifications
Selad Creek Habitat Enhancement
Siskiyou County, California

File No. 16797-001-01
January 29, 2016

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APPENDICES

Appendix A. Bid Schedule
SECTION 2100 ENVIRONMENTAL CONTROLS—PERMIT COMPLIANCE—BEST MANAGEMENT PRACTICES

Part 1 General

1.01 Payment
   A. Payment and units as indicated on the Bid Schedule.
   B. Costs for damages and work stoppage resulting from failure to adequately implement proper environmental controls are the Contractor's responsibility.

1.02 Submittals
   A. The Contractor is responsible to prepare and submit a Stormwater Pollution Prevention Plan (SWPPP) to the California Environmental Protection Agency (CEPA) for coverage under the Construction Stormwater General Permit (CSWGP).
   B. The Contractor shall submit a copy of the SWPPP and the Notice of Intent (NOI) to the Contracting Officer following submittal to CEPA.
   C. The Contractor shall provide all other submittals required by the project permits for the Contractor's work on the project.

1.03 Regulatory Requirements
   A. The Contracting Officer will apply for all necessary environmental permits excluding the CSWGP. The Contractor shall comply with all permit conditions. Contractor shall be responsible for notification of Contracting Officer prior to implementing any changes, modifications, or deviations from the specifications and designs provided to the Contractor and reviewed by permit agencies as the basis for their approval.
   B. This project shall be constructed in accordance with all CEPA regulations. Best Management Practices (BMPs) shall be incorporated into all installations, and work sites, as required, to minimize impacts to wildlife and habitat in the immediate area. Contractor shall comply with all specific mitigation measures that are required on this project listed in the project environmental permits, and any additional measures that may be required by the Contracting Officer.

1.04 Contractor Responsibilities
   A. Perform construction operations in such a manner to comply, and ensure subcontractors comply, with:
      1. Applicable local, state, and federal laws, orders, regulations, and Water Quality Standards concerning control and abatement of water pollution; and
      2. Terms and conditions of applicable permits issued by permit issuing authority. If conflict occurs between local, state, and federal laws, regulations and requirements, the most stringent shall apply.
   B. Monitoring:
      1. Conduct monitoring in order to meet the requirements of the permits and the CSWGP.
   C. Reporting Results:
      1. Report all required monitoring results to appropriate agencies and the Contracting Officer.
D. Recordkeeping:
   1. Retain records and data required by permits for the specified time period.

1.05 Contractor Violations
A. If noncompliance occurs, report noncompliance to the Contracting Officer immediately (orally), with specific information submitted in writing within 2 calendar days.
B. Nonconformance with applicable local, state, and federal laws, orders, regulations, or Water Quality Standards may result in the Contracting Officer stopping all site activity until compliance is ensured.
C. The Contractor shall not be entitled to any extension of time, claim for damage, or additional compensation by reason of such a work stoppage.
D. Corrective measures required to bring activities into compliance shall be at the Contractor's expense.
E. The Contractor shall be solely responsible for any and all fines, penalties or additional permit fees resulting from non-compliance with any applicable local, state and federal laws, orders, regulations or Water Quality Standards.
F. Contractor shall be responsible for damages resulting from dust or spills originating from contractor operations.
G. The Contracting Officer may stop any construction activity in violation of local, state, and federal laws and additional expenses resulting from work stoppage will be responsibility of Contractor.

Part 2 Products
A. Standard, incidental materials, products and equipment required to perform scope.

Part 3 Execution
3.01 Pollution Controls
A. Control pollutants by use of sediment and erosion controls, wastewater and stormwater management controls, construction site management practices, and other controls including State and local control requirements. Those requirements shall be included in the SWPPP. The SWPPP shall include a detailed description of the following:
   1. Construction Site Management
   2. Construction equipment
   3. Sediment and erosion controls
B. Follow the most stringent of noise restrictions in permits, or State or local regulations.

3.02 Preservation and Restoration
A. Preserve and restore native materials for site rehabilitation.
B. If materials are moved, damaged or destroyed, replace them with a functional equivalent during site rehabilitation.
C. Remove any large wood, rootwads, native vegetation, weed-free topsoil, rock and native channel material displaced by construction for disposal as directed by the Contracting Officer.
D. Restore temporary construction access to original contours and make impassable to vehicular traffic when no longer required as approved by the landowner and Contracting Officer.

END OF SECTION
SECTION 2200 PROTECTION OF EXISTING INSTALLATIONS

Part 1 General

1.01 Payment
A. Costs for the protection of existing installations are to be considered incidental to the items included on the Bid Items List.
B. Costs for repair of existing installations damaged by the Contractor's operations are at the Contractor's expense.

1.02 Project Conditions
A. Project drawings do not show all existing installations, structures, materials, equipment and utilities at the jobsite.
B. Contractor shall identify location of existing installations, structures, buried conduit, pipe, cable, materials and other buried, site and/or above-ground and overhead facilities before performing any significant on-site travel, clearing or excavation.

Part 2 Products
A. Standard, incidental materials, products and equipment required to perform scope.

Part 3 Execution

3.01 Protection
A. Flag, identify and/or otherwise protect existing installations and other project conditions requiring protection prior to significant on-site travel and/or excavation including: boundaries of clearing limits, site access, and items and vegetation to be protected, removed and/or salvaged. Protection shall be subject to approval of the Contracting Officer.

3.02 Repair
A. Repair, at Contractor’s expense, damage to existing installations and/or vegetation due to Contractor’s operations or Contractor’s failure to provide proper protection. At the Contracting Officer’s option, damage may be repaired by the Contracting Officer, and the Contractor will be back charged repair costs.

3.03 Removal of Protective Installations
A. Remove protective installations after purpose has been served. Materials furnished by the Contractor to provide protection remain property of the Contractor.
B. Unless otherwise described in the construction documents, all areas disturbed by construction shall be returned to the original ground topography and surface conditions before construction ends, unless otherwise shown on the drawings.

END OF SECTION
DIVISION 3
Site Work
SECTION 3110 MOBILIZATION AND DEMOBILIZATION

Part 1 General

1.01 Scope

A. Mobilization consists of mobilizing equipment, personnel, supplies, incidentals; establishment of necessary facilities for the Contractor's operation; and securing bonds, insurance and permits necessary to do the work as stated in the contract and/or agreement.

B. Demobilization includes the removal of excess construction materials, equipment, personnel and facilities that were necessary to do the work.

C. Nothing in this Section shall relieve the Contractor from full responsibility for compliance with permit requirements. All work shall be approved by the Contracting Officer prior to commencement of work.

1.02 Payment

A. Payment and units as indicated on the bid schedule.

B. Includes costs associated with all labor, materials, equipment and permits required to perform scope.

Part 2 Products

A. Standard, incidental materials, products and equipment required to perform scope.

Part 3 Execution

A. Not Used.

END OF SECTION
SECTION 3120 CONSTRUCTION STAKING

Part 1 General

1.01 Scope

A. Stake, flag, paint and/or otherwise identify in the field the locations and elevations of all temporary and proposed features associated with this project indicated on the Drawings and as directed by the Contracting Officer. Items to be located include but are not limited to locations and/or elevations of: limits of clearing and grubbing; excavation; fill; temporary roads; stockpiles; channel centerline; limits of cut and fill; enhancement features and structures; floodplain limits; instream enhancements; and traffic control features.

B. Establish and maintain horizontal and vertical survey control points to facilitate the construction; construction monitoring; as-built survey; and subsequent post-construction monitoring as directed by the Contracting Officer. Temporary survey benchmarks shall be placed throughout the site, as directed by the Contracting Officer, to facilitate the project’s construction.

C. Survey shall be performed on horizontal datum and vertical datum consistent with those noted on the Drawings.

D. Provide appropriate survey notes, electronic files and maps to the Contracting Officer such that control points can be located and/or reproduced in the field.

E. Note that the Engineer may adjust/refine the locations and elevations of the final project features after the Contractor has the proposed project elements located in the field as noted above. Where adjustments are significant, resurvey the features so the constructed features can be accurately captured in the as-built survey.

F. Nothing in this Section shall relieve the Contractor from full responsibility for compliance with permit requirements. All work shall be approved by the Contracting Officer prior to commencement of work.

1.02 Payment

A. Payment will be lump sum based on the Contractor’s submitted bid for the quantity estimated on the bid schedule.

B. Includes costs associated with all labor, materials, equipment and permits required to perform scope.

Part 2 Products

2.01 Survey Markers

A. Rebar, wooden stakes, wooden hubs, and other miscellaneous markers used to identify elevation and locations in the field as approved by the Contracting Officer.

B. Standard, incidental materials, products and equipment required to perform scope.

Part 3 Execution

3.01 Construction Staking

A. Perform above-noted Scope by licensed surveyor and/or qualified surveyor as approved by the Contracting Officer.

END OF SECTION
SECTION 3130 PROJECT TEMPORARY TRAFFIC CONTROL

Part 1 General

1.01 Scope

A. Install, maintain and remove after use the temporary traffic control devices in and along the public road right-of-way for construction traffic entering and exiting the site.

B. Manage flow of traffic, parking and staging on, along, adjacent to and through the project site in a manner that minimizes disturbance to the property owner, neighbors, vegetation, and other physical aspects of the project site, neighboring properties and public right-of-way.

C. Nothing in this Section shall relieve the Contractor from full responsibility for the adequacy of protective works and compliance with permit requirements. All work shall be approved by the Contracting Officer prior to commencement of work.

1.02 Payment

A. Payment and units as indicated on the bid schedule.

B. Includes costs associated with all labor, materials, equipment and permits required to perform scope.

Part 2 Products

2.01 Lights and Signage

A. Temporary traffic control devices as required by local, state and federal regulations.

B. Standard, incidental materials, products and equipment required to perform scope.

Part 3 Execution

3.01 Traffic Detour and Management

A. Manage 24 hours a day, 7 days a week, for the duration of project the orderly and safe flow of traffic to, from and on the project site and over the public road right-of-way in accordance with all applicable laws, regulations and codes required by local, state and federal regulations as directed by the Contracting Officer.

END OF SECTION
SECTION 3210 CLEARING, GRUBBING, STOCKPILE AND DISPOSAL

Part 1 General

1.01 Scope

A. Clearing, grubbing, stockpile and disposal of trees, snags, logs, stumps, brush, shrubs and rubbish from designated areas as instructed by Contracting Officer.

B. Proper disposal of unsuitable, undesirable cleared material.

C. Preserve and protect vegetation outside clearing limits shown on the drawings and as directed by Contracting Officer and as specified in “Section 2200, Protection of Existing Installations”.

D. Nothing in this Section shall relieve the Contractor from full responsibility for the adequacy of protective works and compliance with permit requirements. All work shall be approved by the Contracting Officer prior to commencement of work.

1.02 Payment

A. Payment will be lump sum based on the Contractor’s submitted bid for the quantity estimated on the bid schedule.

B. No field measurement of cleared acreage will be conducted during construction.

C. Includes costs associated with all labor, materials, equipment and permits required to perform scope.

Part 2 Products

2.01 Incidentals

A. Standard, incidental materials, products and equipment required to perform scope.

Part 3 Execution

3.01 Clearing

A. Remove trees, shrubs, brush, stumps, roots, rootwads, downed timber, branches, grass, weeds, vegetation, blackberries, rubbish, riprap, rocks and other objectionable material.

B. Trees with roots shall be knocked over with rootwads attached with an excavator or other suitable means, removed and disposed of as directed by the Contracting Officer.

3.02 Grubbing

A. Grubbing is defined as removal of stumps, roots, vegetative matter and other unsuitable materials.

B. Grub around surfaces to be under proposed fill; areas to be excavated; and surfaces to be regraded.

C. Perform grubbing in advance of topsoil stripping, excavation and grading operations.

3.03 Stockpiling

A. Create separate stockpiles for materials to be reused and materials to be disposed. Stockpiled material shall be organized in similar piles and in a fashion that enables efficient reuse and/or disposal of stockpiled materials.
3.04 Disposal

A. Materials not used in the project construction shall be disposed of offsite legally. No separate payment will be made for disposal. The cost for disposal shall be included in the bid items.

END OF SECTION
SECTION 3220 TREE AND PLANT PROTECTION AND SALVAGE

Part 1 General

1.01 Scope

A. Preserve, protect, salvage, stockpile and irrigate existing on-site viable vegetation intended to remain in place and/or that will be used for future reuse on site.

A. Vegetation to be transplanted but requiring stockpiling shall be irrigated and maintained in a manner that maximizes survival. Irrigation to be provided by the Contractor during construction and may include pumping.

B. Nothing in this Section shall relieve the Contractor from full responsibility for the adequacy of protective works and compliance with permit requirements. All work shall be approved by the Contracting Officer prior to commencement of work.

1.02 Payment

A. Payment and units as indicated on the bid schedule.

B. Includes costs associated with all labor, materials, equipment and permits required to perform scope.

Part 2 Products

2.01 Incidentals

A. Standard, incidental materials, products and equipment required to perform scope.

Part 3 Execution

3.01 Preservation and Protection

A. Preserve natural landscape and preserve and protect existing vegetation not required or otherwise authorized to be removed. Trees to remain shall be protected and/or left undisturbed from the tree drip-line inwards towards the tree trunk.

B. Conduct operations to prevent unnecessary destruction, scarring, or defacing of natural surroundings in the vicinity of the work.

C. Move crews and equipment within the rights-of-way and over routes provided for access to the work in a manner to prevent damage to native vegetation.

D. Protect vegetation from damage or injury caused by construction operations, personnel, or equipment by the use of protective barriers or other methods approved by the Contracting Officer.

E. Minimize, to the greatest extent practicable, clearings and cuts through vegetation. Irregularly shape authorized clearings and cuts to soften undesirable aesthetic impacts.

F. Do not use trees for anchorages except in emergency cases as approved by the Contracting Officer. For such use, wrap the trunk with a sufficient thickness of approved protective material to protect the tree from damage before any rope, cable, or chain is placed.

3.02 Salvage of Materials

A. Plants, trees, and shrubs identified for salvage shall be removed, stockpiled, watered/maintained and replanted and watered after channel and floodplain reconstruction.
B. Vegetation to be salvaged and removed will be identified by the Contracting Officer after the Contractor surveys the site.

C. Rootballs of vegetation to be salvaged shall be excavated using equipment of appropriate size and capability in order that survival is probable. Rootballs of trees and plants being salvaged shall be protected with topsoil and watered as directed by the Contracting Officer.

D. Plant salvage shall be sequenced to minimize handling and the length of time the vegetation remains stockpiled. Immediate transplanting is preferred over temporary stockpiling. Identification of salvageable material, stockpile locations and transplanting sequencing shall be as approved by the Contracting Officer.

E. Unsalvable trees and shrubs that are damaged or removed during construction activities shall be broadcast over the restored area to create a more naturally appearing project and to aid in minimizing wind erosion.

END OF SECTION
SECTION 3215 FISH HANDLING AND REMOVAL

Part 1 General

1.01 Scope

A. Fish handling to be performed by the Karuk Tribes of California (Karuk Tribe).
B. No work shall be performed under this specification item by the Contractor.
C. Nothing in this Section shall relieve the Contractor from full responsibility for the adequacy of protective works and compliance with permit requirements.

1.02 Payment

A. No payment shall be made to the Contractor under this specification item.

Part 2 Products

2.01 Work Zone Isolation

A. Materials as determined by the Karuk Tribe.
B. Standard, incidental materials, products and equipment required to perform scope.

Part 3 Execution

A. The Contractor shall notify the Karuk Tribe a minimum of 48 hours prior to in-water work to allow the Karuk Tribe to execute the Fish Handling and Removal.

END OF SECTION
SECTION 3230 TEMPORARY STREAM DIVERSION

Part 1 General

1.01 Scope

A. Includes installation, operation, maintenance and removal of temporary cofferdams along banks of river during installation of wood and/or rock habitat structures as indicated on the Drawings and as directed by the Contracting Officer.

B. Includes downtime to accommodate fish removal and handling while installing cofferdams.

C. Excludes actual physical netting and removal of fish, which will be performed by the Karuk Tribe.

D. Nothing in this Section shall relieve the Contractor from full responsibility for the adequacy of protective works and compliance with permit requirements. All work shall be approved by the Contracting Officer prior to commencement of work.

1.02 Payment

A. Payment and units as indicated on the bid schedule.

B. Includes costs associated with all labor, materials, equipment and permits required to perform scope.

Part 2 Products

2.0 Incidentally

A. Standard, incidental materials, products and equipment required to perform scope.

2.02 Cofferdams

A. Cofferdams can be used to satisfy the requirements for Diversion Structures and Work Isolation Structures described in the Construction Sequencing Plan and Notes and the Fish Salvage Plan and Notes included in the Drawings.

B. Cofferdams may consist of seclusion fencing, floating booms, sand bags, inflatable bladders and/or other suitable means. Type of cofferdam and details pertaining to the installation, operation, maintenance and removal of cofferdam shall be submitted to Contracting Officer for approval prior to construction.

C. Cofferdams should include plastic liner or fine mesh silt fence to reduce the amount of fines entering the free flowing portion of the river.

Part 3 Execution

3.01 General Execution

A. Installation, operation, maintenance and removal of cofferdam shall be performed in accordance with the Construction Sequencing Plan and Notes, and the Fish Salvage Plan and Notes included in the Drawings. Said work shall commence at the downstream end of the project and proceed upstream unless otherwise approved by the Contracting Officer.

B. Install a cofferdam in the river along north bank as a work isolation structure and in the main channel as a diversion structure. Cofferdam is intended to isolate the existing main channel and to meter water into the proposed main channel during plug removal. It is not intended to dry up construction zones.
C. Establish and maintain temporary construction access to the river from the bank in a manner that minimizes disturbance.

D. Meter flow into proposed channel unless otherwise instructed by the Contracting Officer.

E. Remove cofferdam after segment is constructed.

END OF SECTION
SECTION 3240 DEWATERING

Part 1 General

1.01 Scope
A. Furnish, install, maintain and operate all necessary pumping and other equipment for removal of water from the project site to keep the work site free from water as required for constructing each part of the work.
B. Nothing in this Section shall relieve the Contractor from full responsibility for the adequacy of protective works and compliance with permit requirements. All work shall be approved by the Contracting Officer prior to commencement of work.

1.02 Definitions
A. Dewatering
   1. Temporary damming and pumping the stream discharge at the upstream limits of disturbance and discharging downstream of the downstream limits of disturbance.
   2. Removal and control of groundwater from pores or other open spaces in soil or rock formations to allow construction activities to proceed free of water, and relief of groundwater uplift pressures.
   3. Control and removal of ponding, seeping, or flowing surface water, emerging subsurface water from excavated surfaces, and from precipitation within and adjacent to excavations and construction zones using channels, ditches, gravel drains, gravel blankets, pipes, sumps, pumps and discharge lines.

1.03 Payment
A. Payment for Dewatering is incidental to Section 3310, Excavation and Stockpile.
B. Includes costs associated with all labor, materials, equipment and permits required to perform scope.

Part 2 Products

2.01 Incidentals
A. Pumps, pipes, associated erosion and sedimentation controls and standard, incidental materials, products and equipment required to perform scope.

Part 3 Execution

3.01 Dewatering
A. Fish exclusion shall occur prior to pumping and dewatering. Contractor shall provide a minimum 48 hour notice to the Karuk Tribe prior to dewatering efforts to allow the Karuk Tribe to perform fish exclusion.
B. Pump water upstream of the active work zones into sedimentation and/or stilling ponds downstream of the active work zones in a manner that maintains a relatively dewatered, safe active work zone.
C. Sedimentation and/or stilling ponds shall be located within the active work zones and/or soon to be active work zones.

D. Pumps shall pump from areas free of fish and/or be appropriately screened to prevent fish from being pumped.

E. Provide, maintain and operate necessary pumps and other equipment for removal of water from the site and to keep other parts of the work free from water as required for constructing each part.

F. Accomplish dewatering by use of pumps with adequate lift capacity, discharge piping, hoses and pipelines, valves, and intakes.

G. Monitor and control discharge in accordance with SWPPP and other project permitting requirements.

3.02 Cleanup

A. Remove temporary pump works for dewatering in a manner that meets the requirements of the permits and as approved by the Contracting Officer.

END OF SECTION
SECTION 3310 EXCAVATION AND STOCKPILE

Part 1 General

1.01 Scope

A. Excavate proposed channel as specified on Drawings and as directed by Contracting Officer.

B. Includes hauling of excavated existing gravels, cobbles, rock and other select materials to on-site stockpile locations for future reuse.

C. Nothing in this Section shall relieve the Contractor from full responsibility for the adequacy of protective works and compliance with permit requirements. All work shall be approved by the Contracting Officer prior to commencement of work.

D. Excludes screening material for riffle construction. Refer to Section 3320, Screening Existing Material.

1.02 Payment

A. Payment will be lump sum based on the Contractor’s submitted bid for the quantity estimated on the bid schedule.

B. No field measurement of excavated and stockpiled material quantities will be conducted during construction.

C. Includes costs associated with all labor, materials, equipment and permits required to perform scope.

Part 2 Products

2.01 Incidentals

A. Standard, incidental materials, products and equipment required to perform scope.

Part 3 Execution

3.01 General Execution

A. Perform scope as indicated above.

B. Excavate composite channel as instructed and sequenced as indicated on Drawings.

END OF SECTION
SECTION 3320 SCREEN RIFFLE MATERIAL

Part 1 General

1.01 Scope

A. Screen excavated on-site material and stockpile material size gradation as identified on the Construction Drawings.
B. Excludes haul from on-site stockpiles.
C. Excludes mixing and placement of constructed riffle material.
C. Nothing in this Section shall relieve the Contractor from full responsibility for the adequacy of protective works and compliance with permit requirements. All work shall be approved by the Contracting Officer prior to commencement of work.

1.02 Payment

A. Payment will be lump sum based on the contractor’s submitted bid for the quantity estimated on the bid schedule.
B. No field measurement of screened material quantities will be conducted during construction.
C. Includes costs associated with all labor, materials, equipment and permits required to perform scope.

Part 2 Products

2.01 Incidentals

A. Standard, incidental materials, products and equipment required to perform scope.

2.02 Armored Bed Materials

A. Enhanced riffle material shall be comprised of screened on-site material that meets the gradation requirements identified on the Drawings. Confirm acceptable materials and available material locations with the Contracting Officer.

Part 3 Execution

3.01 General Execution

A. Screen existing material to the 6 gradation classes identified on the construction drawings.
B. Stockpile each gradation class separately prior to blending classes to create the enhanced riffle material.
SECTION 3410 PLACE MATERIAL WITHIN CHANNEL AND FLOODPLAIN

Part 1 General

1.01 Scope
A. Includes placement of fill in the existing channel and within the floodplain as depicted in the Drawings.
B. Haul of materials from stockpile locations on site to the main channel and the floodplain.
C. Excludes haul of material to spoils locations or offsite as described in Section 3320, Floodplain and Channel Excavation, Haul and Stockpile.
D. Excludes Fine Grading Pools, Riffles, Banks and Floodplain (Section 3650).
E. Nothing in this Section shall relieve the Contractor from full responsibility for the adequacy of protective works and compliance with permit requirements. All work shall be approved by the Contracting Officer prior to commencement of work.

1.02 Payment
A. Payment will be lump sum based on the Contractor’s submitted bid for the quantity estimated on the bid schedule.
B. No field measurement of material placement quantities will be conducted during construction.
C. Includes costs associated with all labor, materials, equipment and permits required to perform scope.

Part 2 Products

2.01 Incidentals
A. Standard, incidental materials, products and equipment required to perform scope.
B. Fill material shall be comprised of excavated and stockpiled material from on-site excavation. Fill material shall be free of organic and deleterious materials.

Part 3 Execution

3.01 General Execution
A. Placement of fill in the existing main channel and the floodplain is required. Fill shall be placed to create finish grade elevations as shown on the Drawings. Fill in the main channel shall be placed in 12-inch loose lifts and compacted with a vibratory compactor.

END OF SECTION
SECTION 3420 FINISH GRADE CHANNELS

Part 1 General

1.01 Scope

A. Includes finish grading of the pools and riffles as identified on the Drawings or as directed by the Contracting Officer.

B. Nothing in this Section shall relieve the Contractor from full responsibility for the adequacy of protective works and compliance with permit requirements. All work shall be approved by the Contracting Officer prior to commencement of work.

1.02 Payment

A. Payment will be lump sum based on the Contractor’s submitted bid for the quantity estimated on the bid schedule.

B. No field measurement of finish grade quantities will be conducted during construction.

C. Includes costs associated with all labor, materials, equipment and permits required to perform scope.

Part 2 Products

2.01 Incidentals

A. Standard, incidental materials, products and equipment required to perform scope.

Part 3 Execution

3.01 General Execution

A. Fine grading shall occur in dewatered or otherwise dry conditions for the main channel and the side channels.

B. On-site soils may become unworkable because of excess moisture content. In order to reduce moisture content, some disking and drying of the soils may be required.

C. The final elevation of the channel shall not vary more than 0.5 foot as shown on the Drawings, unless otherwise approved by the Contracting Officer.

END OF SECTION
SECTION 3510 OVEREXCAVATE AND CONSTRUCT RIFFLES

Part 1 General

1.01 Scope

A. Excavate existing channel material following rough grading and haul to stockpile location.
B. Excludes screening of overexcavated material.
C. Haul, place and compact enhanced riffle material within the proposed riffles as detailed on the Drawings.
D. Includes haul from on-site stockpiles.
E. Nothing in this Section shall relieve the Contractor from full responsibility for the adequacy of protective works and compliance with permit requirements. All work shall be approved by the Contracting Officer prior to commencement of work.

1.02 Payment

A. Payment will be lump sum based on the Contractor’s submitted bid for the quantity estimated on the bid schedule.
B. No field measurement of overexcavation, haul or placement quantities will be conducted during construction.
C. Includes costs associated with all labor, materials, equipment and permits required to perform scope.

Part 2 Products

2.01 Incidentals

A. Standard, incidental materials, products and equipment required to perform scope.

2.02 Armored Bed Materials

A. Enhanced riffle material shall be comprised of screened on-site material and meet gradation requirements identified on the Drawings. Confirm acceptable material and available location with the Contracting Officer.

Part 3 Execution

3.01 General Execution

A. Place enhanced riffle material as identified on the Drawings.

3.02 Compaction

A. Compact enhanced riffle material with mechanical equipment to satisfaction of the Contracting Officer.

END OF SECTION
SECTION 3520 INSTALL LARGE WOOD STRUCTURES

Part 1 General

1.01 Scope

A. Installation of large wood structures and the in river and side channels, as well as in the banks of the river and side channels, as indicated on the Drawings and as directed by the Contracting Officer.

B. Excavation shall be performed in accordance with Section 3310, Excavation and Stockpile.

C. Installation shall be performed under dewatered or otherwise dry channel conditions for the main channel and side channels.

D. Excludes the procurement of wood materials. Materials will be stockpiled on site by the Karuk Tribes of California.

E. Nothing in this Section shall relieve the Contractor from full responsibility for the adequacy of protective works and compliance with permit requirements. All work shall be approved by the Contracting Officer prior to commencement of work.

1.02 Payment

A. Payment will be lump sum based on the Contractor’s submitted bid for the quantity estimated on the bid schedule.

B. No field measurement of material placement quantities will be conducted during construction.

C. Includes costs associated with all labor, materials, equipment and permits required to perform scope.

Part 2 Products

2.01 Incidental

A. Standard, incidental materials, products and equipment required to perform scope.

2.02 Trees and Wood

A. The type, size and number of the trees/wood for the proposed structures shall be in accordance with those set forth in the Drawings.

B. The Karuk Tribes of California shall furnish or salvage large wood material of the type shown on the Drawings and as specified herein. The furnished large wood material logs shall be, in order of preferred species, cedar, spruce, hemlock, pine, or fir. They shall be of recent vintage and free from insects, rot, and decay. Trees may be barked or un-barked. Trees need not be straight.

C. Rootwads shall be attached for the structures as indicated on the Drawings. Rootwads on furnished trees shall be a minimum of two times the diameter at breast height (DBH) of the tree.

Part 3 Execution

3.01 General Execution

A. Large Wood Structures shall be installed as indicated above, on the Drawings and/or as guided by the Engineer or their designated representative. Large Wood Structure installation requires on-site guidance by the Engineer or their designated representative.
B. Members shall be installed in trenches, rather than in wholesale bank excavation, to the extent possible to promote greater resistance to flow.

C. Racking members can be installed in and amongst the larger trees/logs.

D. Structures shall be backfilled and compacted as each layer is installed, where there are multiple layers. The backfill will consist of the material excavated from the receiving hole and shall be compacted with a vibratory compactor to at least 90 percent compaction as per ASTM D 1557 (Modified Proctor). Excess excavated material shall be removed from structure location and either used elsewhere on Project site at locations approved by the Contracting Officer and/or removed from Project site. Structures shall be constructed, backfilled and graded to appear natural.

END OF SECTION
SECTION 3610 SEEDING

Part 1 General

1.01 Scope

A. Include furnishing all labor, equipment, and materials to establish ground cover as noted on the Drawings and in the plant list. Any substantive variance to this specification, due to unforeseen conditions encountered on the site, weather conditions, plant availability, other construction activities, etc. must be approved by the Contracting Officer.

B. Excludes irrigation.

C. All areas disturbed by construction shall be seeded.

D. Contractor may use either straw mulch or hydroseed mulch. The Contracting officer shall approve type of mulch and application method prior to use.

E. Nothing in this Section shall relieve the Contractor from full responsibility for the adequacy of protective works and compliance with permit requirements. All work shall be approved by the Contracting Officer prior to commencement of work.

1.02 Payment

A. Payment will be lump sum based on the Contractor’s submitted bid for the quantity estimated on the bid schedule.

B. No field measurement of seeding acreage quantities will be conducted during construction.

C. Includes costs associated with all labor, materials, equipment and permits required to perform scope.

Part 2 Products

2.01 Seed

A. All seed shall conform to the current rules and regulations of the State of California and shall be from the latest crop available. It shall meet or exceed the standard for purity and germination listed below.

B. Seed shall conform to the standards for “Certified” grade seed or better. Mulch must be certified as weed-free.

C. Seed shall be labeled in accordance with the state laws and the U.S. Department of Agriculture rules and regulations under the Federal Seed Act in effect on the date of invitations for offers. Bag tag figures are evidence of purity and germination. No seed will be accepted with a test date of more than nine months before the delivery date to the site.

D. Seed that has become wet, moldy, or otherwise damaged in transit or storage will not be accepted. The percent of noxious weed seed allowable shall be as defined in the current State laws relating to agricultural seeds. Each type of seed shall be delivered in separate sealed containers and fully tagged unless exception is granted in writing by the Contracting Officer.

E. Seed mixture:
   1. Purity: 85 percent minimum.
   2. Germination:
a. 85 percent minimum.
b. Germination test less than one year old at time of seeding.
c. Uniform mixture as recommended for the area by local Extension Service or other approved source and as approved by the Contracting Officer.

3. Seeding Rate – As specified by the seed supplier based on seed mix.

2.02 Straw Mulch Material

A. Straw mulch shall consist of wheat, barley, oat or rye straw, hay, grass cut from native grasses, or other plants. The mulch material shall be air-dry, reasonably light in color, and shall not be musty, moldy, caked or otherwise of low quality. The use of mulch that contains noxious weeds is not permitted.

2.03 Water and Hydroseeding

A. Water shall be the responsibility of Contractor, unless otherwise noted. Water shall not contain elements toxic to plant life.

B. Use of a broadcast spreader for spreading seed capable of uniformly distributing the material at the Manufacturer’s specified rate for that product.

Part 3 Execution

3.01 Date of Planting

A. Areas disturbed by construction will be seeded at the end of the project prior to the onset of cold weather. Contracting Officer shall approve seeding dates. Seeding dates shall be selected to maximize growth. Seeding shall only be completed from August 15 until December 1, preferably between October and November, or as directed by the Contracting Officer.

3.02 Seedbed Preparation and Treatment

A. Areas to be treated shall be dressed to a smooth, firm surface. On sites where equipment can operate on slopes safely, the seedbed shall be adequately loosened (4 to 6 inches deep) and smoothed. Where equipment cannot operate safely, the seedbed shall be prepared by hand methods by scarifying to provide a roughened soil surface so that broadcast seed will remain in place.

B. If seeding is to be accomplished immediately following construction operations, seedbed preparation may not be required, as approved by the Contracting Officer, except on a compacted, polished, or freshly cut soil surface.

C. Seedbed preparation shall be discontinued when soil moisture conditions are not suitable for the preparation of a satisfactory seedbed as determined by the Contracting Officer.

3.03 Seeding, Mulching and Stabilizing

A. All seeding operations shall be performed in such a manner that the seed is applied in the specified quantities uniformly in the designated areas. Unless otherwise specified, seeding shall be accomplished within two days after final grading is completed and approved.

B. Long-fibered mulch (wood and/or straw) with an appropriate tackifier to form a bonded fiber matrix applied at a rate of 3,000 pounds/acre is preferred.
C. Seeding shall not commence until Contracting Officer has accepted the condition of the prepared areas.
D. Seeding operations shall not be permitted when wind velocities exceed 15 miles per hour.
E. Seed shall be sown only when the soil is moist and in proper condition to induce growth. No seeding shall be done when the ground is unduly wet, or otherwise not in a tillable condition.

3.04 Acceptance
A. Contractor retains all ownership and responsibility for seeding until written acceptance by Contracting Officer. Contracting Officer will accept the seeding when:
   1. The application or installation is complete;
   2. Documentation is complete;
   3. Verification of the adequacy of all repairs, including associated vegetation, is complete; and
   4. The required written seed certification documents have been received by Contracting Officer.

END OF SECTION
SECTION 3620 PLANTING

Part 1 General

1.01 Scope

A. Work in this section consists of furnishing all labor, equipment, and materials to establish trees, shrubs, and hardwood cuttings as noted on the Drawings. Any substantive variance to this specification due to unforeseen conditions encountered on the site, weather conditions, plant availability, other construction activities, etc. must be approved by Contracting Officer.

B. Areas outside the limit of disturbance shall be protected from damage by Contractor. Any disturbance of trees, shrubs, or wetland areas outside the limit of disturbance shown on the Drawings shall be restored by Contractor.

C. Nothing in this Section shall relieve the Contractor from full responsibility for the adequacy of protective works and compliance with permit requirements. All work shall be approved by the Contracting Officer prior to commencement of work.

1.02 Submittals

A. Proposed Plant Source:
   1. Within 10 days after award of the contract, submit a complete list of plant materials proposed to be provided demonstrating conformance with the requirements specified. Include the names and address of all nurseries.

B. Plant Materials List:
   1. Submit documentation at least 10 days prior to start of work under this section that plant materials have been ordered. Arrange procedure for inspection of plant material by Contracting Officer at time of submission. Have copies of vendor’s invoices or packing slips for all plants on site during

C. Maintenance List:
   1. Submit record of maintenance work performed, quantity of plant losses, and replacements; and diagnosis of unhealthy plant material.

1.03 Delivery Inspection, Storage and Handling

A. Contractor must notify Contracting Officer 48 hours or more in advance of deliveries to arrange for inspection.

B. During shipping, plants shall be packed to provide protection against climate extreme, breakage and drying. Proper ventilation and prevention of damage to bark, branches, and root systems, must be ensured.

C. Plants shall be delivered as close to planting as possible. Plants in storage must be protected against any condition that is detrimental to their continued health and vigor.

D. Plant materials shall not be handled by the trunk, limbs, or foliage but only by the container, ball, box or other protective structure. Plants shall have durable, legible labels stating correct scientific name and size. Ten percent of container grown plants in individual pots shall be labeled. Plants supplied in flats, rack, boxes, bags, or bundles shall have one label per group.

E. Plants shall be subject to inspection and approval for conformance to specifications by the Contracting Officer or their representative at time of delivery on-site. Approval of plant materials at
any time shall not impair the subsequent right to inspection and rejection during progress of the work.

F. Plants inspected on site and rejected for not meeting specification must be removed immediately from site or red-tagged and removed as soon as possible.

1.04 Warranty

A.Installed plant material shall have a warranty for plant growth to be in a vigorous growing condition for a minimum 12 month period after initial planting. A minimum 12-month calendar time period for the warranty of plant growth shall be provided regardless of the contract time period. When plant material is determined to be unhealthy it shall be replaced once by the Contractor under this warranty.

1.05 Payment

A. Payment will be lump sum based on the Contractor’s submitted bid for the quantity estimated on the bid schedule.

B. No field measurement of material placement quantities will be conducted during construction.

C. Includes costs associated with all labor, materials, equipment and permits required to perform scope.

Part 2 Products

2.01 Incidentals

A. Standard, incidental materials, products and equipment required to perform scope.

2.02 Plant Materials

A. Plants shall be nursery grown in accordance with good horticultural practices under climatic conditions similar to or more severe than those of the project site within northern California.

B. Plants shall be true to species and variety or subspecies. No cultivars or named varieties shall be used.

C. Plant species and size shall conform to those listed in the Drawings.

D. Container-Grown Plant Material:

1. Containers shall include plastic pots, trays, or tubes (plugs). Plant material shall be grown in a container over time sufficient for new fibrous roots to have developed throughout the container and for the root mass to retain its shape and hold together when removed from the container. Plants must be true to container size and shall be grown in the specified container size for a period of no less than one growing season prior to delivery. Plants shall not be excessively root-bound.

E. Live Stakes:

1. Cutting stock shall be gathered during the dormant period and installed within 7 calendar days of harvest. Cuttings shall not be gathered if temperatures are below 32°F (0°C). Cuttings shall be protected from sun, wind, freezing, drying or injury before and during planting. Cuttings shall be stored upright in water immediately after harvesting up until they are installed. Stored material shall be examined frequently for signs of disease and planted before dormant bud development.
2. Cuttings shall be 24 inches long (as specified in the plant lists) making the bottom cut slanted and below a dormant bud, and the top cut straight, ½ to 1 inch above a dormant bud. The diameter of pieces reserved for planting shall not be less than 1/2 inch thick.

F. Deciduous Trees

1. Plants shall be of typical form for the specified species. Height of branching shall bear a relationship to the size and species of tree specified and with the crown in good balance with the trunk. The trees shall not be “poled” or the leader removed.

G. Deciduous Shrubs

1. Plants shall be of typical form for the specified species. Acceptable plant material shall be well shaped, with sufficient well-spaced side branches, and recognized by the trade as typical for the species grown in the region of the project.

H. Coniferous Trees

1. Plants shall be of typical form for the specified species. Coniferous trees shall not be “poled” or the leader removed.

Part 3 Execution

3.01 Planting Time and Conditions

A. Deciduous plant material shall be installed from October 15 to November 30.

B. Evergreen plant material shall be installed from October 15 to November 30.

C. Cutting plant material shall be gathered and installed from November 15 to November 30.

D. When drought, excessive moisture, frozen ground, expected freezing air temperatures or other unsatisfactory conditions prevail, planting installation shall be stopped when directed. When special conditions warrant a variance to the planting operations, proposed planting times shall be submitted for approval by Contracting Officer.

3.02 Planting

A. Plant layout shall be done as guided by the Engineer and/or Contracting Officer.

B. When obstructions below ground affect the work, Contractor shall propose adjustments to plant material location, type of plant and planting method for review and approval by the Contracting Officer or their representative.

C. Plant pits for container plant material shall be dug to a depth equal to the height of the root mass as measured from the base of the root mass to the base of the plant trunk. Plant pits for bare-root plant material shall be dug to a depth equal to the height of the root system. All plant pits shall be dug at least twice as wide as the root mass or root system to allow for root expansion. The sides of planting pits shall be roughened to encourage root spread as identified in Construction Drawings.

D. All plant material shall be set plumb and held in position until sufficient soil has been firmly placed around root system or ball. The base of the plant shall be level with the surrounding ground.

E. Containerized plants shall be removed from their containers and the root mass gently loosened to prevent root-bound conditions. The base of containerized plants shall be set at the same grade as the surrounding soil; no roots should be exposed after planting. The base of containerized plants shall not be buried deeper than final grade. Prior to setting the plant in the pit, a maximum one fourth depth of the root mass, measured from the bottom, shall be spread apart to promote new
root growth. Do not compact soil around plant. Water each plant thoroughly after installed, ensuring the roots become saturated. Contractor shall add soil as necessary to replace any fill that settles below final grading during watering.

F. For cuttings, prepare a pilot hole into the soil with rebar (slightly smaller diameter than cutting) if cutting cannot be easily installed into the ground. Cuttings shall be inserted, angled end down 18 inches below ground leaving 6 inches above ground, or a minimum of one to two dormant buds above ground.

G. All plantings shall be watered immediately after backfilling, until saturated.

3.03 Maintenance and Irrigation/Watering

A. Plant material installed in the initial phase of planting shall be maintained in a healthy growing condition during installation. Installed plants shall be maintained to foster establishment and growth. The maintenance includes watering and adjusting plant position to counteract settling.

B. Upon completion of the last day of the planting operation, the plant establishment period for maintaining installed plant material in a healthy growing condition shall commence and shall be in effect for a minimum of 12 months. Written calendar time period shall be furnished for the plant establishment period. When there is more than one plant establishment period due to plantings that occur at separate times, the boundaries of the planted area covered by each period shall be recorded and provided to the Contracting Officer. The plant establishment period shall be modified for inclement weather shut down periods, or for separate completion dates for different areas.

C. The site shall be maintained by Contractor for 12 months after planting is finished. Maintenance of plant material shall include straightening plant material, pruning dead or broken branch tips; watering; eradicating weeds, insects and disease; documenting and control of invasive species: control of planted grasses to prevent competition with planted trees; and removing and replacing installed plants that are unhealthy and/or have been physically damaged beyond full recovery. Maintenance shall also include removal of litter or other coarse material that inhibits growth and establishment of installed plants.

D. At least one site visit should occur within two weeks of planting to make any adjustments to plant material. Additional visits may be required for watering and plant replacement.

E. The plant material shall be watered as necessary to prevent desiccation and to maintain an adequate supply of moisture within the root zone, until the end of November. An adequate supply of moisture is estimated to be the equivalent of 0.5 inch absorbed water per week, delivered in the form of rain or augmented by watering. Runoff, puddling and wilting from the watering operations shall be prevented. Watering of other adjacent areas or existing plant material shall be prevented.

F. Noxious weeds and persistent non-native plants that inhibit growth and establishment of installed vegetation shall be removed by hand or other method approved by Contracting Officer. Invasive species in the restored areas shall be controlled as directed by the Contracting Officer. Spring and fall inventories for invasive species shall be taken for the 12-month period following restoration. Planted grasses shall be controlled such that they do not compete with the planted trees.

G. When settling occurs to the backfill soil mixture, additional backfill soil shall be added to the plant pit or plant bed until the backfill level is equal to the surrounding grade. Serious settling that affects the setting of the plant in relation to the maximum depth at which it was grown requires replanting.

H. Contractor shall report site status and maintenance actions to the Contracting Officer after each site visit for the duration of the establishment period. A record shall be furnished describing the
maintenance work performed, the quantity of plant losses, and the quantity of replacements made on each site visit.

I. A tree will be considered unhealthy or dead when the main leader has died back, or 25 percent or more of the branches have died. A shrub will be considered unhealthy or dead when 25 percent or more of the plant has died. Herbaceous plants shall be considered unhealthy or dead when the crown has not produced leaves or shoots during the growing season, or when the crown appears dried or decayed. Contractor shall determine the cause for unhealthy plant material and shall provide recommendations for replacement. Unhealthy or dead plant material shall be replaced prior to the following growing season.

END OF SECTION
SECTION 3710 SITE CLEAN UP AND REPAIR

Part 1 General

1.01 Scope

A. Contractor shall cleanup and repair the project site during and at the completion of project implementation.

B. Cleanup and repair of work area will be completed when needed as directed by the Contracting Officer.

C. The Contractor is expected to keep the project work area clean and prevent the accumulation of trash and debris. Placement of a dumpster at the project trailer with regularly scheduled pickups shall be arranged by the Contractor.

D. Additional cleanup and repair activities shall include but are not limited to road and fence repairs, general maintenance, staging area cleanup and maintenance, and construction trailer maintenance.

E. The Contracting Officer will provide final acceptance of the project elements and overall project.

1.02 Payment

A. Payment will be lump sum based on the Contractor’s submitted bid for the quantity estimated on the bid schedule.

B. No field measurement of site cleanup acreage quantities will be conducted during construction.

C. Includes costs associated with all labor, materials, equipment and permits required to perform scope.

1.03 Contractor Responsibility

A. Nothing in this Section shall relieve the Contractor from full responsibility for the adequacy of protective works and compliance with permit requirements.

Part 2 Products

2.01 Incidentals

A. Standard, incidental materials, products and equipment required to perform scope.

Part 3 Execution

A. Perform scope as described above.

END OF SECTION
SECTION 3720 AS BUILT SURVEY

Part 1 General

1.01 Scope

A. Identify location of installed Large Wood Structures.
B. Identify limits of grading.
C. Identify all control points necessary for post-construction monitoring and as-built survey as identified on the Drawings.
D. Provide appropriate survey notes, CAD files and maps to the Contracting Officer such that control points can be located and/or reproduced in the field.

1.02 Payment

A. Payment will be lump sum based on the Contractor’s submitted bid for the quantity estimated on the bid schedule.
B. No field measurement of material placement quantities will be conducted during construction.
C. Includes costs associated with all labor, materials, equipment and permits required to perform scope.

Part 2 Submittals

2.01 Submittals

A. Contractor shall submit the as-built survey of surface and field items identified in Part 1 in AutoCAD format.
B. Standard, incidental materials, products and equipment required to perform scope.

Part 3 Execution

3.01 As-Built Survey

A. Perform above-noted Scope by licensed surveyor and/or qualified surveyor as approved by the Contracting Officer.
B. Survey shall be performed on the horizontal datum and vertical datum consistent with those noted on the Drawings.

END OF SECTION
## Bid Sheet

**Project:** Seiad Creek Enhancement  
**Project Number:** 16797-001-01  
**Analyst:** RSC  
**Latest Revision:** 1/15/2016

- This spreadsheet summarizes the construction quantities for all design components and alternatives considered.

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**Final Construction Cost**
Have we delivered World Class Client Service?
Please let us know by visiting www.geoengineers.com/feedback.