

COWEEMAN RIVER WETLAND AND CONSERVATION BANK PROSPECTUS



**July, 2013
Cowlitz County, Washington**

Submitted By:
Habitat Bank LLC.
PO Box 354
Kirkland, WA 98033

Table of Contents

INTRODUCTION 2
 PROJECT DESCRIPTION2
 OWNERSHIP AND LEGAL RESTRICTIONS2
 COMPLIANCE WITH LOCAL, STATE AND FEDERAL RULES3
 SPONSOR QUALIFICATIONS3
WATERSHED NEEDS AND SITE SELECTION 4
 WATERSHED OVERVIEW4
 WATERSHED GOALS FOR PROJECT LOCATION5
 SITE SELECTION6
EXISTING AND PROPOSED CONDITIONS..... 6
 DESCRIPTION OF EXISTING CONDITIONS6
 HYDROLOGY8
 SOILS9
 VEGETATION9
 HISTORIC AND CURRENT LAND USE9
 SITE SPECIFIC RESTORATION GOALS AND OBJECTIVES10
 CONCEPTUAL SITE DESIGN10
PROPOSED SERVICE AREA AND PROJECT NEEDS ANALYSIS 12
 PROPOSED SERVICE AREA12
 PROJECT NEEDS13
SITE PROTECTIONS 13
CULTURAL RESOURCES 13
REFERENCES 14

FIGURES

- Figure 1 Vicinity Map
- Figure 2 Parcel Map
- Figure 3 Existing Conditions
- Figure 4 Conceptual Bank Site Design
- Figure 5 Service Area Map
- Figure 6 Soil Survey Map

BANK SPONSOR CONTACT INFORMATION

Habitat Bank LLC.
PO Box 354
Kirkland, WA 98033
425.785.8428/425.205.0279

INTRODUCTION

PROJECT DESCRIPTION

Habitat Bank, LLC. is proposing the Coweeman River Mitigation Bank (Bank) as a joint Wetland and Conservation Bank on up to 315 acres along the Coweeman River in Cowlitz County, Washington within portions of Section 36, Township 8 North, Range 2 and Section 31, Township 8 North Range 1 West of the Willamette Meridian (Figure 1). Upon certification by the Interagency Bank Review Team (IRT), the proposed Bank project will provide compensatory mitigation for unavoidable impacts to wetlands and other aquatic resources, as well provide conservation credits for impacts to special status salmonid species listed under the Endangered Species Act (ESA). The Bank project is being proposed through Washington State's Mitigation Banking Program, co-chaired by the U.S. Army Corps of Engineers (USACE) and the Washington State Department of Ecology (Ecology) and will also be reviewed and proposed for certification by the National Oceanic and Atmospheric Administration (NOAA) as a conservation bank.

The proposed project consists of six separate parcels totaling 298.54 acres (Tax Parcels: WI3602008, WI3608001, WI3605001, WI3605002, WI3601001, 24125). Additionally, approximately 19.7 acres of Parcel WE3101003 directly east of project boundary, may also be included into the Bank site, pending landowner review. The northern portion of the proposed mitigation bank project is located within the 100-year floodplain of the Coweeman River. In addition to proposed restoration activities, the project includes the preservation of critical wetland, upland, and riparian habitat including mature and potentially old growth forest, and small tributaries that flow into the Coweeman River floodplain.

The project area south of the Coweeman River is most easily accessed by traveling east from the City of Kelso on Valley View Drive and then for the last $\frac{3}{4}$ mile via a private road. The project area north of the Coweeman River is most easily accessed by traveling east on Allen Street from the City of Kelso and turning south on a private drive, approximately 1.3 miles east of Interstate 5.

OWNERSHIP AND LEGAL RESTRICTIONS

Tax Parcels WI3602008, WI3608001, WI3605001, and WI3605002 are owned in fee simple by three different individuals. Tax Parcels WI3601001 and 24125 are owned by the City of Kelso. The 19.7 acres, which may be added to the Bank proposal at a later date (Parcel WE3101003) is owned by the Hill Family, LLC. Wetland mitigation is an allowed land use for all individual tax parcels. All parcels lie within Cowlitz County jurisdiction with the exception of the City of Kelso's hillside parcel (24125), which is within the City of Kelso. None of the parcels are primarily devoted to, or have historically supported, agricultural practices that would deem them agricultural lands of long-term commercial significance (ALLCS). In recent documented history, no agricultural crops have been grown on the properties with the exception of pasture grasses used for haying or cattle grazing in the summer. Cattle are used for grazing pasture grass in the summer primarily to

keep the grass down on all parcels, and the commercial capacity or productivity of the land is limited because of the hydrologic regime, topography, and active floodplain environment.

Summary of Property Information

Property Owner	Parcel Number	Zoning	Mitigation Permitted
Lopes	WI3602008	Farm and Agricultural	Yes
Wharton	WI3608001	Farm and Agricultural	Yes
Wharton	W13605001	Farm and Agricultural	Yes
Lopes/Sari	WI3605002	Farm and Agricultural	Yes
City of Kelso	WI3601001	Public Land	Yes
City of Kelso	24125	Public Land	Yes
Hill Family LLC. (Pending)	WE3101003	Farm and Agricultural	Yes

A 30 foot wide gas pipeline easement runs north and south through the western part of the project area, Parcel WI3605002 (see Figure 3). A 15 foot wide fiber optic easement runs into the project along the access road from the west and meets the gas pipeline easement running north. A Bonneville Power Line Easement runs through the northeastern portion of the Hill Family, LLC. parcel, on the very eastern portion of the proposed project area boundary. There are no additional encumbrances on the property. Surrounding land use is residential, rural residential, agricultural, and forest land, which will not affect the Bank’s intended functions.

COMPLIANCE WITH LOCAL, STATE AND FEDERAL RULES

During the bank certification process, Habitat Bank, LLC and the Coweeman River Mitigation Bank Project will comply with the USACE and U.S. Environmental Protection Agency’s (EPA) Compensatory Mitigation for Losses of Aquatic Resources rule (2008), and the State of Washington’s Mitigation Banking Rule (WAC 173-700). Prior to Bank development, all local, state, and federal permits and approvals will be obtained.

SPONSOR QUALIFICATIONS

Since 2001, Habitat Bank, LLC. has been the leader in mitigation banking in Washington State. Habitat Bank proposed the State’s first private mitigation bank (Snohomish Basin Mitigation Bank) to be certified under the Wetland Mitigation Banking Pilot Program. Habitat Bank has since permitted the Columbia River Wetland Mitigation Bank in Vancouver, Washington and the East Fork Lewis Mitigation Bank in Amboy, Washington. Habitat Bank has worked with conservation districts, cities, tribes, farmers, private developers, and state agencies to evaluate many restoration and mitigation banking opportunities and take those projects that make the most sense ecologically through the permitting and development process. Together with local project consultants and other stakeholders, Habitat Bank has developed the experience, technical expertise, and local knowledge to propose, establish, and successfully operate mitigation banks in Washington State.

Habitat Bank's primary consultant on the proposed Coweeman Bank Project is Ecological Land Services, Inc. (ELS). ELS is based in Longview, Washington and has been working in the Pacific Northwest since 1996. Francis Naglich, MES, is a wetland biologist and president of ELS. Tim Haderly is an ecologist and vice-president of ELS. Mr. Naglich and Mr. Haderly have 20 and 18 years experience, respectively, in managing watershed, stream, and wetland projects in Washington and Oregon. ELS mitigation banking experience includes establishing the Long Beach Mitigation Bank and assisting Habitat Bank with preparation of permitting and associated documentation for establishing the East Fork Lewis Wetland Mitigation Bank and the Columbia River Wetland Mitigation Bank.

WATERSHED NEEDS AND SITE SELECTION

WATERSHED OVERVIEW

The Coweeman River is part of Water Resource Inventory Area (WRIA) 26 and is a tributary of the Cowlitz River. The Coweeman River enters the Cowlitz River at River Mile 1.4 in the City of Kelso, approximately 3 miles downstream of the Bank site. The Coweeman River supports wild populations of Chinook (*Oncorhynchus tshawytscha*) and coho salmon (*O. kisutch*), as well as steelhead (*O. mykiss*) and coastal cutthroat trout (*O. clarki clarki*) (WDFW 2013). With the exception of cutthroat trout, these species are federally protected as *threatened* under the Endangered Species Act. Coweeman River populations are part of the Lower Columbia Evolutionary Significant Unit (ESU; Myers et al. 2006), and Chinook, coho, and steelhead populations in this watershed have been listed as primary populations for the purpose of recovery planning (LCFRB 2010). The Coweeman River is also designated critical habitat for Chinook and steelhead, and proposed as critical habitat for coho (Federal Register 2005).

Historical farming, timber and mining practices and increasing development within the Cities of Kelso and Longview, have drastically changed the aquatic environment within the Coweeman River Basin. Floodplain wetlands in the lower Coweeman and Cowlitz watersheds have been severely altered by diking, filling, and draining activities. These actions have changed the natural hydrologic processes in the system and cut off historic floodplain habitats from the main stem of the river system. Restored floodplain wetlands and riparian habitat within the project boundary will have the potential to improve impaired watershed processes within the Coweeman System. Project benefits to the watershed include providing flood attenuation and sediment transfer reduction, improving water quality and temperature management, providing off-channel rearing and refuge for juvenile salmonids, and greater habitat connectivity for other species dependant on wetlands and aquatic environments.

Specifically unique to the Coweeman River system is the existence of a Fall Tule Chinook salmon population that is a genetically distinct stock (Myers et al. 2006) within the lower Columbia. Furthermore, as a small river system, there are above average multi-species returns for salmonids (WDFW 2011) relatively free of hatchery influences. Historical

wetlands that were drained and other aquatic environments that have been altered or cut-off from the Lower Coweeman Floodplain play a crucial role in providing the type of habitat complexity and function that juvenile salmonids need in order to survive during the various stages of their life cycle.

WATERSHED GOALS PERTINENT TO THE PROPOSED PROJECT

- The Lower Columbia Fish Recovery Board (LCFRB) has broken up the Coweeman Subbasin into different stream reaches for the purposes of classifying restoration activities. “Stream reaches have been placed into Tiers (1 through 4), with Tier 1 reaches representing the areas where recovery measures would yield the greatest benefits towards accomplishing the biological objectives” (LCFRB 2006). The proposed Bank project is located in a stream reach rated as a Tier 2 reach. A Tier 2 reach includes: “All reaches not included in Tier 1 and which are medium priority reaches for one or more primary species and/or all high priority reaches for one or more contributing populations” (LCFRB 2006).
- The *2010 Lower Columbia Salmon Recovery and Fish and Wildlife Subbasin Plan: Vol. 2 Chapter H Coweeman Subbasin Plan* (LCFRB 2010) prioritizes actions for fish recovery in the Coweeman Subbasin. The top ten restoration and preservation activities represent a complete picture of actions that are necessary for recovery of the subbasin. These activities include: #1) Protect existing stream corridor structure and function #2) Protect hillslope processes in the system; #3) Restore degraded hillslope processes on forest, agricultural, and developed lands; #4) Restore floodplain function and channel migration processes in the mainstem and major tributaries; #5) Restore riparian conditions throughout the basin; #6) Restore access to habitat blocked by artificial barriers; #7) Restore channel structure and stability; #8) Restore degraded water quality with emphasis on temperature impairments; #9) Provide for adequate instream flows during critical periods; #10) Create/restore off-channel and side channel habitat. Of the ten action categories in the subbasin plan, the proposed Bank project has the ability to address every one of the action items, given the location, size and diversity of habitat, within the project area.
- The *Grays-Elochoman and Cowlitz Watershed Management Plan for WRIAs 25 and 26* specifically addresses the proposed project’s watershed reach as priority wetland and floodplain restoration:

“Above approximately River Mile 4 up to River Mile 7.5 on the Coweeman River there is good potential for floodplain and wetland restoration projects because of the unconfined channel and wetland habitat present in this area. Cowlitz County should perform an inventory of the wetland complexes in the Coweeman River sub-basin. These wetland areas should be a high priority in the County’s management of wetlands.”

SITE SELECTION

The proposed project location was chosen based on the identified priority restoration objectives for wetlands and other aquatic areas within the Coweeman and Cowlitz Watersheds, as well as the Lower Columbia River Basin restoration objectives for historical floodplain environments as a whole. Additionally, the site was selected using guidance for selecting mitigation sites within a watershed context that are sustainable, based on the current state and projected future state of watershed processes in the system (Hruby, T., K. Harper, and S. Stanley 2009). There is the potential to create a significant amount of functional lift to wetlands and other aquatic resources on the project site, which will also provide direct benefit to ESA listed salmonid species in the Coweeman and Lower Columbia River Systems. Specific technical literature and recovery planning documents prioritizing the restoration of this area of the Coweeman Subbasin are:

- Lower Columbia Salmon Recovery and Fish and Wildlife Subbasin Plan: Vol. 2 Ch. H Coweeman Subbasin (LCFRB 2010)
- Grays-Elochoman and Cowlitz Watershed Management Plan WRIAs 25 and 26 (LCFRB 2006)
- Coweeman River Salmonid Production Evaluation: 2011 Completion Report (WDFW 2013)
- Lower Columbia Salmon Recovery 6-Year Habitat Work Schedule and Lead Entity Habitat Strategy (LCFRB 2008)

EXISTING AND PROPOSED CONDITIONS

DESCRIPTION OF EXISTING CONDITIONS

Existing habitat types within the project boundary are diverse in nature and include the Coweeman River, a Type S (Shoreline of the State) fish-bearing stream, associated riparian uplands, a forested/scrub-shrub/emergent/aquatic bed depressional wetland and emergent depressional wetland within the floodplain, mature and potentially old growth forests, and seasonal tributary streams with associated forested slope/riverine wetlands. With the exception of the forested hillside area, all of the habitat types within the project boundary are in a degraded state from historic logging practices, removal of riparian habitat, cattle grazing, agricultural practices, and diking and would benefit greatly if restored. The mature (and potentially old growth) forest, existing wetlands, and unnamed tributaries that extend up the hillside area would also benefit from a permanent conservation easement, eliminating the potential for logging to occur in this area.

Wetlands

Wetland A is a 32.6-acre forested/scrub-shrub/emergent and aquatic bed depressional wetland located at the base of the hillside along in the central portion of the Bank site (Figure 3). Two seasonal unnamed tributaries flow into the wetland where they disperse. The southernmost tributary flows into what is called Hart's Lake, an aquatic bed component of the wetland. A man-made ditch is located at the western end of the wetland, which has lowered hydrology levels and drains the wetland to the Coweeman River. Old tiles and pipes along the Coweeman River appear to further drain the wetland area. The wetland is located in a depression, but receives occasional overbank flooding from the Coweeman. The wetland is heavily degraded from cattle grazing, ditching, and tiling.

A preliminary wetland rating was completed on Wetland A using the *Washington State Wetland Rating System for Western Washington-Revised* (Hruby 2004). Under this system, wetlands are rated from Category I (highest) to Category IV (lowest). Category I wetlands are wetlands that score greater than 70 points, Category II wetlands score between 51 and 69 points, Category III wetlands between 30 and 50 points, and Category IV wetlands score less than 30 points. Wetland A rated as a Category II wetland scoring low (10 out of 32 possible points) for water quality functions, moderate (16 out of 32 possible points) for hydrologic functions, and high (31 out of 36 possible points) for habitat functions.

Wetland A outlets to the Coweeman River through a man-made ditch, which limits its potential to improve water quality and reduce flooding. The wetland contains multiple vegetation classes and water regimes so that it has the opportunity to provide habitat for a variety of species. It is also connected to a large high quality upland area, providing a relatively undisturbed wildlife corridor connection between the river and large forested area.

Two emergent depressional wetlands are located in the western portion of the Bank site. Wetland B is approximately 1.2 acres and is located in an oxbow on the north side of the river. It is hydrologically influenced by a shallow groundwater table and occasional overbank flooding. Wetland B rates as a Category III scoring low (10 out of 32 possible points) for water quality functions, moderately high (20 out of 32 possible points) for hydrologic functions, and low (10 out of 36 possible points) for habitat functions. The wetland has no outlet, which gives it the potential to improve water quality and downstream flooding; however, it is used as pasture and regularly grazed by cattle and is relatively shallow, limiting water storage capacity and water quality improvement functions. The wetland also has limited habitat functions due to grazing and a single strata of vegetation.

The second emergent depressional wetland (Wetland C) is located on the southern side of the river on the western project boundary and is approximately 2.1 acres in size. Wetland C is supported by a shallow groundwater table, hillside drainage, and occasional overbank flooding. Wetland C rates as a Category III scoring low (6 out of 32 possible points) for water quality functions, moderately high (20 out of 32 possible points) for hydrologic functions, and low (11 out of 36 possible points) for habitat functions. The wetland outlets through a ditch to the Coweeman River, limiting its potential to improve water quality and

reduce flooding. It is also regularly grazed, mowed and relatively shallow, further limiting water storage capacity and water quality improvement functions. Like Wetland B, Wetland C also has limited habitat functions due to grazing and mowing and single strata vegetation class.

Small forested slope and riverine wetlands extend along the small tributaries on the southern hillside and are relatively unaltered in their current state. These wetlands have not yet been assessed or rated.

Streams

The project site includes approximately 6,000 linear feet of the Coweeman River (RM 3.8 to RM 5.3), which is tidally influenced throughout the project location. Riparian habitat is generally very poor along this section of the river and stretches of the river both up and downstream of the proposed Bank site are on the Ecology 303(d) List for temperature and bacteria (Ecology 2013). The Coweeman is diked along its north side beginning at Allen Street at the northwestern extent of the Bank site. This dike extends to the confluence with the Cowlitz River, which is approximately 3 miles downstream. The Washington Department of Fish and Wildlife (WDFW) Salmonscape website documents the presence of fall Chinook and coho in this reach of the Coweeman and the presence of coho are presumed in the onsite tributaries. In addition, Salmonscape lists the reach of the Coweeman as rearing habitat for winter steelhead and documents winter steelhead spawning habitat just upstream of the Bank site (WDFW 2013).

Two un-named seasonal streams and one perennial stream are also located within the proposed Bank site. Both seasonal streams flow into Wetland A from the hillside to the south and disperse. Neither seasonal stream is fish bearing. The perennial stream is fish bearing and flows from the hillside north and into the Coweeman River just west of Wetland A. The perennial stream is culverted beneath a farm road near its confluence with the Coweeman. Cattle have significantly degraded the stream including the mouth of the stream, where it enters the Coweeman as they regularly access it for water to drink.

Mature Forest

The proposed Bank site also includes approximately 206 acres of mature and potentially old growth forest. This area was logged historically, most recently in the early 1900s and many small trees at the time were left. As a result, these trees may qualify as old growth forest now. A tree survey will be performed during the Bank certification process.

HYDROLOGY

The dominant sources of hydrology within the floodplain areas of the project are a shallow groundwater table and input from the tributary streams. Overbank flooding of the Coweeman River and hillside runoff also contribute to hydrology. Across the site, overbank flooding occurs at peak flows, and a high water table creates standing water in

the lowest elevations of the property on a consistent basis when water levels are high in the river. A stream gauge at river mile 7.5 was destroyed in the 1990s by a major flood, but reinstalled in 2006. Gauge data going back to 2007 shows that the Coweeman River discharges the highest amount, on average, from November to January when average cubic feet per second (CFS) readings are around 1,000 CFS. The river consistently drops below 100 CFS on average during the months of August and September.

SOILS

A preliminary analysis of soils within the project area shows that soils are a mixture of silts, clays, and fine sands, typical of the alluvial bottomlands within the lower Coweeman, Cowlitz, and Columbia Rivers. Soils are generally dark grayish brown (10YR3/2) to brown 10YR4/3 silty clay loams. Faint yellowish brown (10YR5/8) and redoximorphic features were found in the lowest elevations of the site, consistent with where the wetlands were found. Soils mapped onsite are shown on Figure 5. None of the soils mapped onsite by the Natural Resource Conservation Service (NRCS) are listed on the *Hydric Soils List for Washington* (NRCS 2013). Mapped hydric soils do not mean that an area is wetland, and wetlands can be found in areas that do not have mapped hydric soils.

VEGETATION

Vegetation in the floodplain areas of the proposed project is dominated by herbaceous pasture grasses such as tall fescue (*Festuca arundinacea*), meadow foxtail (*Alopecurus pretense*) reed canarygrass (*Phalaris arundinacea*), and creeping buttercup (*Ranunculus repens*). Reed canarygrass does not dominate the site but is found in the lower elevation emergent wetland areas and along the river banks. Soft rush (*Juncus effusus*) and small fruited bulrush (*scirpus microcarpus*) are also found in the emergent wetland areas. The riverine wetland known as “Hart’s Lake” supports large clusters of Sitka willow (*salix sitchensis*), Pacific willow (*salix lasiandra*), Douglas spiraea (*Spiraea douglasii*) and Oregon ash (*fraxinus latifolia*).

The 206 acre portion of the hillside area is dominated by mature conifers including cedar and fir trees and is either classified as Old Growth Forest or Mature Forest Priority Habitat (WDFW 2008) pending more investigation.

HISTORIC AND CURRENT LAND USE

In the early 1900s splash dam logging occurred extensively in the upper Coweeman watershed resulting in extreme bed scour (Weyerhaeuser 1995). Cut logs were stored in reservoirs behind splash dams, which were released essentially pushing logs downstream in large flashfloods to the mill sites in Kelso and Longview. Dynamiting downstream obstacles such as large boulders and log jams was also protocol for splash dam logging. Extensive and ongoing logging in the watershed has resulted in increased sedimentation as well as increased runoff.

The lower floodplain areas within the project boundary and mainstem of the Coweeman River itself have also been severely altered over time from splash damming, diking, and agricultural practices. Cattle grazing on the property over many decades has contributed to unstable and sloughing river banks, soil compaction, poor water quality, and a lack of native vegetation and structural diversity on the site. A series of ditches, drainage tiles, and culverts drain the property and wetland areas. The project area is currently used for haying and cattle grazing during the spring and summer months.

There are no structures located within the project boundary. A small foot bridge once existed in the middle of the project area that connected the north side of the river with the south side. The bridge has since been removed. Medium density residential development is to the west and north of the project location, outside of the floodplain and along the hillside overlooking the river. To the east above RM 7.5, the elevation begins to rise and the Coweeman River enters a more forested, canyon environment. A large ranch borders the eastern project boundary and a gravel quarry is further upstream, approximately 2 miles above the project site.

SITE SPECIFIC RESTORATION GOALS AND OBJECTIVES

The goal of the Coweeman River Mitigation Bank is to: reestablish, create, rehabilitate, enhance, and preserve wetland functions across the site, as well as, restore and create riparian habitat and off-channel rearing and refuge habitat along this reach of the Coweeman River. This work will be done using sustainable design principles with the goal of jump-starting natural restoration processes on the site. Specifically the Bank project will aim to:

- Improve hydrologic, water quality, and habitat functions within the existing wetlands through wetland rehabilitation and enhancement activities.
- Create and reestablish additional wetland area (and flood storage) within the floodplain environment by expanding the existing wetland areas through grading work and the decommissioning of the drainage tiles and ditches on the site.
- Create off-channel/side-channel rearing and refuge habitat for juvenile salmonids and increase channel complexity within the mainstem of the Coweeman River in the project area.
- Remove livestock to improve water quality, plant riparian areas to increase shading, remove invasive species, provide additional habitat structure with standing snags and large woody debris, and introduce native vegetation to increase habitat complexity and diversity in the floodplain environment.
- Preserve and protect mature forests, creeks, and associated wetlands within the hillside area and remove fish blockages.

CONCEPTUAL SITE DESIGN

The project design will be developed in consultation with the IRT after adequate analysis of the site has occurred. The initial data collected on the site, combined with previous experience on similar projects and an understanding of watershed goals in this location has

contributed to a conceptual design strategy in Figure 4. The key elements of the design are:

- Create additional wetland habitat within the floodplain by excavating higher elevation upland areas around existing wetland areas (Harts Lake and northern floodplain peninsula), plugging drainage ditches, and breaking tiles.
- Create off-channel/side-channel habitat areas at key points along the Coweeman River. In high water flows these areas will provide refuge for juvenile salmonids. In low water conditions these areas will be shallow water emergent wetland habitat.
- Rehabilitate and/or enhance existing wetland areas by removing cattle, removing drain tiles and ditches, planting native trees, shrubs, and emergent species, removing invasive species, and adding habitat structure by installing standing snags, large woody material, and nest boxes.
- Address uniquely high temperature levels within the Coweeman system by planting the riparian areas, created and existing wetland habitat areas, and off-channel habitat to provide shading.
- Increase mainstem channel complexity through the installation of woody debris and/or create bench/shelf habitat along the mainstem of the Coweeman River by reshaping the riverbank in key locations.
- Remove rip rap including old cars and farm equipment that was placed along, and within sections of the river to stabilize the riverbank.
- Preserve approximately 206 acres of priority upland forested habitat from logging activities

Wetland Creation

Approximately 25 acres of wetland will be created within the project area. These wetlands will have a high likelihood of long-term sustainability with minimal engineering, as there are multiple, reliable sources contributing to hydrology on the property. Breaking drain tiles and blocking ditches will automatically slow the effluence of hydrology from the existing wetlands as well as provide hydrology for the created wetland areas. The seasonal tributaries will also provide hydrology. Wetlands A and B will essentially be made larger by excavating around their perimeters. The created wetlands will be planted with native species and habitat features will be installed.

Off-channel Habitat Creation

A direct connection to the Coweeman River will be created in each existing wetland (Figure 4). This will be done by excavating a portion of the river bank allowing water to move into the created or existing wetland areas, connecting them to the Coweeman for fish access. The excavated areas will have gentle slopes draining back into the Coweeman and will be heavily planted with native shrubs to prevent erosion and scour. Root wads will be anchored at the inlets and outlets to further protect from erosion and scour. Trees will be planted around the perimeter to provide shade and help regulate temperature. The off-channel areas will provide needed refuge and rearing habitat for juvenile salmonids during peak flows in the sub basin.

Wetland and Riparian Enhancement Areas

Invasive species including reed canarygrass (*Phalaris arundinacea*), non-native blackberries, and other non-native invasive species will be removed from the site by spraying or mechanical removal. Bare areas will be seeded with a native upland or wetland grass seed mix as appropriate and native trees and shrubs will be installed to improve species diversity. Standing snags, downed logs, and large woody material piles will also be installed throughout the enhancement areas to improve habitat structure. Coniferous trees will be the dominant species planted in the riparian area as they provide the most shade.

Increase Mainstem Channel Complexity

Large woody material will be installed within the mainstem of the Coweeman River in designated areas to provide habitat complexity within the river itself. Benches or shelves will also be created in designated areas by reshaping portions of the river bank. A stretch of the river contains submerged car bodies and old farm equipment that was dumped into the river adjacent to the bank. This garbage will be removed and large woody material will be anchored along the bank. Removal of the debris could lead to erosion along the bank, and installation of the woody material will work to prevent potential erosion.

Mature Forest Preservation

Approximately 206 acres of mature forest will be preserved within the proposed bank site. This area is in danger of being logged. Preservation of this priority habitat will provide a significant wildlife corridor that will extend from a hillside to the river that can be utilized by a multitude of different species.

PROPOSED SERVICE AREA AND PROJECT NEEDS ANALYSIS

PROPOSED SERVICE AREA

The proposed service area for wetlands and other aquatic areas includes WRIA 26 – Cowlitz River Watershed and its major tributaries below the Mayfield Dam, as well as the 12-digit Hydrologic Unit Code (HUC) mapped sub-basins along the Columbia River between RM 78 near Kalama (upstream limit) and RM 56 near Longview (downstream limit) (See Figure 4). The upstream extent of the service area along the Columbia River bisects HUC 17080080106 and is drawn along the contributing basin of Schoolhouse Creek, as a southern boundary of this HUC extends approximately 7 miles farther upstream. Portions of the Lower Columbia River floodplain were included in the service area based on the extent of tidal influence at the proposed Bank project and the similarities in riverine floodplain geomorphology and function at the project site, compared with other areas along the lower Columbia River floodplain. The upper and lower limits of the service area along the Columbia River are based on a reasonable geographical distance of potential projects from the proposed Bank site location and the inclusion of developing areas where future projects would benefit from the use of the Bank.

A conservation credit and ESA service area for salmonids has not yet been developed, but will be developed in consultation with NOAA and other involved stakeholders including input from tribal communities that have interests along the Lower Columbia River.

PROJECT NEEDS

The WRIA 26 Cowlitz River Watershed is relatively rural and includes Cowlitz, Lewis, and Skamania Counties and the small cities of Kelso, Castle Rock, Toledo, Vader, and Winlock. A portion of Interstate 5 runs north and south through the watershed. Potential projects that could use the Bank include local public infrastructure projects such as roads, railroads and bridges, public utility districts, Washington State Department of Transportation projects along the interstate and rail transportation corridor, public and private utility projects, various port projects, commercial and industrial development, as well as residential development projects.

SITE PROTECTIONS

The proposed Bank project will be protected under a conservation easement approved by the IRT. Habitat Bank will identify a qualified land steward and provide an adequate endowment to insure that the site is protected in perpetuity. Habitat Bank will post financial assurances to insure that the project can be completed prior to any credits being released from the project site.

CULTURAL RESOURCES

There is currently no documented information regarding cultural resources on the proposed mitigation bank site. Because ground disturbing activities such as grading and planting will occur within the project, a cultural resource survey is needed. A Section 106 consultation will be initiated through the USACE after the on-site cultural resource survey is completed by a qualified archaeological firm.

REFERENCES

Federal Register. 2005. *Endangered and Threatened Species; Designation of Critical Habitat for 12 Evolutionarily Significant Units of West Coast Salmon and Steelhead in Washington, Oregon, and Idaho; Final Rule*. Volume 70. Number 170. 50 CFR Part 226. September 2.

Hruby, T. 2004. *Washington State Wetland Rating System for Western Washington-Revised*. Washington Department of Ecology Publication # 04-06-025. Olympia, Washington.

Lamperth, J., Zimmerman, M., Rawding, D., Campbell, L., Glaser, B., Sharpe, C. 2013. *Coweeman River Salmonid Production Evaluation: 2011 Completion Report*. Washington Department of Fish and Wildlife Fish Program Science Division

Lower Columbia Fish Recovery Board (LCFRB). 2010. *WA Lower Columbia Salmon Recovery and Fish and Wildlife Subbasin Plan*. Longview, Washington. May.

Myers, J., and coauthors. 2006. *Historical population structure of Pacific salmonids in the Willamette River and lower Columbia River basins*. U.S. Department of Commerce, NOAA Technical Memorandum NMFW-NWFSC-73.

Natural Resources Conservation Service (NRCS). 2013. *Hydric Soils List for Washington*. Online document <<http://soils.usda.gov/use/hydric/lists/state.html>>. Website accessed June 2013.

Natural Resource Conservation Service (NRCS). 2013. *Cowlitz County Area*. Online document <http://www.or.nrcs.usda.gov/pnw_soil/wa_reports.html>. Website accessed June 2013.

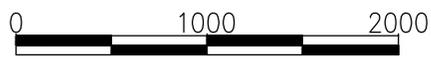
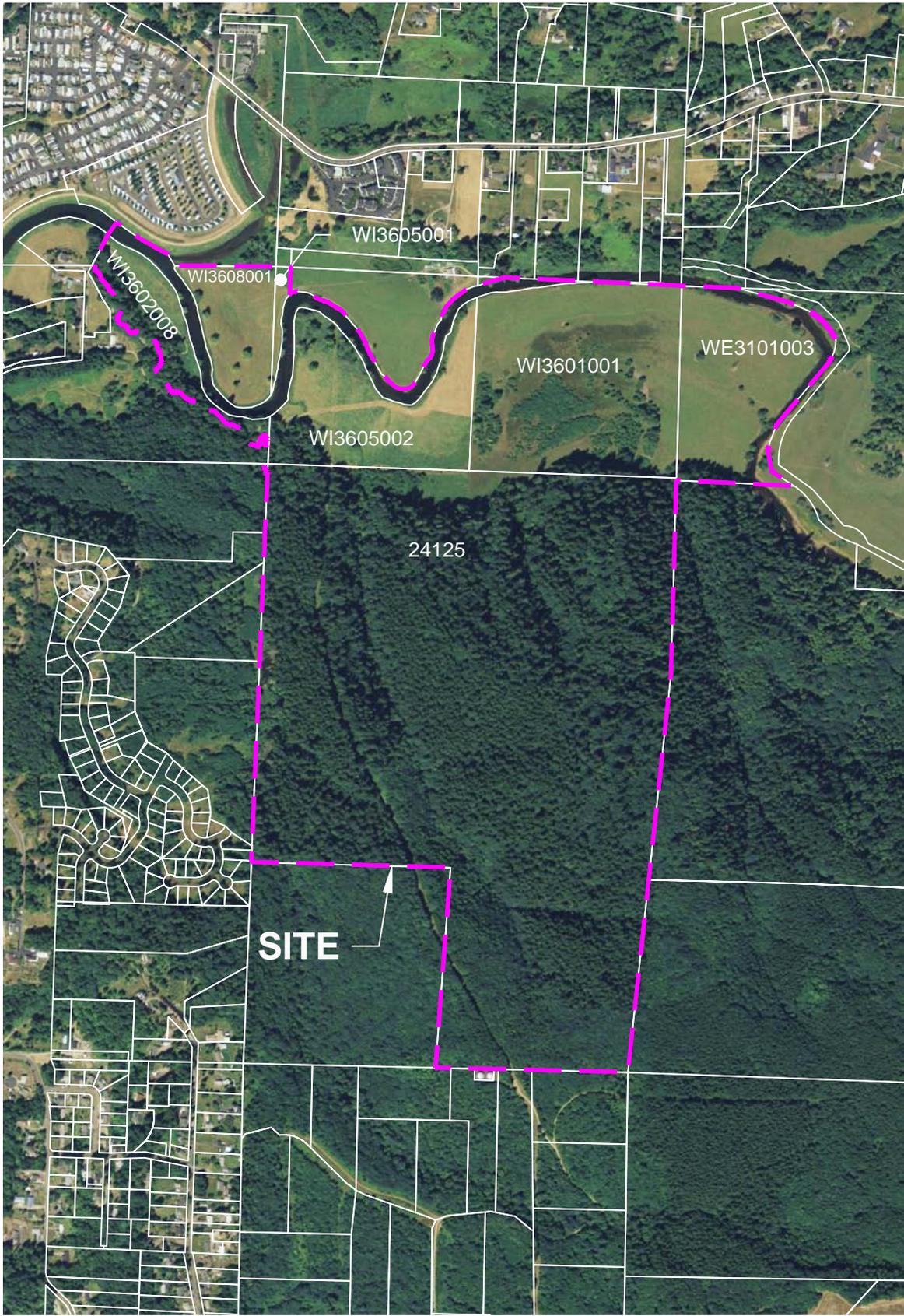
Washington State Department of Ecology (Ecology). 2013. *Water Quality Assessment for Washington 303(d)/305(b) Integrated Report Viewer*. <http://www.ecy.wa.gov/programs/wq/303d/currentassessmt.html>. Website accessed June 2013.

Washington Department of Fish and Wildlife (WDFW). 2008. *Priority Habitat and Species List*. Olympia, Washington. 177 pp.

Washington Department of Fish and Wildlife (WDFW). 2013 *SalmonScape*. <http://www.wdfw.wa.gov/mapping/salmonscape.index.html>. Website accessed June 2013

Hruby, T., K. Harper, and S. Stanley. 2009. *Selecting Wetland Mitigation Sites Using a Watershed Approach*. Washington State Department of Ecology Publication #09-06-032.

7/25/2013 1:50 PM S:\Cowitz-WA\Kelso\1209-Habitat Bank\1209.14-Coweeman River Consolidated Mitigation\1209.14-Figures\1209.14_SITE.dwg Jennifer



SCALE IN FEET



ECOLOGICAL LAND SERVICES, INC.

1157 3rd Ave., Suite 220
Longview, WA 98632
Phone: (360) 578-1371 Fax: (360) 414-9305

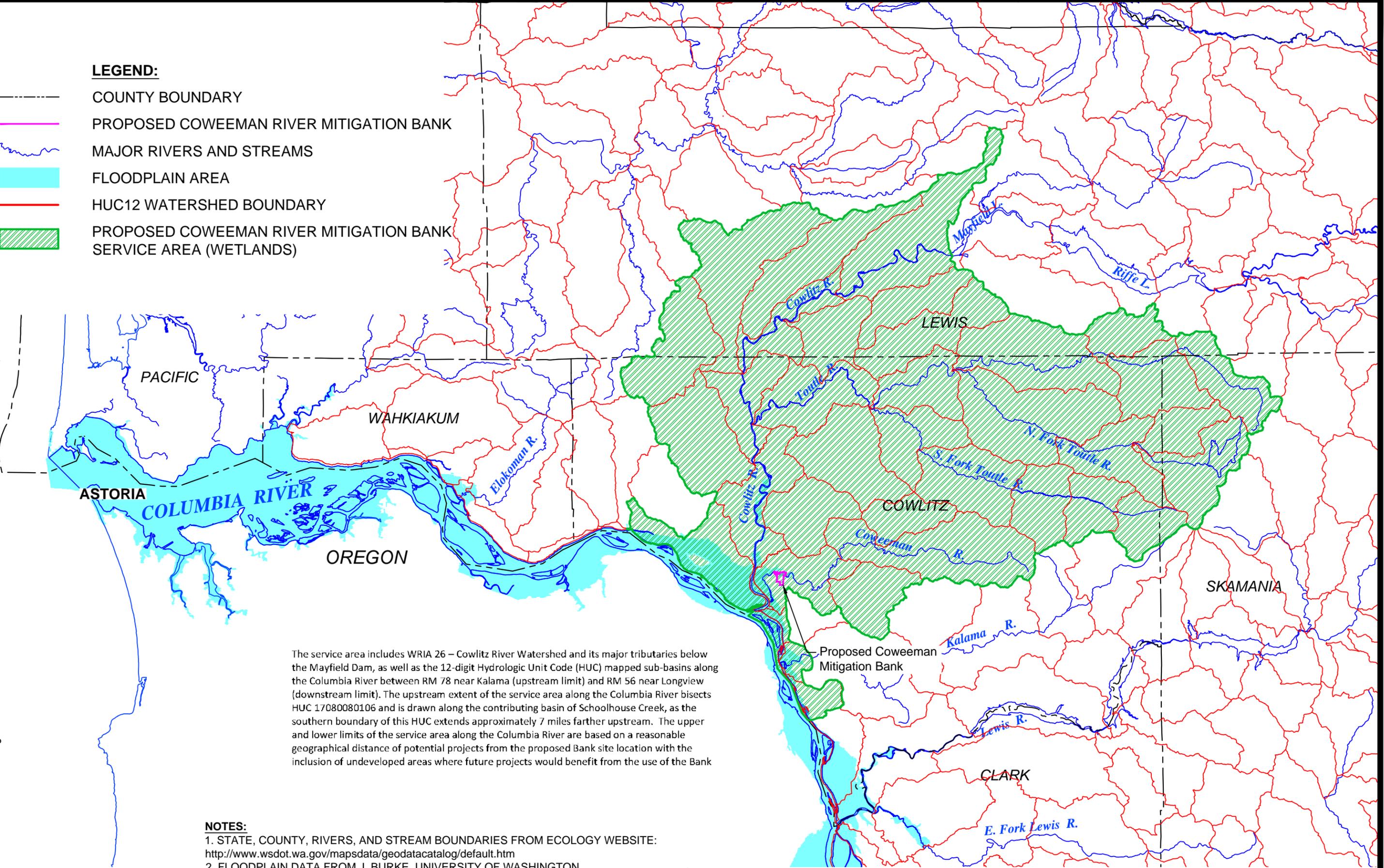
Coweeman Mitigation Bank
Figure 2
Parcel Map

7/25/2013 2:00 PM S:\Cowlitz-WA\Kelso\1209-Habitat Bank\1209-14-Coweeman River Consolidated Mitigation\1209-14-Figures\1209-14-SVC.dwg Jennifer Johnston

LEGEND:

-  COUNTY BOUNDARY
-  PROPOSED COWEEMAN RIVER MITIGATION BANK
-  MAJOR RIVERS AND STREAMS
-  FLOODPLAIN AREA
-  HUC12 WATERSHED BOUNDARY
-  PROPOSED COWEEMAN RIVER MITIGATION BANK SERVICE AREA (WETLANDS)

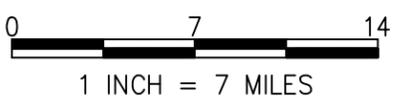
PACIFIC OCEAN



The service area includes WRIA 26 – Cowlitz River Watershed and its major tributaries below the Mayfield Dam, as well as the 12-digit Hydrologic Unit Code (HUC) mapped sub-basins along the Columbia River between RM 78 near Kalama (upstream limit) and RM 56 near Longview (downstream limit). The upstream extent of the service area along the Columbia River bisects HUC 17080080106 and is drawn along the contributing basin of Schoolhouse Creek, as the southern boundary of this HUC extends approximately 7 miles farther upstream. The upper and lower limits of the service area along the Columbia River are based on a reasonable geographical distance of potential projects from the proposed Bank site location with the inclusion of undeveloped areas where future projects would benefit from the use of the Bank

NOTES:

1. STATE, COUNTY, RIVERS, AND STREAM BOUNDARIES FROM ECOLOGY WEBSITE:
<http://www.wsdot.wa.gov/mapsdata/geodatacatalog/default.htm>
2. FLOODPLAIN DATA FROM J. BURKE, UNIVERSITY OF WASHINGTON.
3. HUC12 WATERSHED BOUNDARIES FROM USGS WEBSITE:
<http://www.water.usgs.gov/wsc/cat/17080001.html>.
4. BASE MAP PREPARED BY ECOLOGICAL LAND SERVICES, INC., JUNE 2013.



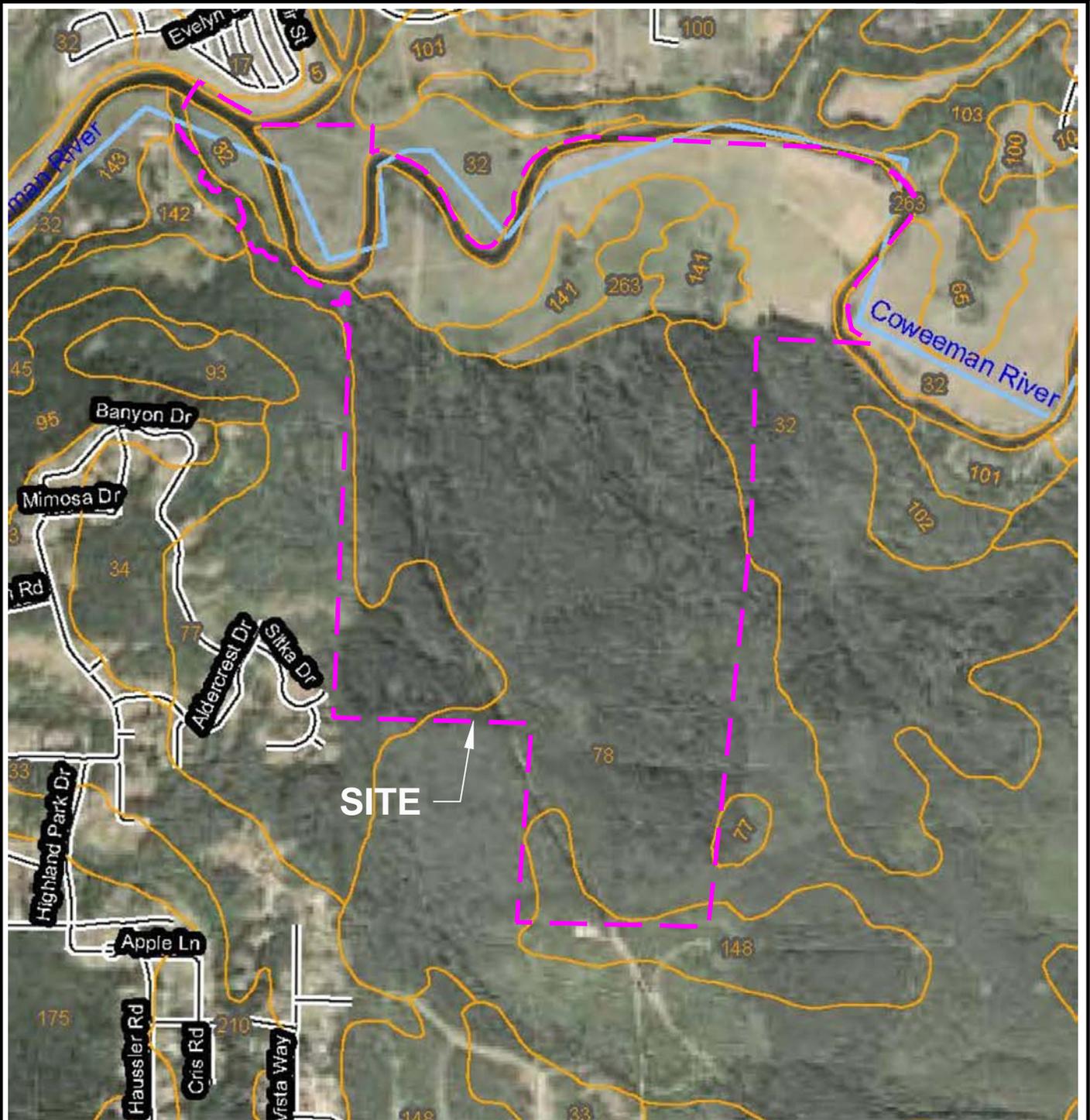
ECOLOGICAL LAND SERVICES, INC.

1157 3rd Ave., Suite 220

Longview, WA 98632

Phone: (360) 578-1371 Fax: (360) 414-9305

**Coweeman Mitigation Bank
Figure 5
Proposed Service Area**

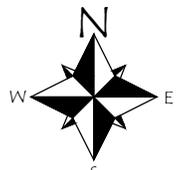


LEGEND:

- 5** Arents, 0 to 5 percent slopes. Not hydric.
- 32** Clato silt loam, 0 to 3 percent slopes. Not hydric.
- 77** Hazeldell gravelly silt loam, 20 to 30 percent slopes. Not hydric.
- 78** Hazeldell gravelly silt loam, 30 to 65 percent slopes. Not hydric.
- 141** Newberg fine sandy loam, 0 to 3 percent slopes. Not hydric.
- 142** Olequa silt loam, 0 to 8 percent slopes. Not hydric.
- 148** Olympic silt loam, 20 to 30 percent slopes. Not hydric.
- 263** Water



SCALE IN FEET



ECOLOGICAL LAND SERVICES, INC.

1157 3rd Ave., Suite 220
 Longview, WA 98632
 Phone: (360) 578-1371 Fax: (360) 414-9305

Coweeman Mitigation Bank
Figure 6
Soils Map