

BIOLOGICAL ASSESSMENT

CONFLUENCE PROJECT LISTENING CIRCLE LEASE

CHIEF TIMOTHY PARK

Asotin County, Washington

Prepared for

U.S. ARMY CORPS OF ENGINEERS

WALLA WALLA DISTRICT



Prepared by

CONFLUENCE PROJECT

Vancouver, WA

and

COGAN OWENS COGAN, LLC

Portland, Oregon

November 2012

1. BACKGROUND

The Walla Walla District Corps of Engineers (Corps) is evaluating a decision to issue a lease to the Confluence Project, a collaborative effort of Pacific Northwest tribes, civic groups from Washington and Oregon, artist Maya Lin, and other artists and architects, for park purposes, including but not limited to artwork improvements at Chief Timothy Park located on Silcott Island in the Snake River in Asotin County near Clarkston, Washington. This lease would authorize the construction and maintenance of an artwork and event site, a Listening Circle, which would be one in a series of art installations constructed by the Confluence Project in the Lower Columbia Basin. Each of its seven sites features an art installation that interprets the area's ecology and history, encouraging the visitor to reflect on how the surroundings have changed over time. The Confluence Project has requested the use of the Chief Timothy Park site for this project.

The purpose of this Biological Assessment (BA) is to assess potential effects of the Chief Timothy Listening Circle Project on federally-listed species under the Endangered Species Act (ESA) or their designated critical habitat. An accompanying Environmental Assessment (EA) provides analysis of potential environmental effects.

2. PROJECT DESCRIPTION

The purpose of the lease is to enhance the recreation experience of visitors at Chief Timothy Park and to provide for a new cultural attraction by granting permission to the Confluence Project to construct the Listening Circle. The Silcott Island location offers aesthetic landscape features the Confluence Project finds to be important to the art installation. In addition, a location on public land within the State of Washington is necessitated by restrictions on the use of funding from the State for the Listening Circle.

The action area is located within Section 20, T11N, R45E, WM on Silcott Island in the Lower Granite Lake (reservoir) of the Snake River at river mile 131 in Asotin County, Washington, 6 miles west of Clarkston (see Exhibit 1, Appendix A). The island, which was formed by the reservoir, is owned by the Corps and is currently used for water-related recreational purposes including picnicking, and camping. It is managed by Northwest Land Management, a private company.

The Listening Circle would consist of an amphitheater constructed of basalt rock and native grasses. The amphitheater would be approximately 150 feet in diameter and be located in an existing depression on site (see Exhibits 2 and 4, Appendix A).

Visitors to the Listening Circle would park at the current overflow parking area and walk on an existing gravel maintenance road located along the northern perimeter of the island (see Exhibit 2, Appendix A). The road from the parking area to the Listening Circle site is about 2,000 feet long and is currently used by hikers and park vehicles. The American with Disabilities Act of 1990 (ADA) requires access to the site for people with disabilities. Visitors needing ADA access would utilize an existing maintenance road that connects south of the Listening Circle to existing camping and day-use areas. A locked gate at the entrance to this road would limit general access from this location. ADA access would be provided from two

parking spaces adjacent to the Listening Circle. From these parking spaces to the Listening Circle, the access path would be graded and surfaced to meet ADA requirements.

The Confluence Project estimates the Listening Circle could receive between 1,500 and 9,000 visitors annually, with an average of 5,250 visitors. In addition to casual use of the site by individuals, the site would be available for gatherings such as weddings, tribal activities, and other events.

Ongoing management and routine maintenance of the Listening Circle would be provided by an entity to be established by the Confluence Project prior to issuance of the lease.

Construction

The Listening Circle would consist of three concentric rings of basalt rock. The rings would form an amphitheater approximately 150 feet in diameter. The center of the Listening Circle would be planted with native grasses. Fill materials brought to the island for construction (including gravel and basalt) would be obtained from permitted quarry or borrow sites.

Total area of construction disturbance for this project would be approximately two acres. Construction would be timed to avoid conflicts with park recreation uses, i.e., either prior to or after the peak use period of June through August, and to minimize conflicts with migratory bird nesting in April - August. Depending upon the timing of environmental clearances and the contracting process, construction would take place over a six-week period (depending upon weather conditions) either between March - April or mid-September - November, as early as 2013. Site restoration activities would continue beyond the construction period. Best management practices (BMPs) would be employed per Asotin County standards to minimize construction impacts, e.g. dust control measures.

Construction equipment (including dump trucks, excavators and bulldozers) would access the Listening Circle site via the existing maintenance road to the south. Following construction activities, this road would be repaired and resurfaced with gravel. Construction staging would be accommodated within the Listening Circle construction area (see Exhibit 3, Appendix A).

Approximately 823 cubic yards of clean fill (fill without contaminants) would be used on the site (see Exhibit 4, Appendix A). Based upon a standard truck capacity of 10-12 cubic yards, this would entail approximately 70-82 dump truck loads (35-41 with dual trailers). Path improvements at the Listening Circle site would consist of crushed gravel brought in from off site.

The northern edge of the Listening Circle would be located within 200 feet of the Snake River. The area north of the Listening Circle that would be disturbed by trucks and machinery would be 175 to 150 feet from the Snake River.

Access Path Improvements

Existing paths and roads to the Listening Circle site would be utilized to access the Listening Circle. They would remain in their current location except for minor realignments adjacent to the Listening Circle (see Exhibit 2, Appendix A). Where minor realignments of pathways would be conducted, the newly built path would be surfaced in gravel; abandoned sections of path would have its packed soil surface tilled in preparation for revegetation.

Revegetation

Reseeding of the existing pathway and other areas disturbed by construction would be timed to take advantage of fall or spring rains. Supplemental irrigation from wells would be provided as needed until satisfactory coverage is achieved (see Exhibit 3, Appendix A). Temporary sediment fences would be installed along the access road during construction activities, as well as along the northern edge of the construction disturbance area on the north side of the Listening Circle to prevent sediment from entering the river.

3. WORK SCHEDULE

Depending upon the timing of environmental clearances and the contracting process, construction would take place over a six-week period (depending upon weather conditions) either between March – April or mid-September – November, as early as 2013. Site restoration activities would continue beyond the construction period.

4. LISTED SPECIES AND CRITICAL HABITAT

The following federally protected species are identified as potentially occurring in Asotin County, Washington.¹

Endangered

1. Sockeye salmon (*Oncorhynchus nerka*) Snake River Evolutionarily Significant Unit (ESU)²

Threatened

1. Bull trout (*Salvelinus confluentus*) – Columbia River Distinct Population Segment¹
2. Steelhead (*Oncorhynchus mykiss*) Snake River Basin
3. Chinook salmon (*Oncorhynchus tshawytscha*) Snake River Spring/Summer Run
4. Chinook salmon (*Oncorhynchus tshawytscha*) Snake River Fall Run
5. Canada lynx (*Lynx canadensis*)
6. Spalding's catchfly (*Silene spaldingii*)
7. Ute ladies'-tresses (*Spiranthes diluvialis*)

Endangered Species

Sockeye Salmon (*Oncorhynchus nerka*) Snake River ESU

Snake River sockeye salmon were listed as endangered under the ESA on November 20, 1991; endangered status was reaffirmed on June 28, 2005. Final designation for critical habitat was published on December 28, 1993.

Lower Granite Lake, which surrounds Silcott Island, provides migration habitat for sockeye salmon. The Snake River is critical habitat for this species. Critical habitat includes all Snake River reaches from the confluence of the Columbia River upstream to the confluence of the Salmon River; all Salmon River reaches from the confluence of the Snake River upstream to Alturas Lake Creek; Stanley, Redfish, Yellow Belly, Pettit, and Alturas Lakes (including their

inlet and outlet creeks); Alturas Lake Creek, and that portion of Valley Creek between Stanley Lake Creek and the Salmon River. The ESU is comprised of all anadromous and residual sockeye salmon from the Snake River Basin, Idaho, as well as artificially propagated sockeye salmon from the Redfish Lake captive propagation program. The only extant population of the anadromous form of the endangered Snake River sockeye is the Redfish Lake population in Idaho.

Sockeye salmon exhibit a wide variety of life history patterns that reflect varying dependency on the freshwater environment. Adults spawn once and then die. The vast majority of sockeye salmon spawn in or near lakes, where the juveniles rear for one to three years prior to migrating to sea. For this reason, the major distribution and abundance of large sockeye salmon stocks are closely related to the location of rivers that have accessible lakes in their watersheds for juvenile rearing. Sockeye salmon counts conducted at Lower Granite Dam since 1975 have ranged from 531 in 1976 to zero in 1990. In 2007, 52 adult sockeye salmon were counted at Lower Granite Dam.³ Adult sockeye counts at Lower Granite Dam were 2,201 in 2010 and 1,502 in 2011.⁴

Threatened Species

Canada Lynx

The habitat in the proposed project site is not suitable for Canada lynx. There are no historic records of lynx in this part of the Snake River canyon. Therefore, this project will have NO EFFECT on Canada lynx and this species will not be discussed further in this BA.

Spalding's Catchfly

The habitat on Silcott Island and around the proposed project site is highly disturbed and not suitable for Spalding's catchfly. It is not likely that this plant could become established on the island without significant habitat improvement, protection and artificial introduction. Therefore, this project will have NO EFFECT on this plant species and it will not be discussed further in this BA.

Ute Ladies'-Tresses

The habitat on and around Silcott Island is highly disturbed and not suitable for Ute ladies'-tresses. This plant is normally found on flat flood plains and sand bars that are seasonally inundated or have high water tables. It is not likely that this plant could become established on the shoreline around the island without significant habitat improvement, protection and artificial introduction. Therefore, this project will have NO EFFECT on this plant species and it will not be discussed further in this BA.

Bull Trout (*Salvelinus confluentus*) – Columbia River Distinct Population Segment (DPS)

The bull trout is a member of the char family. It inhabits cool lakes and streams in western North America. Lower Granite Lake, which surrounds Silcott Island, is migration and winter foraging habitat for this species.

Core areas for bull trout in the Snake River watershed in Washington include the Tucannon River and Asotin Creek basins. Few adult bull trout have been observed in the main stem Snake River. Corps monitoring at Lower Granite Dam between March 1998 and March 2010

recorded five bull trout in the adult ladder and two in the juvenile fish facility. During the same period at Little Goose Dam, fish biologists counted 14 bull trout in the ladder and three in the juvenile fish facility.⁵

Adults reach breeding age between three to six years and inhabit pools with both large organic debris and clean cobble substrate. Eastern Washington has both resident and fluvial forms of bull trout. Spawning in gravel substrate occurs in September and October at the upper reaches of streams where cool ground water enters the system.⁶

Steelhead (*Oncorhynchus mykiss*) Snake River Basin ESU

Snake River steelhead were listed as threatened under the ESA on August 18, 1997, and threatened status was reaffirmed on January 5, 2006. Critical habitat final ruling was published in the Federal Register on September 2, 2005. According to the National Oceanic and Atmospheric Agency (NOAA), Lower Granite Lake is critical habitat for the Snake River Basin steelhead distinct population segment (DPS). The DPS includes all naturally spawned, anadromous steelhead below natural and manmade impassable barriers in streams in the Snake River Basin of southeast Washington, northeast Oregon, and Idaho.⁷

The DPS for Snake River steelhead includes all naturally spawned populations in streams in the Snake River Basin. Steelhead can be anadromous or freshwater resident (known as rainbow trout or redband trout) and can spawn more than once.

In 2010, 61,066 wild steelhead were observed at Lower Granite Dam downstream of the project site. In 2011, 48,055 were observed.⁸

Chinook Salmon (*Oncorhynchus tshawytscha*) Snake River Spring/Summer Run

Snake River spring/summer Chinook salmon were listed as threatened under the ESA on April 22, 1992; threatened status was reaffirmed on June 28, 2005. The final designation of critical habitat was published on December 28, 1993, and revised on October 25, 1999.

Critical habitat for this species includes all Snake River reaches from the confluence of the Columbia River upstream to Hells Canyon Dam, including Lower Granite Lake, which surrounds Silcott Island. Historically, spring and/or summer Chinook salmon spawned in accessible and suitable habitat in the Snake River upstream from its confluence with the Columbia River. Snake River spring and summer Chinook stocks have been listed as a single ESU.⁹

In most cases, spring Chinook salmon spawn earlier and at higher elevations than summer Chinook salmon. An obvious connection to elevation is water temperature, with higher elevations generally characterized by lower annual temperatures.¹⁰ In 2010, 94,203 spring Chinook salmon adults and 28,778 summer Chinook adults were counted at Lower Granite Dam. Counts in 2012 were 67,321 and 42,211 for spring Chinook and summer Chinook, respectively.¹¹

Chinook Salmon (*Oncorhynchus tshawytscha*) Snake River Fall Run

Snake River fall Chinook salmon were listed as threatened under the ESA on April 22, 1992; threatened status was reaffirmed on June 28, 2005. Critical habitat final designation was published on December 28, 1993.

According to NOAA, critical habitat for this species includes all reaches of the Snake River from the confluence with the Snake River upstream to Palouse Falls; the Clearwater River from its confluence with the Snake River upstream to its confluence with Lolo Creek; the North Fork Clearwater River from its confluence with the Clearwater River and upstream to Dworshak Dam. This includes Lower Granite Lake, which surrounds Silcott Island.

NOAA notes that genetic differences between fall Chinook salmon and spring/summer Chinook salmon in the Snake River are quite substantial and clearly reflect independent evolutionary lineages.

Temperature regimes may exclude juvenile fall Chinook salmon from rearing in the main-stem Snake River during the summer, thus encouraging the evolution of behavioral mechanisms to avoid the warm water. The high summer water temperatures in the Snake River suggest that, if the present populations were lost, other Chinook salmon might have difficulty successfully colonizing this area.¹²

Yearly averages for Snake River fall run of Chinook salmon dropped to less than 1,000 adults in the 1980's, drastically lower than 72,000 in the 1930s and 1940s.¹³ However, Fish Passage Center counts for the past five years totalled 10,167 in 2007; 16,628 in 2008; 15,167 in 2009; 41,815 in 2010; and 28,922 in 2011.¹⁴

5. ENVIRONMENTAL BASELINE CONDITIONS

Upland Environment

Project staff visited Chief Timothy Park on February 6, 2009 to characterize the environment and to determine potential presence of protected species. The park is located on Silcott Island. The island was created by the filling of Lower Granite Lake (reservoir) on the Snake River.

The habitat of the Listening Circle site and the access road to the south is currently dry, degraded grassland. The site receives regular disturbance due to both recreation use and maintenance activities. Original habitat was likely native bunchgrass grassland (Eastside Steppe).¹⁵ During the site visit, staff noted that the area had been affected by brush burning, probable removal of soil, and filling with small quantities of soil and asphalt. The area has a grass and herb-dominated plant cover of approximately 60 percent, with rabbit brush (*Chrysothamnus nauseosus*) having a relative cover of about five percent. Relative cover of shrubs increases to about 25 percent on the north face of the steep incline adjacent to the river and north of the site. South of the site and its access road is a camping area that has been planted with pines and deciduous trees.

Snake River

The quality of fish habitat in the Snake River surrounding Silcott Island has been impacted by irrigation, hydroelectric dams, hatcheries and recreation, which cumulatively have contributed to population declines for the above-listed fish species. The in-water habitat of Lower Granite Lake, in terms of water temperature, forage and migration, remains suitable for ESA-listed fish. Hatcheries have introduced fish with different run timing and fish that prey upon or compete with non-hatchery fish.¹⁶

Washington State has listed multiple reaches of the Lower Snake River on its federal Clean Water Act 303(d) list due to temperature and pH levels exceeding state water quality standards.¹⁷ Since this section of the river was listed for temperature, cold water releases from Dworshak Dam upstream have reduced water temperatures in the summer. Data collected by the Corps between 2008 - 2011 demonstrates that elevated pH levels occur in the Snake River water flowing into Lower Granite reservoir.

6. EFFECTS ON ESA LISTED SPECIES

Fish Species Protected Under ESA That May Be Affected

The following section addresses potential effects to:

- Snake River Sockeye Salmon (*Oncorhynchus nerka*),
- Bull Trout (*Salvelinus confluentus*)
- Snake River Steelhead (*Oncorhynchus mykiss*)
- Snake River Spring/Summer Run Chinook Salmon (*Oncorhynchus tshawytscha*)
- Snake River Fall Run Chinook Salmon (*Oncorhynchus tshawytscha*)

The northern edge of the action area for the Listening Circle is located within 200 feet of the Snake River. The area north of the Listening Circle that would be disturbed by trucks and machinery would be 175 to 150 feet from the Snake River. Soil-disturbing activities to be undertaken during construction include clearing, grading, and filling within a two-acre construction area. If exposed soils are subject to storm water runoff during construction, erosion could occur. Sediment-laden storm water could result in an increase in turbidity. However, the distance from the river and the gentle slope of the land would combine to greatly reduce the risk of sediment reaching the river. The Listening Circle site drains away from the river, with about 60 percent of the site currently draining into what appears to be a former borrow pit, where water runoff collects in the site's depression and drains back into the soil. The remainder of the site drains southward across the island at a gentle slope such that most surface water would percolate into the ground. With standard BMPs, such as silt fencing and dust control measures, and other mitigating measures, the amount of sediment that may reach the Snake River would be insignificant and comparable to that which enters the river from recreational use of Chief Timothy Park.

The other potential threat to listed fish is contaminant spills. The nearest any machinery and trucks would get to the river is when they would be operating on the north side of the Listening Circle. A fuel or hydraulic fluid spill could occur within about 175 to 150 feet from

the river. Spills in other portions of the work area would be contained by the topography of the site, i.e., a large depression formed by an old borrow pit, and implementation of mitigating measures.

7. MITIGATING MEASURES

Possible impacts to listed species and critical habitat would be reduced due to the following site characteristic:

- Site drainage. About 60 percent of the site currently drains internally into a depression (the location of the proposed Listening Circle) that is a former borrow pit. The remainder of the site drains southward across the island via a gentle slope.

The following measures would be implemented in order to reduce risk of impacts to listed species and critical habitat.

- Construction timing. Depending upon weather conditions, construction will be scheduled to occur between March – April or mid-September – November in order to minimize conflicts with migratory bird nesting in April – August. Efforts would be made to reduce the construction timeframe to 6-8 weeks.
- Erosion control. While construction-related clearing of vegetation and grading can contribute to water quality impacts that could affect water quality, standard best management practices such as silt fencing will be employed as part of this project to control surface runoff. Silt fences will be installed along about 1,000 feet of the service road that leads to the work site from the Chief Timothy parking lot south of the proposed Listening Circle.
- Silt fencing other suitable preventative structures will also be installed in the area north of the Listening Circle site, between the service road and the bank of the Snake River. Due to the topography of the work site it is unlikely that sediment from this area would reach the river. However, a silt fence in this location would help catch any fuel or hydraulic fluid leaks from machines operating on the road.
- A spill containment kit will be available on site, within 100 feet of daily work areas in order to capture any fluid spills from machinery. A containment berm of impermeable material will be established nightly around parked equipment.
- All machinery will be fueled, serviced and parked overnight at least 200 feet from the Snake River. The spill containment kit will be within 100 feet of the fuel/service/overnight parking area.

Chief Timothy Park would be expected to receive an increase in the number of visitors due to the Listening Circle. The increase in visitors to the park should not have a measurable effect on any listed fish species, critical or essential fish habitat.

8. DETERMINATION

Based on the possible effects of the proposed project it is our determination that the proposed action will have “No Effect” on individuals or critical habitat for Snake River ESUs

of steelhead, spring/summer Chinook, fall Chinook or sockeye salmon, or bull trout. The proposed project will have no adverse effect on the EFH of Pacific salmonids. This determination is based on the following:

- The project entails minimal soil clearing, fill and removal activities;
- Favorable drainage patterns will reduce the likelihood of construction-related runoff; and
- Best management practices and mitigating measures will reduce the risk of runoff, erosion, and contaminant spills.

9. ESSENTIAL FISH HABITAT

The consultation requirement of section 305(b) of the Magnuson-Stevens Fishery Conservation and Management Act (MSA) directs Federal agencies to consult with NMFS on all actions, or proposed actions that may adversely affect Essential Fish Habitat (EFH). Adverse effects include the direct or indirect physical, chemical, or biological alterations of the waters or substrate and loss of, or injury to, benthic organisms, prey species and their habitat, and other ecosystem components, if such modifications reduce the quality or quantity of EFH. Adverse effects to EFH may result from actions occurring within EFH or outside EFH, and may include site-specific or EFH-wide impacts, including individual, cumulative, or synergistic consequences of actions (50 CFR 600.810). Section 305(b) also requires NMFS to recommend measures that may be taken by the action agency to conserve EFH.

The action area (Silcott Island, lower Snake River sub basin) includes areas designated as EFH under the MSA for various life-history stages of Snake River Chinook and Coho (*Oncorhynchus kisutch*) salmon.

There would be no impact (no destruction or adverse modification) to any designated EFH as defined under the Magnuson-Stevens Fishery Conservation and Management Act.

There are no anticipated cumulative effects from the implementation of this proposed project.

10. CONCLUSION

Summary Table of Effects Determinations

Species	ESA Effects Determinations	Critical and EFH Habitat
Snake R. Sockeye	No Effect	No Effect
Bull trout	No Effect	No Effect
Snake R. Steelhead	No Effect	No Effect
Snake R. Sp/Sum Chinook	No Effect	No Effect
Snake R. Fall Chinook	No Effect	No Effect

The Corps has reviewed the most current species lists, the description of effects and mitigating measures. Based upon the distance from the Snake River, insignificant risk of impacts from construction or use of the site, and the topography of the site (i.e. it slopes into

a depression away from the river), the potential effects from excavation and public use of the site will be minimal, not likely to be measurable and not reasonably certain to occur. Therefore, the Corps has determined that the proposed Chief Timothy Park Listening Circle project will have no effect on individuals or populations of Snake River steelhead, spring/summer Chinook, fall Chinook or sockeye salmon, or bull trout. There would be no effect to any designated critical habitat or essential fish habitat.

The proposal is in compliance with the provisions of the Magnuson-Stevens Fishery Conservation and Management Act.

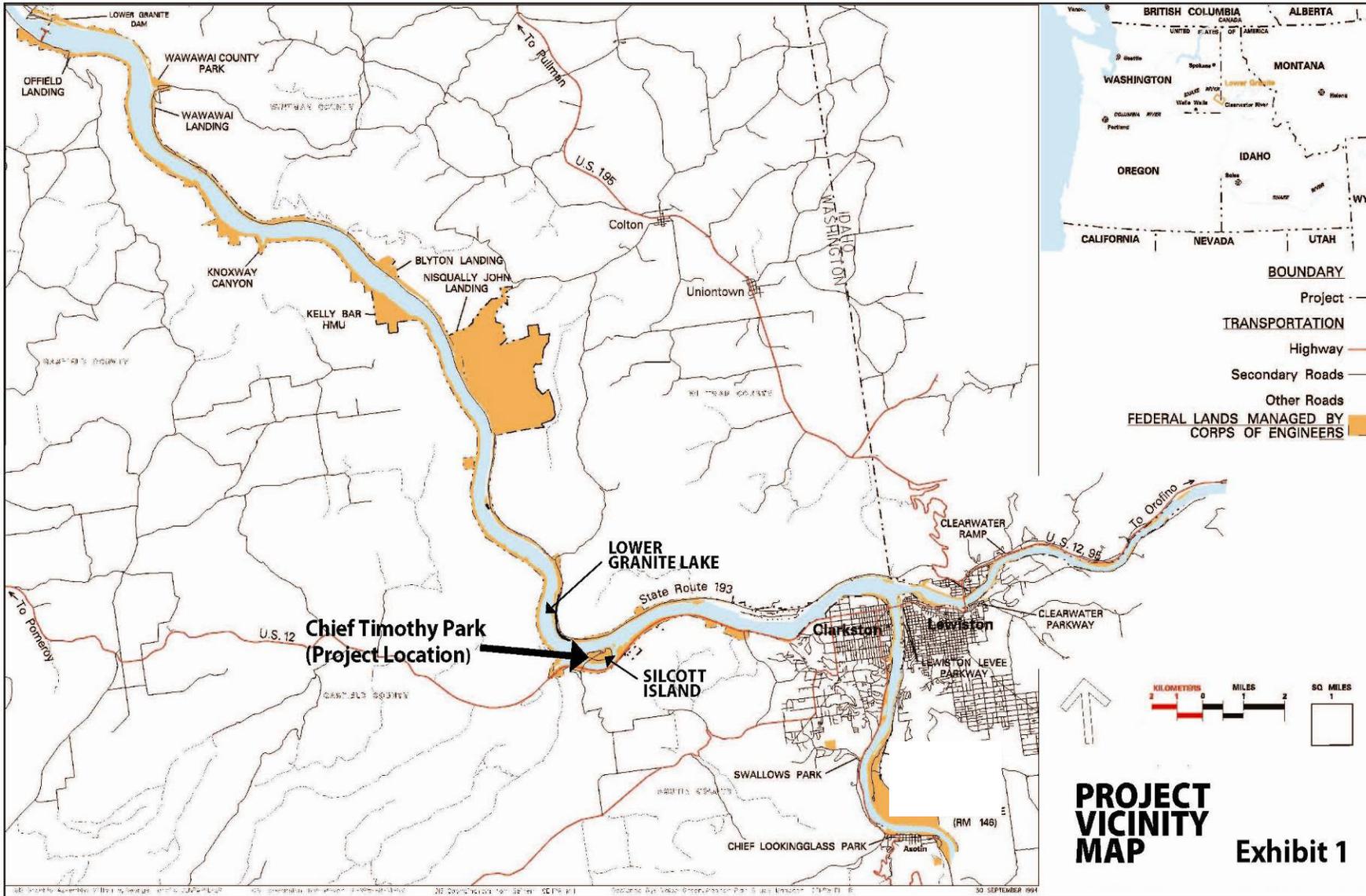
The proposal is in compliance with the provisions of the Migratory Bird Treaty Act. Although the Chief Timothy Habitat Management Unit one-quarter mile to the east supports abundant and diverse migrant species, the project site itself is degraded grassland consisting mostly of non-native species and poor avian habitat. Construction will be timed to minimize conflicts with migratory bird nesting in April – August. Reseeding of native grasses and wildflowers associated with site restoration is expected to improve the project area habitat for migratory birds.

If any significant changes are proposed for this project, we will review the modifications and re-analyze the effects determination. The Corps will subsequently initiate consultation with the National Marine Fisheries Service and the US Fish and Wildlife Service if necessary.

REFERENCES

- 1 www.fws.gov/wafwo/pdf/AsotinCounty080111.pdf.
- 2 An 'evolutionary significant unit' (ESU) of Pacific salmon (Waples 1991) and a 'distinct population segment' of steelhead (September 2, 2005; 70 FR 52630) are considered to be 'species', as defined in Section 3 of the ESA.
- 3 Annual data, Fish Passage Center, 2010 and 2011.
- 4 www.nwp.usace.army.mil/op/fishdata/fcounts.asp.
- 5 http://www.fpc.org/bulltrout/bulltrout_home.html.
- 6 Programmatic Biological Assessment for the Washington State Department of Transportation, Eastern Washington Regions Working Document, Washington State Department of Transportation, March 2007.
- 7 An 'evolutionary significant unit' (ESU) of Pacific salmon (Waples 1991) and a 'distinct population segment' of steelhead (September 2, 2005; 70 FR 52630) are considered to be 'species', as defined in Section 3 of the ESA.
- 8 Annual data, Fish Passage Center, 2010 and 2011.
- 9 <http://swr.nmfs.noaa.gov/biologic.htm>.
- 10 NOAA Tech Memo NMFS F/NWC-200: Snake River Chinook Salmon.
- 11 Annual data, Fish Passage Center, 2010 and 2011.
- 12 NOAA F/NWC-201 Status Review for Snake River Fall Chinook Salmon.
- 13 Status review of Chinook Salmon from Washington, Idaho, Oregon, and California. U.S. Department of Commerce, NOAA Tech. Memo. NMFS-NWFSC-35. 1998.
- 14 Annual data, Fish Passage Center, 2007-2011.
- 15 *Priority Habitats and Species List*, Washington Department of Fish and Wildlife, August, 2008.
- 16 Snake River Draft Recovery Plan, Snake River Salmon Recovery Board, www.snakeriverboard.org/index.htm.
- 17 Washington Department of Ecology, Washington State's Water Quality Assessment [303(d)], 2008. <http://apps.ecy.wa.gov/waters08/ViewListing>.

EXHIBIT 1: Project Vicinity



Source: U.S. Army Corps of Engineers, 1995

CONFLUENCE PROJECT Chief Timothy



VICINITY MAP (NTS)

S N A K E R I V E R

- L000 Cover Sheet
- L001 Revised Survey / Demolition Plan
- L002 Erosion Control Plan
- L003 Erosion Control Details
- L004 Signage / Osprey Platform Layout
- L100 Revised Layout & Materials Plan - Overall
- L101 Revised Layout & Materials Plan - Listening Circle Enlargement
- L200 Grading Plan - Listening Circle Enlargement
- L201 Grading Plan - Listening Circle Sections
- L300 Planting Plan - Listening Circle Enlargement
- L400 Details
- L401 Details



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project:
**Confluence Project
Chief Timothy**
The Confluence Project

submitter:
sheet title:
COVER SHEET

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Date: 08-08-10
Revisions:

Drawn By: TS
Checked By: JF
Job No. 103060.5
Approved: JF

L000
sheet no. of 12

EXHIBIT 3



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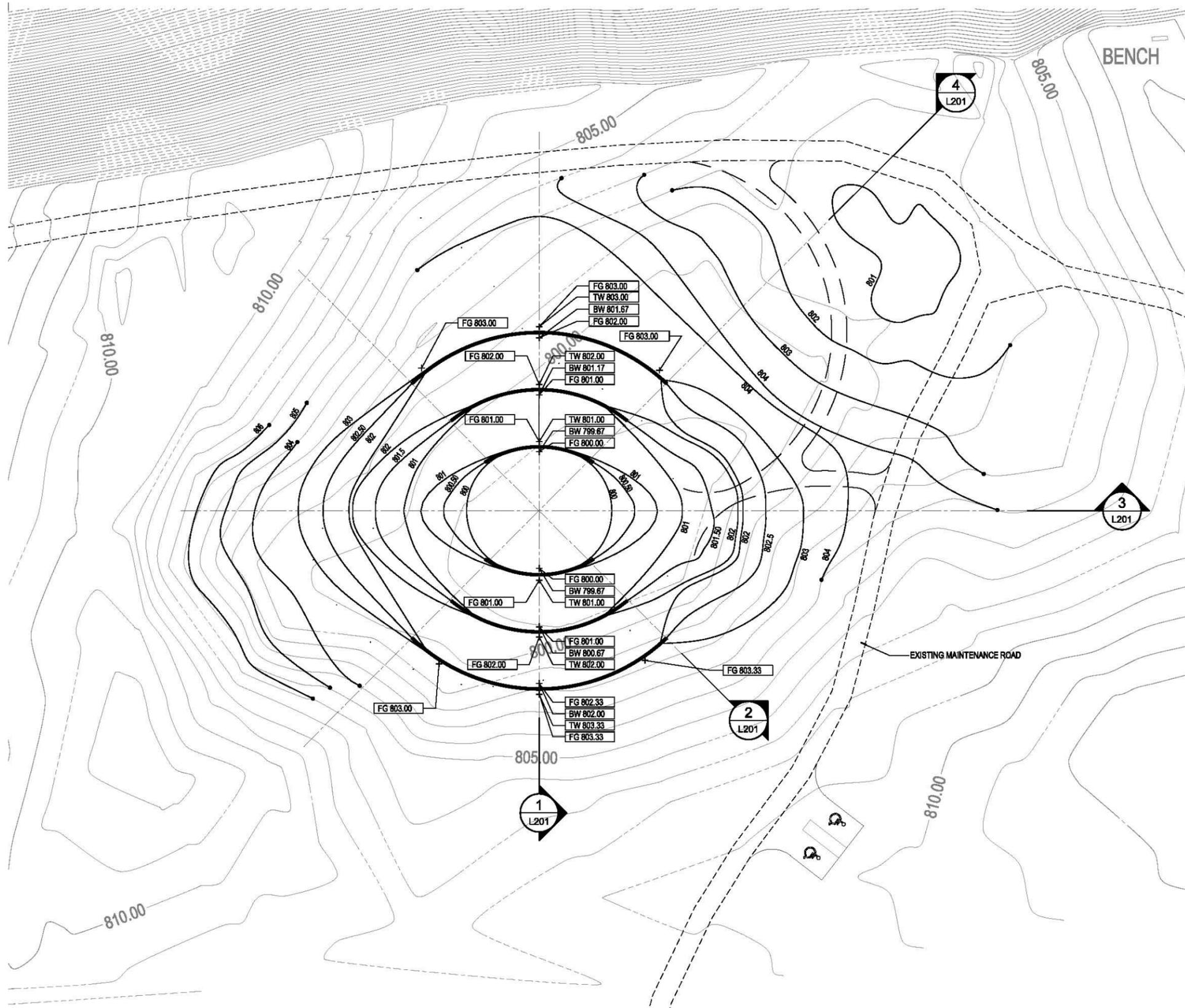
project
Confluence Project
Chief Timothy
The Confluence Project

submitter:
client:
**REVISED - SURVEY /
DEMOLITION PLAN**

DATE: 08-08-10
DRAWN BY: TS
CHECKED BY: [signature]
JOB NO: 1000000
DATE: [signature]

L001
sheet 01 of 12

EXHIBIT 4



LEGEND

- - - - - EXISTING CONTOUR
- PROPOSED CONTOUR

EARTH WORK VOLUME CALCULATIONS

TOTAL CU YD OF SOIL FILL NEEDED: 823



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STATE OF
WASHINGTON
REGISTERED
LANDSCAPE ARCHITECT
JAMES W. FREDRICK
LICENSE NO. 1078
EXPIRES ON 12/31/2011



project: **Confluence Project**
Chief Timothy
The Confluence Project

submitter: .
sheet title: **GRADING PLAN -
LISTENING CIRCLE
ENLARGEMENT**

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Revisions:	
1	09-19-08
2	09-29-09

Drawn By: CMAP/MZ
Checked By: JF
Job No: 103089.5
Approved: JF

L200
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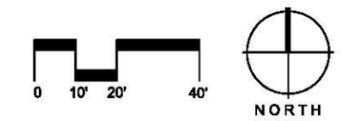


EXHIBIT 5



PLANT LEGEND

Group A Seed Mix (% by weight)

- 30% Pseudoroegneria spicata - BLUEBUNCH WHEATGRASS
- 30% Festuca idahoensis - IDAHO FESCUE
- 10% Hesperostipa comata - NEEDLE AND THREAD GRASS
- 10% Poa secunda - SANDBERG'S BLUEGRASS
- 10% Agropyron dasytachyum - THICKSPIKE WHEATGRASS
- 5% Helianthus cusickii - CUSICK'S SUNFLOWER
- 5% Lupinus spp. - LUPINE

Application rate: 5 lbs. per 1000 sf

Group B Seed Mix (% by weight)

- 20% Pseudoroegneria spicata - BLUEBUNCH WHEATGRASS
- 20% Festuca idahoensis - IDAHO FESCUE
- 10% Hesperostipa comata - NEEDLE AND THREAD GRASS
- 10% Poa secunda - SANDBERG'S BLUEGRASS
- 10% Agropyron dasytachyum - THICKSPIKE WHEATGRASS
- 5% Bistorta arifolia - ARROWLEAF BALSAMROOT
- 5% Helianthus cusickii - CUSICK'S SUNFLOWER
- 3% Liatris scariosa - BITTERROOT
- 2% Lupinus spp. - LUPINE
- 5% Bromus douglasii - DOUGLAS' BRODIAEA

Application rate: 5 lbs. per 1000 sf

Group C Seed Mix (% by weight)

- 20% Pseudoroegneria spicata - BLUEBUNCH WHEATGRASS
- 35% Festuca idahoensis - IDAHO FESCUE
- 5% Hesperostipa comata - NEEDLE AND THREAD GRASS
- 35% Poa secunda - SANDBERG'S BLUEGRASS
- 5% Agropyron dasytachyum - THICKSPIKE WHEATGRASS

Application rate: 5 lbs. per 1000 sf

NOTE: APPLY GROUP 'A' SEED MIX TO ALL OTHER AREAS DISTURBED BY ROAD OR OTHER CONSTRUCTION ACTIVITIES.



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project
Confluence Project
Chief Timothy
The Confluence Project

submitter:
sheet title:
**PLANTING PLAN -
LISTENING CIRCLE
ENLARGEMENT**

DATE: 09-08-10
REVISIONS:

Drawn By: MWCM
Checked By: JF
Job No.: 103089.5
Approved: JF

L300
sheet no. of 12

