Statement of Work

Title: Revegetation Site Enhancement, Rectification, and Reworking.
Revision Number: 0
Date: November 9, 2017

1.0 INTRODUCTION / BACKGROUND

The Department of Energy’s (DOE) near-term cleanup objective is to significantly reduce the footprint of active cleanup operations within the next five years for the Hanford Reach National Monument and the River Corridor. The Hanford Long Term Stewardship (LTS) Program is responsible for ensuring the protection of Hanford Site lands and maintaining and managing the land once cleanup objectives are achieved.

The immediate focus of the LTS program is on the River Corridor area and the transition of the geographic areas into the LTS Program as cleanup and restoration is completed. The LTS program is responsible to ensure sites that are revegetated under CERCLA by the cleanup contractors meet the minimum success criteria specified in the Biological Resources Management Plan (BRMP). Sites that do not meet the minimum success criteria must be rectified. A number of sites in the 100-F revegetation area, planted in 2013, have failed to meet the minimum success criteria specified in the BRMP. This statement of work is for the rectification and reworking of those failed revegetation areas.

This statement of work also covers the enhancement of 120 acres (ac) of previously revegetated land in the 100-C-7 and 100-C-7-1 revegetation areas. As a mitigation measure supporting the Finding of No Significant Impact for DOE’s Environmental Assessment for Proposed Conveyance of Land at the Hanford Site, Richland, Washington, the LTS program has committed to enhancing the 100-C-7 and 100-C-7-1 revegetation areas with native forbs that support pollinator and migratory bird populations. In order to meet this mitigation measure, native forb seed will be planted throughout the entire 120 ac of previously revegetated land in the 100-C-7 and 100-C-7-1 area.

2.0 OBJECTIVE

Perform supplemental revegetation activities in the 100-F revegetation sites that have failed to meet the minimum success criteria specified in the BRMaP. The supplemental revegetation will increase native vegetative cover and diversity in order to meet the success criteria specified in the BRMaP.

Perform habitat enhancement activities in the 100-C-7 and 100-C-7-1 revegetation areas by seeding with native forbs that support pollinator and migratory bird species.
3.0 DESCRIPTION OF WORK – SPECIFIC

During the course of remediation of hazardous or contaminated waste sites on the Hanford Reservation under CERCLA, large areas of land are stripped of their native vegetation, dug out to remove all contaminants then backfilled and revegetated with native species. The purpose of this subcontract is to enhance revegetation areas and to complete rectification revegetation activities in failed revegetation areas so that they meet the minimum success criteria as specified by BRMaP.

All revegetation activities are time sensitive and must be completed between November 2017 and January 2018. Delays and site closures due to inclement weather are anticipated for the months of December and January, and the ground may freeze during this time. Completing revegetation activities before the ground freezes allows for easier shrub installation and yields better survival rates for the revegetation area. For this reason, it is imperative work begin as soon as possible, ideally with two crews to work on both the 100-F and 100-C-7 projects at the same time.

100-F Area

The rectification activities will take place in failed revegetation sites in the 100-F Area, totaling 70 acres of land (Figure 1). The rectification activities will include completely reworking 53 acres of failed revegetation areas by installing shrubs, forbs, and grasses. Rectification activities will also include supplemental plug plantings in 17 acres of failed revegetation areas.

Fifty three acres in the 100 F Area shall be ripped to loosen compacted soils, smoothed to eliminate rip lines, seeded with grasses and forb seeds, mulched with straw, crimped, irrigated if directed by BTR and planted with seedlings. The PLS seeds per species and seedlings per acre per species will be communicated to contractor once suppliers have confirmed quantities. It is estimated that approximately 600 seedlings per acre will be planted.

Seventeen acres in the 100 F Area require only planting with seedlings. The seedlings per acre per species will be communicated to contractor once suppliers have confirmed quantities. It is estimated that approximately 600 seedlings per acre will be planted.

The SUBCONTRACTOR shall provide the equipment, fuel, labor and materials (as specified) necessary to rip and smooth compacted soils, mix and uniformly broadcast seed, fertilize, lay down native seed crop straw mulch, crimp into the soil surface to prevent wind erosion, irrigate if directed, and plant shrub seedlings on previously revegetated areas around the 100-F Area on the Hanford Site.

100-C-7

The habitat enhancement activities will take place on previously revegetated areas in the 100-C-7 and 100-C-7-1 areas (Figure 2). Enhancement activities will include broadcast seeding native
Figure 1: Sites within 100F that require reworking or supplemental planting.
forb seed over the entire 120 ac area, laying down mulch from an alfalfa seed crop, and irrigating if needed and directed by BTR. The 100-C-7 area was revegetated in FY 2013 and the 100-C-7-1 area was revegetated in FY 2014. Both areas contain significant sagebrush coverage from the previous revegetations. Care must be taken to avoid running over sagebrush with the equipment used for habitat enhancement. Selecting equipment with high clearance and low tire surface area is essential.

The Subcontractor shall provide the equipment, fuel, labor, and materials (as specified) necessary to mix and uniformly broadcast seed, fertilize, lay down mulch from an alfalfa seed crop, and irrigate, if directed within the previously revegetated areas around the 100-C Area of the Hanford Site.

Area specific tasks have been developed to specify which areas need enhancement, complete reworking, and which areas require supplemental shrub planting. The subcontractor will perform the area specific revegetation elements on a site specific basis as determined by a MSA Subject Matter Expert. The Subcontractor shall plant as prescribed in area-specific revegetation areas. Note that some revegetation areas will not include any seed in their rectification.
Plants and seeds will be provided by Mission Support Alliance (MSA).

MSA will confirm plant and seed rates with the contractor prior to work initiation. Approximately 600 plants per acre will be installed, final numbers will be provided when supplier confirms total plants and seeds for delivery.

Materials for the 100-F Rectification Areas:

Shrub Seedlings

- 4 cubic inch
  - Sagebrush (*Artemisia tridentata*)
  - Hopsage (*Grayia spinosa*)
- 10 cubic inch
  - Bitterbrush (*Purshia tridentata*)

All seed shall be planted at a PLS rate.

Grass Seeds

- Sandberg’s Bluegrass *Poe secunda*
- Needle-and-thread Grass *Hesperostipa comata*
- Bottlebrush Squirreltail *Elymus elymoides*
- Indian Ricegrass *Oryzopsis hymenoides*
- Bluebunch Wheatgrass *Pseudoroegneria spicata*

Shrub Seeds

- Gray Rabbitbrush *Ericameria nauseosa*
- Green Rabbitbrush *Chrysothamnus viscidiflorus*
- Blue Mountain Buckwheat *Eriogonum strictum*
- Snow Buckwheat *Eriogonum niveum*
Forb Seeds

- Munro’s globemallow  *Sphaeralcea munroana*
- Crouching milkvetch  *Astragalus succumbens*
- Cushion fleabane  *Erigeron poliospermus*
- Threadleaf fleabane  *Erigeron filifolius*
- Hoary falseyarrow  *Chaenactis douglasii*
- Sand beardtongue  *Penstemon acuminatus*

Materials for the 100-C-7 Enhancement Areas:

Shrub Seeds

- Gray Rabbitbrush  *Ericameria nauseosa*
- Green Rabbitbrush  *Chrysothamnus viscidiflorus*
- Snow Buckwheat  *Eriogonum niveum*
- Blue Mountain Buckwheat  *Eriogonum strictum*

Forb Seeds

- Munro’s globemallow  *Sphaeralcea munroana*
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- Sand beardtongue  *Penstemon acuminatus*

The Subcontractor shall apply materials as prescribed in area-specific revegetation areas. All 120 ac of the 100-C-7 enhancement area will require the materials below. In the 100-F area, 53 acres of rectification that requires complete reworking will require the materials below. Seventeen acres of rectification that require shrub planting will not require the materials below.
Material identified below shall be provided by Subcontractor:

- Straw Mulch (application rate 2 ton/ac)
  - 100F Area straw shall be from a certified, source identified native seed crop for the species in order of preference
    - Bottlebrush squirrel tail
    - Indian ricegrass
    - Pineblue grass
    - Sandberg’s bluegrass
    - Bluebunch wheatgrass
  - 100-C-7 straw shall be from an alfalfa seed crop, unless otherwise approved by BTR

All materials shall be submitted for approval to the BTR at least 15 days prior to work initiation.

4.0 REQUIREMENTS

General

For any work performed on the Hanford Site or any MSA controlled facility, the provisions of the On Site Services Special Provisions - SP-5, will apply to Subcontractor personnel.

Contractor shall provide storage adequate to keep seeds dry and seedlings cool.

Specific Requirements for Seeding

- Daily report and count sheet shall include information including; daily completion for all items listed on Attachment A, plus pounds of seed and irrigation applied to each site during the shift. The Daily report shall also include a list with a number of employees per type and number of hours worked, equipment and usage hours, number of plants, pounds of seed and mulch applied during the previous shift. The count sheet and report shall be submitted to BTR or designee at the beginning of each shift for the previous work shift.

- Ensure even seed distribution across the entire area to be revegetated, all seed material shall be distributed at the specified seeding rate identified by BTR. There shall not be more than 10% excess seed remaining upon completion of all seeding.
• All broadcast seeds shall be covered with mulch and crimped by the end of shift or irrigated with 2,000 gallons of water per acre upon completion of mulch distribution at no charge to the Contractor.

• All mulch bales shall be dispersed over the seeded area prior to demobilization from the site, no unused bales shall be left on site.

Specific Requirements for Seedling Planting

• Daily shrub installation counts shall be included on the Daily report. The counts shall identify the vendor, species, and number of shrubs planted per rectification area, not reactor area for the previous operational shift.

• Shrubs shall be planted at least 5 feet apart, no exceptions.

• Each shrub shall be placed in the planting hole, not dropped from waist height into the planting hole.

• Each planter shall ensure the seedlings are handled carefully and maintain the integrity of the seedling plug, i.e. boxes and bags of plants shall be handled with care.

• Each plug shall be planted to ensure the entire root structure and soil plug is installed straight down, completely buried, and heeled into place, as to eliminate any air pockets around the root structure. Each plant shall be planted with soil placed around the roots and not rocks. Should an auger be used to create a hole for planting, the hole shall not be drilled deeper than the shrub plug root structure, if a hole is drilled too deep it must be filled with soil, not rocks to eliminate the air pocket prior to installing the plant.

• The canopy of the plug shall be positioned in an upright stance upon completion of each installation.

• Each plug plant shall have the roots planted straight down.

• Only one plug shall be planted per hole – no exceptions.

• Do not plant plugs within 50 feet of any road.

• Do not plant any plug within 100 feet of any ground water monitoring well or above ground pipeline.

• Seedlings shall be planted parallel to roadways.

• Seedlings shall be planted to reduce the appearance of linear lines.
• If the planting location is too rocky with little to no sand/soil move to better planting location, areas skipped should be identified and the BTR may advise staff to skip those small areas.

• If seedlings are in poor quality, the SUBCONTRACTOR shall set the plants aside and report the finding to the BTR.

4.1 Engineering Requirements

N/A

4.2 Environment, Safety, & Health (ES&H) Requirements

The Subcontractor shall exercise a degree of care commensurate with the work and the associated hazards. The Subcontractor shall ensure that management of safety and environmental functions and activities is an integral and visible part of the Subcontractor’s work planning and execution processes. The Subcontractor shall flow down safety and environmental requirements to the lowest tier Subcontractor performing work on the Hanford site commensurate with the risk and complexity of the work.

As a minimum, the Subcontractor shall:

• Thoroughly review the defined scope of work;

• Identify hazards and ES&H requirements;

• Analyze hazards and implement controls;

• Perform work within controls; and

• Provide feedback on adequacy of controls and continue to improve safety management.

Prior to start of work the Subcontractor shall work complete a Job Hazard Analysis (JHA).

All subcontractor and sub-tier employees shall have completed OSHA Hazard Communication training that meets the requirements of MSC-PRO-WP--13299, Hazard Communication. See MSC-PRO-WP-10468, Chemical Management Process, for more information.

Subcontractors and its lower-tier subcontractors shall be responsible to complete an Employee Job Task Analysis (EJTA) in accordance with MSC-PRO-WP-11058 for any of the following situations:

• For any subcontractor employee who will be on the Hanford Site for more than 30 days in a year.
• For any subcontractor employee who may potentially be exposed to hazards (e.g. radiological, beryllium, hazardous wastes, noise) while performing in accordance with the subcontract statement of work.

• For any subcontractor employee enrolled in a medical or exposure monitoring program required by 10 CFR 851, and/or any other applicable federal, state or local regulation or other obligation.

If any of the above conditions are met, the subcontractor and its lower-tier subcontractor employee is to have a current approved EJTA prior to that employee beginning work on the Hanford Site.

Buyer’s Safety and Health Procedures are available on the internet at http://www.hanford.gov/pmm/page.cfm/Construction. The documents on this site are kept current and are available for Subcontractors and lower-tier Subcontractor use.

### APPLICABLE ES&H REQUIREMENTS

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<th>Number</th>
<th>Title</th>
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<tr>
<td>1. MSC-MP-32219</td>
<td>10 CFR 851 MSA Worker Safety and Health Program Description</td>
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<tr>
<td>2. MSC-MP-003</td>
<td>Integrated Environment, Safety, Health Management System Description</td>
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</tbody>
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#### 4.3 Quality Assurance (QA) Requirements

The work activities for this statement of work have been designated General Service Quality Level 0. The subcontractor shall be responsible for performing quality workmanship and shall conduct the quality control measures necessary to ensure work conforms to reference codes and standards, and other requirements defined in the SOW.

All items and processes are subject to review, inspection, or surveillance by the Buyer at the Subcontractor’s facility, or any lower-tier Subcontractor’s facility or the project site.

The BTR/CM shall perform oversight to verify compliance with SOW requirements. The Subcontractor shall flow down/invoke applicable portions of this subcontract to sub-tier contractors/vendors providing services or materials for this scope of work.

The Subcontractor shall ensure that work activities are conducted in accordance with established instructions and/or procedures or other pertinent documents specified for conducting the activities.
The Subcontractor shall flow down/invoke applicable portions of this subcontract to sub-tier contractors/vendors providing services or materials for this scope of work.

The Subcontractor is responsible for generating, storing, maintaining, and submitting records. Records shall be stored in manner that minimizes the risk of loss, damage, or destruction. All submitted records shall be legible and reproducible.

4.4 Government Property

The Subcontractor will not use or be issued Government-owned property under this scope of work.

5.0 PERSONNEL REQUIREMENTS

5.1 Training and Qualifications

Subcontractor shall ensure that its personnel meet and maintain the appropriate training, qualification and certification requirements.

The following types of training qualifications are required:

- All Subcontractor personnel shall complete MSA General Employee Training (MGET).
- Hanford General Employee Training (HGET).

5.2 Security and Badging Requirements

For any on site work, see Special Provisions – On Site Services for details.

Subcontractor employees will be required to submit to vehicle searches and not personally carry or transport certain prohibited articles. All subcontractor staff working on the Hanford Site will be required to wear a Hanford Site security badge.

5.3 Work Location / Potential Access Requirements

Work will be performed in the 100-F Area and 100-C Area revegetation sites. All subcontractor staff working on the Hanford Site will be required to wear a Hanford Site security badge and all subcontractor vehicles are subject to search before entering the site.

5.4 Site Access and Work Hours

Hanford personnel at the Hanford Site work a standard 4/10 schedule. The standard work week consist of ten (10) hours of work between 6:00 am and 4:30 pm, with one-half hour designated as an unpaid period for lunch, Monday through Thursday.
Work performed outside normal operating hours shall be coordinated and/or approved through the BTR and/or the Contract Specialist prior to performing the work.

6.0 MEETINGS

Subcontractor shall participate in all meetings as required by the Buyer’s Technical Representative (BTR).

7.0 DELIVERABLES AND PERFORMANCE SCHEDULE REQUIREMENTS

7.1 Deliverables

Subcontractor shall ensure adequate staffing and equipment to complete site specific the revegetation elements by January 18, 2018.

7.2 Schedule

Start Date: November 27, 2017

Completion Date: January 18, 2018

8.0 SPECIAL REQUIREMENTS

Meetings

General purpose of meetings is for the coordination, control, and direction of the Work. In addition to meetings addressed by this Section, Subcontractor may be required by other Sections and other Subcontract documents to conduct special-purpose meetings and various safety meetings and briefings.

MSA will issue meeting notices and prepare an agenda and minutes for each meeting addressed in this Section. When applicable, minutes will identify action items, assigned actionees, and due dates.

- KICKOFF MEETING - Before start of the Work, MSA will conduct a conference at a time and Hanford Site location agreed to by Subcontractor and MSA. Invited attendees will include MSA, Subcontractor, key lower tier subcontractors and others having an interest in the Work. Purpose of the conference is the coordination of Work start up and familiarization of project participants with the Work and worksite.

- PROGRESS MEETINGS – If determined necessary by MSA, MSA will conduct a progress meeting at time and Hanford Site location determined by MSA. Invited attendees will include MSA, Subcontractor and key subcontractors. At the progress meeting, Subcontractor shall submit a written report showing actual man-hours expended versus planned and scheduled progress versus actual progress giving details of Work
completed in relation to the approved schedule, together with a two (2) week "look ahead" which provides details of how the Work will be completed.

- The purpose of the meetings is the exchange of Work-related information.

Schedule

Project schedule is dependent on initiation of revegetation activities and weather. It is essential to begin revegetation work as soon as possible in November in order to finish before the ground freezes and to prevent weather-related delays. Once Subcontractor begins work, Subcontractor will provide BTR with a project schedule and will update this schedule weekly, pending BTR approval. Schedule will be updated continuously to reflect weather delays and other setbacks.

Reports

- PROGRESS REPORT PREPARATION - Prepare a summary progress report each reporting period, show actual progress versus scheduled progress. Scheduled progress is given by baseline project schedule. Show actual progress in the form of percentages completed for activities or resources.
## Attachment A

<table>
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<tr>
<th>Item No.</th>
<th>Description</th>
<th>Units</th>
<th>Unit Price</th>
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<td><strong>Field Operations</strong></td>
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<tr>
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<td>Rip and Smooth Compacted Soils</td>
<td>Per Acre</td>
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<td>Broadcast Seeding</td>
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<td>Irrigation (1,000 gallons per acre)</td>
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<td>Straw Mulch Application</td>
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<td></td>
<td>Crimping</td>
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<td>2.0</td>
<td><strong>Material Costs</strong></td>
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<tr>
<td></td>
<td>Straw Mulch</td>
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