SKAGIT ENVIRONMENTAL BANK

Skagit County, Washington

Public Notice Version of the

Wetland Mitigation Bank Prospectus

Prepared for

The Mitigation Bank Review Team

Prepared by

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Skagit Environmental Bank

Bank Prospectus

Clear Valley Environmental Farm, LLC

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INTRODUCTION

We have organized this Prospectus into three major sections. In Section I (titled "**General Description**), we describe ourselves—the sponsors of the Skagit Environmental Bank (the Bank), and our goals and objectives.

In Section II (titled "**Physical, Technical, and Scientific Aspects**), we describe the physical, technical, and scientific aspects of the project including the design of each phase and the proposed functional change.

In Section III (titled "**Administrative, Operational, and Legal Matters**"), we turn from the physical to the administrative, operational and legal matters affecting the Bank. We discuss the question of the service area that we propose the Bank will serve and we describe the business and legal operations and aspects of the Bank during and after construction, and the permanent protection mechanism that we propose.

SECTION I. GENERAL DESCRIPTION

Project Sponsor and Owner

The Skagit Environmental Bank sponsor and owner is Clear Valley Environmental Farm, LLC, a limited liability company. (We sometimes call Clear Valley Environmental Bank, LLC, "We" throughout the Prospectus.) Clear Valley Environmental Farm, LLC, will buy the Property described below, and will be constructing the Skagit Environmental Bank on a portion of that property. Below, we list the names, addresses and numbers of your contacts with the Skagit Environmental Bank and Clear Valley Environmental Farm, LLC:

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Our Goal and Objectives

We want to create a general-use, multi-client bank that will restore reaches of the main stem of Nookachamps Creek, the East Fork of Nookachamps Creek, and Mud Lake Creek and associated floodplain wetlands (please see Figure 1 Site Location in the Appendix). We intend to restore riverine hydrologic processes, side-channel habitat, and associated palustrine emergent,

scrub-shrub, and forested wetlands. We intend to construct the Bank in three phases that will function autonomously. By doing this we intend to achieve the following objectives:

- **Improve Wildlife and Fish Habitat Conditions** by improving, and connecting important habitat in the immediate area. This will include improved habitat for the Marbled Murrelet and the Spotted Owl, and for many other non-listed fish and wildlife; by providing additional winter roosting refuge habitat for ducks, trumpeter swans, Wrangel Island snow geese, Canada geese, and other wildlife during established hunting seasons; and by enhancing the existing eagle habitat with increased fishing opportunities and forest cover privacy. We will improve fish habitat by increasing the quality and diversity of aquatic and riparian habitat; by improving water quality; by reducing sediment runoff into the creeks; by lowering water temperatures in the summer over the long term of the development (in the short term, some new channels will not be shaded until the new trees planted have matured and can shield the water from the sun, but these new un-shaded channels will only have water flow in them during the winter, when water temperatures are not, or are at least are less of, an issue); and by providing rearing, refuge, and migration habitat for fish, amphibians, reptiles, and other aquatic dependent species. These activities will also **improve local and regional wildlife habitat connectivity** by connecting the 355 acres comprising the Bank Site and the 2 miles of stream corridor that run through the Bank, with 614 acres of associated wetlands and 9.1 miles of stream corridor, to form a total connected area of 925 acres of wetland and 11.1 miles of stream corridor; and by adding a major feeding and resting stopover opportunity for migrating fish and birds coming from a network of ten other, nearby, significant waters of the State.
- **Improve Hydrologic and other Floodplain Processes** by improving stream flow maintenance, floodplain connectivity, storm-water attenuation, and ground-water recharge; by reducing creek width-to-depth ratios; and by reducing the frequency and duration of low surface flows.
- **Improve Water Quality in the Lower Skagit Watershed** by increasing dissolved oxygen; by reducing sediment inputs to creeks; and by reducing floodplain erosion from runoff and splash (raw un-vegetated soils that are mobilized into waterflows by rain). By removing the dairy that is now on the property (see the more detailed description of the property below) we also intend to (but because of difficulties of measurement and disagreement in the scientific community, cannot be certain that we will) reduce nitrogen, phosphorous, and fecal coliform in the water that flows out of the property that we will be developing as the Bank.

SECTION II. PHYSICAL, TECHNICAL, AND SCIENTIFIC ASPECTS

The Property and the Bank Site

The Property (the Property as that term is used in this Prospectus means the entire 805 acre farm, of which the Bank will encompass approximately 355 acres) is located in Skagit County, Washington, 1.5 miles northeast of the Mount Vernon urban center, but just outside the city limits of Mount Vernon. It is in Sections 10, 11, 15, and 14, Township 34 North, Range 4 East on the Mount Vernon 7.5 minute USGS quadrangle map, Skagit County, and in the

Washington State Water Resource Inventory Lower Skagit-Samish Watershed Area 03. Please See Figure 1 Site Location in the Appendix.

All of the 805 acres of the Property that we will buy is now a dairy and cattle farm. Much of the Property is planted in corn each year. The rest is grazing pasture. Only a part of the 805 acre farm is suitable for the Bank, but the farmer who owns and operates the farm will not sell us a part of it; he will only sell us the entire dairy farm. This gives us the advantage of picking the best 355 or so acres of the farm to turn into our multi-client wetland mitigation bank. Those 355 acres are referred to in this Prospectus as the "Bank". Please see Figure 2 Property Map in the Appendix, for a map of the Bank. (To avoid any ambiguity, we should note that Barney Lake and its surrounding land are on the Property but are ***not*** included in the Bank.)

Rationale for Site Selection

The Property's hydrologic and hydraulic conditions offer significant opportunity to create a self-sustaining restoration with numerous functions.

There is potential to restore high quality salmonid rearing, refuge and migration habitat and numerous other wetland and floodplain functions within the restored creeks and floodplains.

The magnitude of the potential ecological and physical functional improvement is significant; the Bank offers extremely high "bang-for-the-buck" or return of functional improvement. As stated above, the farmer's unwillingness to sell us less than the entire 805 acre farm has given us a luxury in one sense. We do not believe that there will be a demand to buy credits for a 805 acre bank in the foreseeable future. We feel more comfortable with a bank of about 355 acres. Therefore, we have scoured the 805 acres to find the very best site for development of the Bank. We have specifically chosen 355 contiguous acres that we believe will provide the greatest chance for functional improvement or lift. We have been given, and we have taken, the rare opportunity to choose the exact boundary and areas that will maximize the functional improvement.

Bank Compatibility with Social, Political and Environmental Entities

One of the criteria set out in Section 173-700-320(k), the Washington State Pilot Rule on mitigation banking is that the Bank project be consistent with existing planning documents, such as watershed, zoning, or comprehensive land-use plans and critical area rules. We have carefully reviewed all applicable Washington State, Skagit County, and other planning documents, ordinances, rules and regulations.

We have reviewed such plans, rules and regulations for the City of Mount Vernon (which, although it is near the Bank site, has no jurisdiction over the Bank site). We have reviewed the applicable charters and rules and regulations of those organizations in Skagit County established to preserve farmland--Skagitonians to Preserve Farmland, the Skagit Conservation District, and the Skagit County Farmland Legacy. We have discussed the Bank project with each of them. We have also submitted the proposed Bank plans to the relevant Indian Tribes in the area and have discussed the Bank site with them. We have done all of this with reference to the Washington Growth Management Act.

We have determined that the proposed development of the Bank does not contravene any of the written proposed or currently effective plans, rules, regulations, or charters of any of these organizations. In this context, we have taken particular care to take the agricultural communities "no net loss" policies into account in the development for the Bank.

Existing Conditions on the Bank Site

Landscape Position of the Bank Site and Surrounding Land Uses

The Bank site is in the Lower Skagit WIRA 03 watershed, and the Nookachamps sub-watershed. The sub-watershed drains an area of 83 square miles and flows into the mainstream of the Lower Skagit River from the south bank at river mile 18.8. This is a spot about halfway between the cities of Mount Vernon and Sedro Woolley. The northern boundary of the sub-watershed is defined by almost 14 miles of the Skagit River. Surface waters in the sub-watershed include approximately 202 miles of creeks and streams (NWMC et al. 1995).

The City of Mount Vernon surrounds the Bank on three sides (northwest, west, and southeast). This part of Mount Vernon is developed and/or zoned for commercial and residential development. The Mud Lake housing community development is located less than 0.5 mile to the northeast and the land use to the north and southeast is zoned for agricultural use or as rural reserve. Most future land development in the Nookachamps watershed is expected to take place along the corridors of State Highway 9 and 538 (which are adjacent to the Bank). Newly extended urban growth boundaries of the City of Mount Vernon extend to the edges of the Bank (NWMC et al. 1995). Please see Figure 3 Land Use Map in the Appendix.

The Bank is located at elevations from approximately 20 feet above sea level to 100 feet above sea level. Most of the Bank is located within the 100-year flood plain of the main stem of Nookachamps Creek and the East Fork of Nookachamps Creek, both of which are reaches of the Lower Skagit watershed.

Management History of the Bank Site

Settlers began clearing the Bank site of all riparian and wetland forest habitat starting around 1900. The entire bank site was not completely cleared until after 1941. Farmers have maintained some or all of the Bank site as farmland or pasture, mostly free of native vegetation, since that time. All three creek channels on the Bank site (the two forks of Nookachamps Creek and Mud Lake Creek) have been straightened and channelized (WDOE 2004c).

Over the years farmers have graded, filled, and flattened the floodplains on the Bank site to remove high and low spots. They have also put in over 1.2 miles of ditches, some of them 15 feet deep, to drain the Bank site surface and ground water. Drain tiles have not been installed on the Bank site because the ditches have performed adequately to drain the Bank site of surface and sub-surface water. The effect is to change the hydrology of the majority of the Bank site—what was a wetland is wetland no more.

The Bank site has been a row crop and dairy farm operation for at least the last 50 years. Almost the entire Bank site is farmed for grazing or feed crops, including corn. The dairy barn

(near the Bank site) houses the majority of the dairy herd for most of the year. The fields in the Bank rotate from pasture to crop; the cows rotate from the dairy to the pastures (they are housed in the dairy facilities and then moved to the pastures for grazing when they are not part of the milked herd). There are 1,200 dairy cows and bulls associated with the dairy farm that currently is operated on the Property.

A tractor scraper collects manure from the dairy barns every day. The tractor scraps the semi-solid manure into a low-walled waste storage structure. The farmer applies the manure to much of the Bank site land as fertilizer when he can gain access to the fields (usually in October, prior to the rainy season), and at other times to avoid a rupture or overflow of his manure holding ponds in the event of heavy rains. Liquids from the dairy, including urine and wash-water for milking equipment, are also collected in a storage pond and sprayed onto the farm in compliance with a Washington Department of Ecology approved Dairy Management Plan.

Classes of Existing Wetlands, Aquatic Resources, and Historic Wetlands on the Bank Site

We have performed a wetland delineation of the Bank site. This report has been confirmed by the United States Army Corps of Engineers and the Washington State Department of Ecology. We have included approximately 59 acres of palustrine or riverine wetlands in the 355 acre Bank; these wetlands exhibit all of the definitional wetland characteristics, and therefore have been delineated as existing wetlands. The remaining approximately 296 acres of the Bank are plowed areas that have modified hydrologic conditions; they were likely wetlands prior to being ditched or graded to drain for row cropping (sometime after 1941), but are no longer meet the definition of wetlands.

We identified and delineated three different types of existing wetlands on the Bank site; they can be classified according to the *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin et al. 1979), as follows.

1. Palustrine: Persistent Emergent (approximately 27 acres within the Bank)
2. Palustrine: Non-Persistent and Plowed (approximately 23 acres within the Bank)
3. Riverine or Other Waters of the United States (approximately 9 acres within the Bank)

The riverine are those areas within the creek channels, within the ordinary high-water limits, along the Nookachamps and the East Fork of the Nookachamps.

Existing Area of Historic Wetlands (296 acres within the Bank).

We refer to the remaining 296-acre area of the Bank site as “Historic Wetland” for the following reasons. These areas were likely once wetland but currently do not exhibit wetland characteristics. According to our interpretation of historic conditions on a 1941 National Resource Conservation Service aerial photograph and soil survey almost the entire Bank site appears to have been emergent, scrub-shrub, or forested habitat. The tree pattern of form and shadow is not as dense as the pattern of the evergreen upland forests that we know occur on the upland hillsides surrounding the valley in which the Bank site lies. This suggests that a mix of deciduous and evergreen trees were in the floodplain. Some fields, immediately adjacent to the Bank site, were plowed and farmed, suggesting that they were non-hydric. This also suggests that

the Bank site areas may not have been converted to farmland at that time because of their difficult, hydric conditions.

A total of approximately 6,400 feet (1.2 miles) of ditches were put in place within the Bank site after 1941. The 1941 aerial photo also shows the pre-ditched fields and stream courses. All of the stream courses and the ox-bow scaring of the fields, which you might expect to see, have been graded out. The Mud Lake Creek channel, for example meandered through the northern part of the Bank site (please see Figure 2 Property Map in the Appendix) rather than through its existing channel. The aerial photo also shows areas of emergent and scrub shrub habitat. We designed the proposed phases to restore these same patterns and habitats.

Our assumption (which is based on the observation of field conditions and the comparison of conditions in historic aerial photographs described in more detail in the next paragraphs) is that plowing and grading coupled with the network of drainage ditches have significantly altered the hydrology of the floodplain to its current non-wetland conditions. Part of our plan is to re-grade the Bank and fill the ditches. If the drainage ditch system were left in place and if the plowed fields were left fallow, the system would continue to effectively drain major portions of the fields and maintain the soils in non-hydric conditions during the growing season.

Our assumption is based on the following:

- The aerial photograph from the NRCS (taken in 1941) shows that the plowed fields had areas with distinct natural drainage features and no artificial drainage ditches.

- Recent aerial photographs and field observations show no evidence of natural drainage in the farmed fields. It appears that prior owners graded the fields smooth, angled the grading to drain surface water into major drainage ditches, and built berms along the edges of most fields, to contain and channel the flow of water away from the fields.

- Soils, in those areas where the ditches and grading are ineffective in draining the flow of surface water or shallow ground water, contain hydric soil characteristics and some pioneer hydrophytic plants.

The following is a table of the approximate total area of the Bank broken down according to existing wetland and historic wetland areas.

Table 1: Summary of Existing Acreages (approximate)

	Total
Palustrine: Persistent Emergent	27
Palustrine: Non-Persistent and Plowed	23
Riverine	9
Historic Wetland Graded and Drained	296
Total Areas	355

Existing Soils

According to the Soil Survey of Skagit County Area, Washington (Soil Conservation Service compiled in 1980) there are five mapped silt-loam soil series on the Bank. The southern portion of the Bank consists primarily of:

- The Bellingham silt-loam series (hydric; which is a deep, poorly drained and formed in old alluvium and lacustrine material) where drainage ditches are used to lower the water table.
- The Nookachamps silt-loam series (hydric; which consists of very deep, poorly drained floodplain soils formed in alluvium), where drainage has been altered by tilling and ditches are used to lower the water table during the growing season.
- Portions of the Skipopa silt-loam series (includes Bellingham hydric inclusion, which is a very deep and somewhat poorly drained, formed on the floodplain terraces).

The central portion of the Bank consists of:

- The Sumas silt-loam series (hydric; which is a very deep, poorly drained floodplain soil formed in alluvium) where drainage and hydrology have been altered by tilling.
- The Field silt-loam series (includes Skagit and Sumas hydric inclusions, which is a very deep, moderately well drained soil on the floodplain).

The northern portion of the Bank consists of:

- The Sumas silt-loam series (hydric; which is a very deep, poorly drained floodplain soil formed in alluvium) where drainage has been altered by tilling.
- The Nookachamps silt-loam series (hydric; which consists of very deep, poorly drained floodplain soils formed in alluvium), where drainage has been altered by tilling and ditches are used to lower the water table during the growing season.

Field samples from plowed areas suggest that the soils have been modified by tilling, grading, and drainage ditching. Variations in these soil conditions were field verified. Despite the affects of plowing, some soils still contain hydric characteristics. Those areas were mapped as wetlands (palustrine, non-persistent and plowed). Most of the soils sampled during the delineation process, and delineated as palustrine-- persistent and persistent and grazed wetlands, where plowing does not regularly occur-- exhibited hydric characteristics typical of the soil series descriptions.

Existing Hydrology

Prior to Euro-American settlement, the lower floodplain of the Nookachamps Creek was covered with a mature riparian forest. Archival records indicate the Skagit River valley in the vicinity of the Bank site exhibited a multiple-thread channel network with forested islands and frequent woody debris jams (Collins and Montgomery 2001). Barney Lake in the northwest portion of the farm, and the floodplain at the southern portion, adjacent to the Bank, are all that remain of a once extensive wetland forest. Early operators of the farm property apparently graded the floodplain to fill low areas and constructed ditches to drain the land for agriculture. Both the main-stem and east fork of Nookachamps Creek have been impacted to some extent by straightening and confinement by berms.

Two hydrologic sources are at work on the Bank site: 1) Precipitation or ponding from above-ground sources such as rainfall and river bank overtopping, and 2) Shallow ground-water fluctuation. Both of them affect the soil hydrologic conditions on the Bank during the growing season. We used evidence of the effects of both sources to delineate all wetlands.

Groundwater conditions within the floodplain of the Nookachamps Creek are influenced by recharge from upland areas, flooding from the Skagit River, and flow in the main-stem and east fork Nookachamps Creek. Deforestation and drainage improvements for agriculture at the Bank site are the two most significant landscape modifications to have impacted local groundwater conditions. Both of these modifications likely contributed to the lowering of the groundwater table throughout the Bank. The reintroduction of woody debris and filling in of the drainage ditches, as proposed for the project, have the potential to restore pre-settlement groundwater conditions (Brummer et al. 2005).

The change in hydrologic conditions will not extend up the stream gradient for either the Nookachamps or the East Fork and will not adversely affect adjacent properties. The property above the Bank along the Nookachamps is existing wetland which becomes confined by steep slops and a steep stream channel gradient. Therefore, local affects of hydrologic change will be positive and not extend beyond Route 9. Adjacent the Bank and along the upper end of the East Fork is a National Resource Conservation Service restoration site which would benefit from a rise in ground water hydrology. The area above the NRCS site is confined by steep slopes and a steep stream channel gradient. Therefore, local affects of hydrologic change will be positive and not extend beyond Route 9.

We used evidence in the soils, evidence of surface ponding, 2003 and 2004 spring and fall precipitation data, the farmers' observations, and well data to identify evidence of hydric and non-

hydric conditions, and to determine the timing and duration of inundation. The evidence suggests that the palustrine--non-persistent and plowed wetland areas--are inundated or saturated to the surface for a consecutive number of days for between 12 days, or 5 percent of the growing season, and 30 days, or 12.5 percent of the growing season, in most years.

Soil, hydrology, and vegetation conditions in the palustrine--persistent and emergent--wetlands suggest that they are areas which are inundated and/or saturated to the surface for a consecutive number of days for more than 30 days, or 12.5 percent of the growing season.

Existing Vegetation

According to the Soil Survey of Skagit County Area, Washington (Soil Conservation Service issued in 1989), the growing season is 242 days from March 14 through November 11.

There is persistent vegetation on a portion of the 59 acres of the Bank site that is existing wetland; the remaining areas are plowed. The Palustrine Wetland areas (that is, those areas that are persistent or emergent, but not plowed) have all three indicators of wetland condition throughout most of the growing season and are comprised primarily of reed canary grass (*Phalaris arundinacea)* (facw); creeping buttercup (*Ranunculus repens)* (facw); and meadow foxtail (*Alopecurus pratensis)* (facw). In addition, the following plant types are scattered throughout:

Rumex obtusifolius, bitter dock (fac)
Rumex crispus, curly dock (facw)
Ranunculus acris, tall buttercup (facw)
Senecio indecoris, mt. butterweed (facw)
Trifolium repens, white clover (facu)
Festuca arundinacea, tall fescue (fac-)
Juncus effusus, soft rush (facw+)
Juncus ensifolius, daggerleaf rush (facw)

The adjacent vegetated uplands are covered primarily with white clover (*Trifolium repens)* (facu); orchard grass (*Dactalis glomerata)* (facu); and tall fescue (*Festuca arundinacea)*(facu). In addition, the following are scattered throughout:

Matricaria discoidea, pineapple weed (facu)
Plantago major, broadleaf plantain (facu)
Capsella bursa-pastoris, shepards purse (facu)
Equisetum sp. (fac)
Cirsium sp., thistle (facu)
Disacus fullonum, teasel (facu)
Stellaria crispin, chickweed (fac +)
Phalaris arundinacea, reed canary grass (facw)
Senecio indecoris, mt. butterweed (facw)

There are individual, or patches of, woody plant species scattered throughout the vegetated wetland areas and found along the upland edges of the bermed areas. These species include the following:

Populus balsamifera, black cottonwood (fac)
Alnus rubra, red alder (facw)
Rubus spectabilis, salmon berry (fac +)
Spirea douglasii, hardhack (facw)
Salix rigida, heartleaf willow (obl)
Salix scoulerana, scouler willow (fac)
Salix stichensis, sitka willow (facw)
Rosa nutka, nutka rose (fac)
Sambucus racemosa, red elderberry (facu)
Rubus procerus, Himalayan blackberry (facu)

Corylus cornuta, beaked hazelnut (facu)
Cornus serisia, red-osier dogwood (facw)
Rubus laciniatus, evergreen blackberry (facu+)
Crataegus douglasii, black hawthorn (fac)
Thuja plicata, cedar (fac)

The few plants that were found in the riverine system that could out-compete the reed canary grass (*Phalaris arundinacea)* (facw), include:

Iris pseudcorus, yellow iris (obl)
Nuphar luteum, yellow pond lilly (obl)

Most of the plants (other than corn) common in the plowed fields (palustrine, non-persistent and plowed) are grasses planted by the farmer as over-winter crops (primarily orchard grass (*Dactalis glomerata)* facu; and white clover (*Trifolium repens)* facu). Upland and wetland pioneer plants are established in between the planted species. Plant dominance was one factor we used in determining the wetland boundaries in the plowed areas. Additional vegetation in the plowed wetlands or uplands (depending on dominance) includes the following:

Ranunculus repens, creeping buttercup (facw)
Plantago major, broadleaf plantain (facu)
Phalaris arundinacea, reed canary grass (facw)
Stellaria crispa, chickweed (fac+)
Festuca rubra, red fescue (fac+)
Festuca arundineacea, tall fescue (fac-)
Cirsium sp., thistle (facu)
Disacus fullonum, teasel (fac)
Rumex crispus, curly dock (facw)

According to the Washington Department of Natural Resources (2003) Washington Natural Heritage Program information on rare plants and high quality ecosystems, there are no rare plants or high quality ecosystems on the Bank site. The bearded sedge (*Carex camosa*) is listed as a species of concern that is reported as existing near the Bank Site (NWMC et al. 1995). It was not identified in the proposed Bank site areas and, if it exists, it would likely be in the protected off-site areas of Barney Lake. According to the Natural Heritage Program's historical account, the bearded sedge was last observed within a 4-mile area (that includes the Bank site) in 1933 and has not been verified. It is listed by the State as Sensitive and ranked as Imperiled.

Design Development Plan

The Skagit Environmental Bank will restore reaches of the Nookachamps Creek, the East Fork of the Nookachamps Creek, Mud Lake Creek, and associated floodplain wetlands. The proposed Bank will be constructed in three phases and will re-establish or rehabilitate 13,000 feet (2.5 miles) of existing riverine channel habitat, restore 9,720 feet (1.8 miles) of new high-flow channel, and restore (re-establish or rehabilitate) 355 acres of palustrine emergent, scrub-shrub, and forested wetlands.

The primary bank design objective is to restore the wetland and floodplain functions that were typical of pre-agricultural disturbance, to produce a restored system that is dynamic and self sustaining, and to create a long-term management plan to address unforeseen changes.

The land uses adjacent to the Bank boundaries may be restored floodplain habitat, primarily forested, or kept in low impact agriculture. We are currently working with non-profit and government organizations to share in ownership and management of the remaining property surrounding the Bank, with the intent that the area be restored to forested wetland or riparian habitat, or wintering waterfowl foraging areas.

Re-establishment of Former Wetlands and Rehabilitation of Existing Wetlands

Evidence indicates that all areas of the Bank were wetlands prior to 1900. After completing all phases, the Bank will be comprised in part of the 59 existing wetland acres that will be "Rehabilitation" restoration wetlands. These areas are either reed canary grass or plowed fields that exhibit wetland hydrology. The remaining 296 acres that are currently non-wetland (which we refer to through the rest of the Prospectus as "historic wetland") will be "Re-establishment" restoration wetlands (as defined in the Regulatory Guidance Letter on Compensatory Mitigation Projects for Aquatic Resource Impacts, No. 02-2, dated 12-24-02).

General Design Considerations

The restorations will result in a variety of wetland classes, vegetation communities, and canopy structures in the floodplain and along three creek reaches. Please see Figures 4, 5, 6 and 7, Typical Cross Sections in the Appendix for graphic representations of the post restoration property. Our goal is to:

- Restore in-channel and off-channel rearing, refuge, and migration habitat for salmonids, resident fish, amphibians, reptiles, and other aquatic dependent species
- Restore stream channel morphology with the addition of large woody debris, or engineered log jams, at certain intervals in order to effect change in geomorphic process (e.g., riffle and pool formation, channel bank undercutting, point bar formation, and duration of wetland inundation)
- Shade the stream channels by restoring a scrub-shrub and forest canopy
- Restore palustrine forested, scrub-shrub, and emergent habitat that will extend well beyond the edges of the creek channel and effect change in numerous hydrologic and hydraulic floodplain and wetland functions
- Restore a wildlife corridor connection between four existing wetlands within 0.5 mile of the Bank. Restore an unbroken vegetation corridor that is at least 150 feet wide and at least 30 percent forested and scrub-shrub which connects to existing wetlands that are at least 25 acres in size

Wetland Design Construction and Hydrology

Creek channels at the Bank site now lack hydraulic complexity. For that reason, one of our primary restoration objectives is to direct some of the flow into side channels. This will expand the floodplain and sustain wetland habitats.

The key to the success of this restoration project will be the management of the hydrologic regime. We will use creek flow and ground water elevation data (from wells and gauges) to determine the most appropriate elevations for the design of the various hydrologic conditions. We will identify the excavation elevations according to the ground water elevations during the first 30 to 60 days of the growing season or a date in late April. The side-channel areas, for example, will be excavated to an elevation defined by the ground water elevations and the creek fluctuation data and will likely be connected to the ground water table and have a low flow elevation that will provide "seasonally inundated or saturated" surface flow that is connected to the creek channel. During the non-growing rainy season, the channels will be permanently flooded and provide fish and waterfowl habitat. We will grade the ground surface to drain towards the river systems, which will prevent any ponding of water or stranding of fish.

We will grade the Bank surface areas to the target elevations, relative to ground water elevations that are similar to those in the reference area for a particular vegetation class. For example, forested communities in the immediate area thrive on a specific range of near surface ground-water fluctuation. We are measuring the fluctuation of the ground water relative to the soil surface throughout the growing season. We will replicate the difference between the ground water and the soil surface elevation under the reference forest, by grading surface elevations in the plowed Bank Site areas to match those in the forest.

Drainage Ditch Treatments

Surface drainage improvements are designed to minimize crop damage resulting from ponded water. This type of drainage improvement includes land leveling and smoothing and the construction of ditches that often drain to natural waterways. Although surface drainage improvements are designed to remove surface water, ditches that intersect a shallow groundwater table can lower groundwater levels as well.

Backfilling the drainage ditch and disconnecting it from the main-stem is expected to raise groundwater levels and restore floodplain hydrologic conditions in this area of the Bank. Backfilling the drainage ditch will also be assessed by comparing groundwater levels for a period of one year before and one year after construction activities.

Proposed Plantings

We intend to develop a simple planting scheme; we want to recognize the principles of plant succession while also providing diversity and structure. We selected plants based on research conducted within the Skagit watershed. We used the following sources to develop the plant list:

- Existing and proposed restorations in the area
- Rare plant communities and wetland ecosystems (Washington Natural Heritage Program)
- Two documents that researched the historical plant materials and communities present in the 1800's. The first is Collins, B. D. and Sheikh, A. J. 2003. Historical

aquatic habitat in river valleys and estuaries of the Nooksack, Skagit, Stillaguamish, and Snohomish watersheds, May 1, 2003. Report to Northwest Fisheries Science Center, National Marine Fisheries Service. The second is the mid-19th century stream channels and wetlands interpretation from archival sources for three north Puget Sound estuaries. Report Prepared for: Skagit System Cooperative. August 1, 2000.

Buffers

We are working with the Mitigation Bank Review Team (the group composed of representatives of the United States Army Corps of Engineers, the Environmental Protection Agency, the State Department of Ecology and other state and federal regulatory authorities, which is supervising and regulating the Bank project) to propose the appropriate buffers for the Bank site. The specific characteristics of the buffers that will protect the Bank site have not yet been proposed, but will be part of the final Mitigation Banking Instrument (the contract between the Bank sponsors and the regulatory authorities). As a guide for what will be deemed appropriate, generally these four primary factors should be considered in determining the appropriate width and character of buffers, no matter what the physical setting is:

- The quality, sensitivity, and functions of the aquatic resource
- The nature of adjacent land use activity and its potential for impacts on the aquatic resource
- The character of the existing buffer area (including soils, slope, vegetation, etc.)
- The intended functions of the buffer

Site-specific information is needed to determine the characteristics and width of the buffer that will make it effective. It is important to manage surface water discharges to wetland buffers to ensure effective treatment of pollutants.

Construction Phases and Proposed Types of Wetland

Our design team has been responsible for a number of riverine and palustrine wetland restoration projects and the success of those projects leads us to believe that the hydrologic conditions of the Skagit Environmental Bank restoration will be self sustaining. Currently we plan on constructing the Bank in these three general phases:

1. Make the modifications to restore the hydrology to the entire Bank site, and put down a wetland or upland seed cover crop as appropriate and wait a year. Please see Figure 9 Functional Phase 1 in Appendix for map.
2. Collect new data over that year, and then design the high-flow channels based on the new hydrologic conditions and data and excavate and plant the high-flow channels, then wait three years and plant the remaining restored hydrologic areas

with appropriate plants. Please see Figure 10 Functional Phase 2 in Appendix for map.

3. Finally, excavate the remaining "high" areas (or those areas that do not meet the wetland hydrologic conditions), and plant these excavated areas. Please see Figure 11 Functional Phase 3 in Appendix for map.

Construction Plan

We will do most of the work in phases (which we define below as "Functional Phases") on the whole Bank at one time. This plan is based on restoring functions on the entire Bank site, waiting to see how these changes affect the Bank, and then moving forward with the next functional modifications based on this real data.

Detail of the Three Functional Phases

Phase 1

The first functional phase will restore the wetland and floodplain hydrology to the majority of the Bank by removing all farming activities, filling all of the ditches, and constructing the engineered log jams in Nookachamps Creek and the East Fork of Nookachamps Creek. We will restore the streamside and ditch disturbed areas with a stabilizing mix of herbaceous and woody plants. We will plant a cover crop of herbaceous plants to stabilize the soils on the remaining Bank area. The species seed composition will be competitive with reed canary grass and we expect natural recruitment of other native herbaceous and woody plant species. Please see Figure 9 Functional Phase 1 Map in the Appendix.

We feel that these three actions will significantly change the hydrology and improve the fish and wildlife habitat. We know from the well data that we have collected so far that the ditches are functioning to drain or lower the ground water levels in certain areas of the Bank. We also know, from experience on other projects, that placement of the engineered log jams (ELJ's) will raise the average river levels and the surrounding ground water levels.

Based on our experience we anticipate that, as a result of these modifications, we will have restored wetland hydrologic conditions (saturation within a foot of the surface for more than 12 days) to more than 80 % of the site. About 20% of the Bank will still not be restored to hydrologic conditions (please see the areas labeled "High Spots" on the Phase 1 Plan). These areas are higher because in the past farmers graded the fields for drainage purposes and pushed the extra fill to the edges of the fields, thereby creating these higher bermed areas. For that reason, we have to excavate in order to bring the remaining surface down to our target hydrologic conditions near the ground water table. That will be done in Functional Phases 2 and 3.

Herrera Environmental Consultants, Inc., will complete a hydrologic model of what they believe to be a more accurate estimate of the area of restored wetland hydrology. This will give us an estimate of the area we expect to be hydrologically restored just by completing the ELJ and ditch modifications. The actual changes in hydrology will be measured during the year after we complete the Functional Phase 1 construction.

Phase 2

The second functional phase will itself be performed in two steps. We feel that by performing this functional phase in two steps we will better be able to guarantee the appropriate hydrology and restoration of the area restored by phase 1 (approximately 80% of the entire Bank, or 280 acres).

We will measure the exact area of hydrologic change (using well data) one year after we construct the ELJ's, remove the farming activities, and fill in the ditches. Then, we will construct the high flow channels based on the measured changes to river elevations and ground water hydrology on the areas of the approximately 280 acres where we feel most confident of the hydrology and where it will be ecologically appropriate to create high flow channels. As soon as we have constructed, we will plant the excavated channel areas. The areas are labeled emergent and scrub-shrub respectively on Figure 10 Functional Phase 2 Map in the Appendix. So, Step one of Functional Phase 2 is to excavate and plant the high-flow channels and adjacent emergent and shrub-scrub wetlands.

We will use this first portion as a pilot area and study it for 3 years. Based on our findings we will then perform (in year 5) Phase 2, which will be any necessary construction and planting of the remaining portion of this 280 acres in accordance with what is hydrologically and ecologically appropriate. This area is labeled "Forested Wetland" on the Functional Phasing Plan – Phase 2. The choice of woody plants on all phases will depend on the plant species and hydrologic requirements that we measure at our woody species reference areas.

Waiting to finish the woody species planting will allow for natural recruitment of native tree and shrub species, and allow us to monitor the hydrology of the remaining areas, design appropriate plant communities, and modify areas along the high-flow channels if necessary.

After we complete functional Phases 1 and 2, we will have restored approximately 80 percent of the total Bank, or 280 acres. We will know, and work with, the exact area after we complete Phases 1 and 2.

Phase 3

The third functional phase will be to excavate (down to the appropriate hydrologic conditions) the remaining 20 percent, or approximately 70 acres, of the Bank. We believe that the areas that will remain non-hydric after Phase 1 and 2 modifications will be the graded soils or bermed areas close to the creeks. Those areas labeled "High Spots" on Figure 11 Functional Phase 3 Map in the Appendix, and show what we anticipate to be left after excavation.

The areas on the Phasing Plans are based on our knowledge of the "high spots" on the Bank, well data, and our analysis of aerial photographs of pre-farmed conditions. The high spots or bermed areas appear to be an attempt to move soils to create drainage across the once-flat fields. They may have also been created to confine the stream flows to the creek channels. Since these graded areas were sculpted to be at higher elevations than what naturally existed, they will likely not become hydric after the modifications from Phases 1 and 2 – hence the need to excavate them. We now plan that these areas will be sculpted into a mosaic of small (less than 10 acre)

island areas of upland surrounded by areas with wetland hydrologic conditions. We plan that the total area of upland islands on the site will be less than 20 percent. The location and size of the islands will increase the habitat and wildlife use opportunities significantly—more than if they were restored to wetland.

Change in Functional Value

Physical, chemical, and biological functional improvement will come from three sets of activities that we will complete on the Bank:

1. The restoration of the creek and floodplain geomorphic processes,
2. The addition of off channel rearing and refuge habitat, and
3. The restoration of the emergent, forested, and scrub-shrub wetland habitats.

We used the *Methods for Assessing Wetland Functions, Volume I: Riverine and Depressional Wetlands in the Lowlands of Western Washington* (WFAM, Hruby et al. 1999) to evaluate the existing wetlands. The existing wetlands are existing reed canary grass wetlands or ponded water areas in the plowed fields (these total 59 acres). We quantified functional improvement from our proposed restoration activities using the WFAM model. We applied the evaluation exactly as it is described in the WFAM manual, using their model, which is based on optimum functional values of regional reference areas.

We also applied the model to the surrounding, drained, agricultural fields that constitute the remaining area of the Bank (the approximately 296 acres of historical wetlands). The WFAM was not designed to be applied to non-wetlands. However, we feel that if we calculate the beginning conditions of the uplands and then calculating the conditions of what will become wetlands after construction; the model will produce relative change values that are useful in supporting our best professional judgment.

To summarize the results of our WFAM calculations, the habitat suitability scores are significantly higher after restoration on the entire 355-acre Bank site for habitat suitability functions. The water quality and hydrology functional lifts are moderately higher on the 59 acres that are the existing wetlands areas and significantly higher on the remaining 296 acres of historical wetlands.

Potential Adverse Impacts from Bank Construction

Adverse impacts to water quality from suspended solids resulting from placement of stream channel large woody debris (LWD) and from grading activities will be short-term and minor. To minimize impacts, construction activities will be restricted to times when listed species are not using the creeks. Adverse impacts to surrounding wildlife during construction will be short term and minor. To minimize impacts, construction activities will be conducted when nesting eagles are not nesting or fledging on the Bank site, and when in-water work can be appropriately performed so as to protect fish. The proposed construction timing windows will be determined during the Endangered Species Act Section 7 consultation process and will be properly implemented. The placement of the large woody debris, in the short term, may raise the

water temperature in the reaches of the Nookachamps because the water flow is slowed, until the shade trees mature and provide appropriate shading.

The MBRT asked us to elaborate on our plans for dealing with the occasional flooding that has historically engulfed the Bank site. We will deal with issues in detail in our actual planting design and installation procedures, which will form the construction drawings that we will prepare. We feel that this issue will not be of any significance since we have numerous options, in the form of planting techniques and plant conditions. These options will allow us to choose the most successful installation technologies. It is also important to note that the flooding of the Bank is not of a destructive nature; it is a slow back flow flooding and does not have high velocity water flows associated with it; it is the high velocity that usually causes destruction of flora and erosion of soils.

SECTION III. ADMINISTRATIVE, OPERATIONAL, AND LEGAL MATTERS

Implementation Timetable

We plan three phases for construction, one approximately every 3 years, over a 6-year period; Phase 1 in 2006, Phase 2 in 2009 and Phase 3 in 2012 (Please see Figures 9, 10 and 11 in the Appendix). Construction of the first phase will begin as soon as possible after we receive the signed Mitigation Banking Instrument (MBI), receive all necessary construction and environmental permits, and post appropriate financial assurances. We had our bank pre-application meeting with the United States Army Corps of Engineers on March 8, 2004, and have been meeting with the Mitigation Bank Review Team regularly since then. Depending on the Mitigation Bank Review Team's schedule, we plan to have the final design, construction documents, MBI, and bank certification completed by late July 2006. In the meantime, we hope to have National Historic Preservation Act approval and any other local, state, or Federal wetland and construction permits by September of 2006. We plan to complete construction and planting of Phase One during the first available construction window.

Geographic Service Area and Rationale

The proposed geographic service area (that is, the area within which the Bank may be used to compensate for permitted impacts) includes fresh-water wetlands within the Washington State Water Resource Inventory Lower Skagit-Samish Watershed Area WRIA 03; this would exclude the Islands in Puget Sound adjacent to the WRIA 03 Watershed Area, and would exclude all estuarine (saltwater) wetlands. Please see Figure 8 "Service Area Map" in the Appendix. The Bank may be used to compensate for permitted impacts in adjacent portions of WRIAs 01 and 05 if specifically approved on a case by case basis by the appropriate regulatory agencies and the Signatories, and such mitigation would be practicable and environmentally preferable to other compensation alternativeness. The final decision as to who can use the Bank for compensation will be determined by the appropriate permitting agencies.

Water Rights

The State Proposed Draft Rule relating to mitigation banks requires that we speak to the "water rights" associated with the property in order to make sure that the hydrology needed to support the creation and maintenance of the Bank are protected or ensured in perpetuity. This is not an issue for our Bank, as the surface and subsurface water that creates the essential hydrological conditions to support the Bank are natural in occurrence (the Bank will not be extracting water artificially from the main stem or the East Fork of the Nookachamps). In fact, the Bank will eliminate some or all of the water that the existing dairy farm takes from the municipal water system. This reduction in water usage will increase water availability to the municipal water source.

Monitoring and Contingency Plans

The **Monitoring Plan** will be designed to identify the measurable change in functional value resulting from the restoration. The performance standards for each monitoring variable will be set according to the measurability of each variable and according to desired condition. For example, one fisheries functional improvement is the increase in rearing habitat. Monitoring will be conducted at different times throughout the year depending on the variable being measured. Monitoring results will be delivered to the MBRT annually, and more frequently if necessary, for 10 years beyond the date of as-built construction drawing approval by the MBRT for each phase.

The **Contingency Plan** will be designed to accommodate shortcomings in achievement of performance standards. Each monitoring variable will have a set of contingency procedures designed to rectify any potential deviation of the evolving condition that is a shortfall of the desired condition target. All reasonable potential problems or shortcomings will be identified in advance, in the Contingency Plan.

Financial Assurances and Provisions for Long-Term Management of the Bank Site

The members of Clear Valley Environmental Bank, LLC, have the resources necessary to insure completion of the project. Clear Valley Environmental Bank, LLC, will post the following security instruments for each phase of the project:

1. **Construction Performance Letter of Credit.** A "letter of credit" will be posted for each phase before phase construction begins. The letter of credit will be equivalent to 10 percent of the anticipated total construction cost for the phase that the letter of credit is covering. The purpose of the letter of credit will be to assure that the construction of the phase will be completed as approved in the Mitigation Banking Instrument (MBI). Unused letter of credit funds for each phase will be returned to Clear Valley Environmental Bank, LLC, after MBRT approval of the as-built construction drawings for each phase.
2. **Monitoring and Contingency Letter of Credit.** A letter of credit will be posted for each phase before phase construction begins. The letter of credit will be adequate to fund the implementation of the monitoring plan and fund any potential contingency procedures. Unused funds for each phase will be returned to Clear Valley Environmental Farm, LLC, after MBRT approval of the last monitoring report for that phase.

3. **Long-Term Management Fund**. Clear Valley Environmental Farm, LLC, will establish an endowment fund. It will pay a percentage of the proceeds of the sale of each credit into the fund. The funds will be used to compensate for any unanticipated costs associated with long-term management of the Bank. Those funds will remain with the management entity designated in the MBI, or the permanent protection mechanism of the Bank, if ownership of the Bank Site is transferred.
4. **Long-Term Conservation Easement.** A long term conservation easement will be placed on the Bank.

Provisions for Perpetual Protection of the Bank Site

We will enter into real estate agreements that will permanently protect the Bank. We will create a conservation easement for the Bank site, which we will record in the official records of Skagit County prior to construction. The conservation easement will be conveyed with, and will be a burden on, ownership of the Bank. We are currently working with several entities that would be willing to assume long term management of the Bank.

Credit Bookkeeping Procedures

Crediting and debiting procedures will be implemented according to the Sections 173-700-412 and 413 of the State Proposed Rules. We will document all credit transactions in a credit-tracking ledger and maintain copies of all credit withdrawal transactions.

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Appendix 1: Exhibits

Figure 1: Site Location

THE SKAGIT ENVIRONMENTAL BANK SITE IS LOCATED ON THE MOUNT VERNON CITY LIMITS, IN SKAGIT COUNTY. IT IS DENOTED BY THE BROKEN BLACK OUTLINE ON THIS MAP OF SKAGIT COUNTY. PLEASE REFER TO PAGES 4 AND 6 FOR MORE DETAIL REGARDING THIS GRAPHIC.

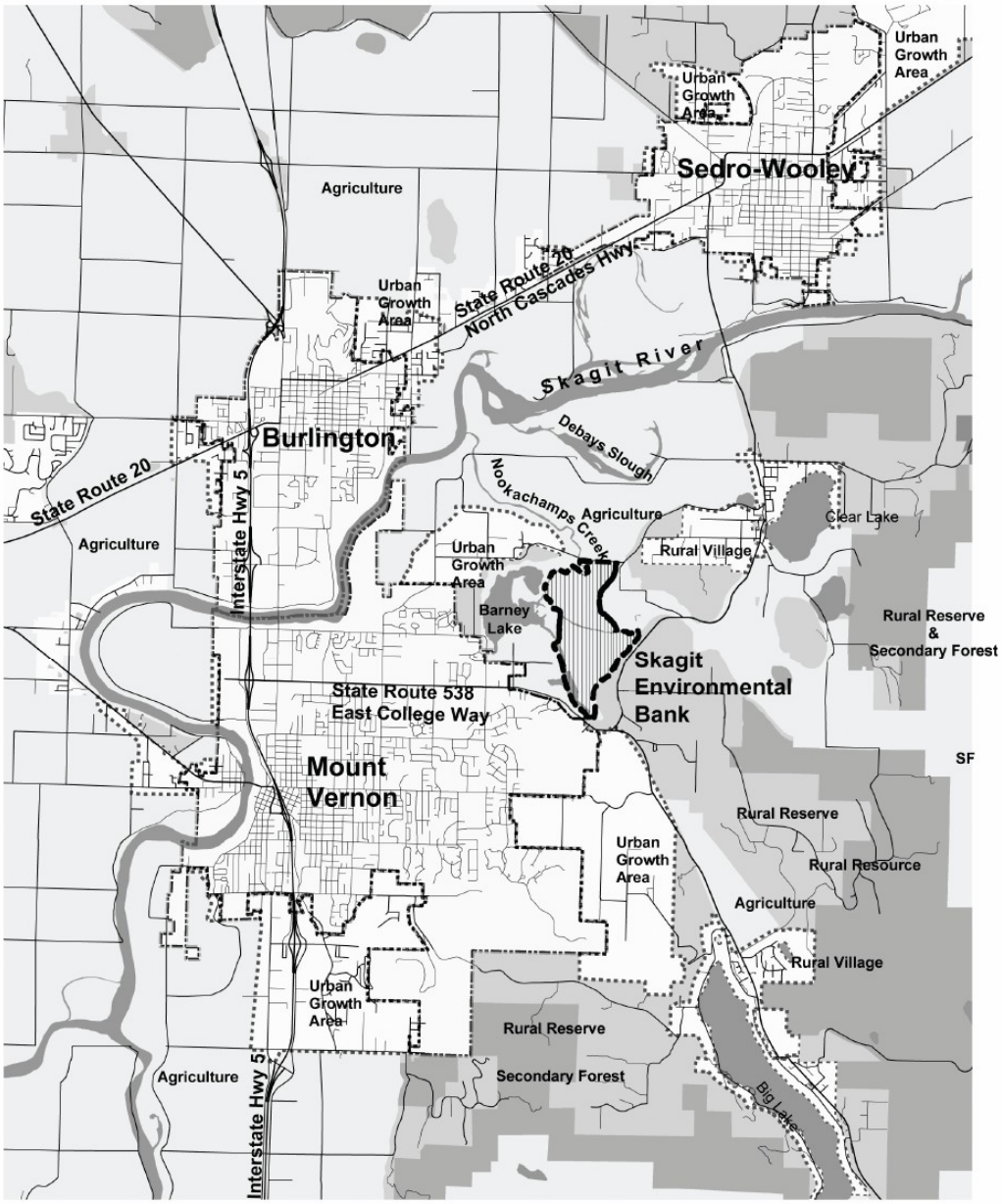


Figure 2: Property Map

THIS GRAPHIC SHOWS ENTIRE 805 ACRE PROPERTY, AND THE 355 ACRE BANK SITE, ALL PERTINENT EASEMENTS AND THE EXISTING WETLAND DELINEATION. PLEASE REFER TO PAGES 6 AND 9 FOR MORE DETAIL REGARDING THIS GRAPHIC.

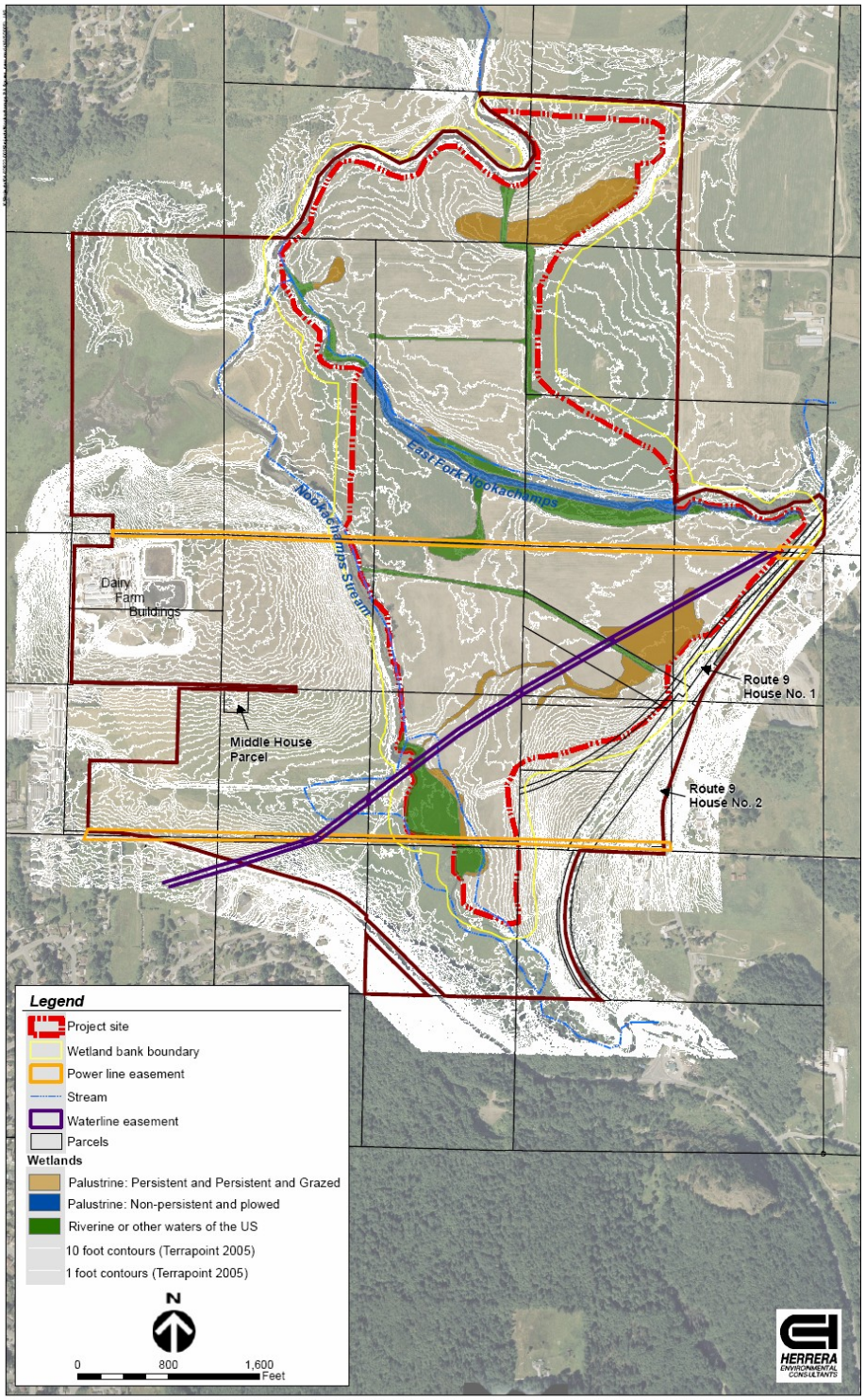


Figure 1. Property bank boundary, easements, and wetlands.

Figure 3: Regional land-Use Map

THIS MAP SHOWS THE LOCATION OF THE CLEAR VALLEY DAIRY FARM, WHICH IS 805 ACRES IN SIZE, OUTLINED IN RED. THE SKAGIT ENVIRONMENTAL BANK WILL COMPRISE 355 ACRES IN THE CENTER OF THE DAIRY FARM SITE. PLEASE REFER TO PAGE 7 FOR MORE DETAIL REGARDING THIS GRAPHIC.

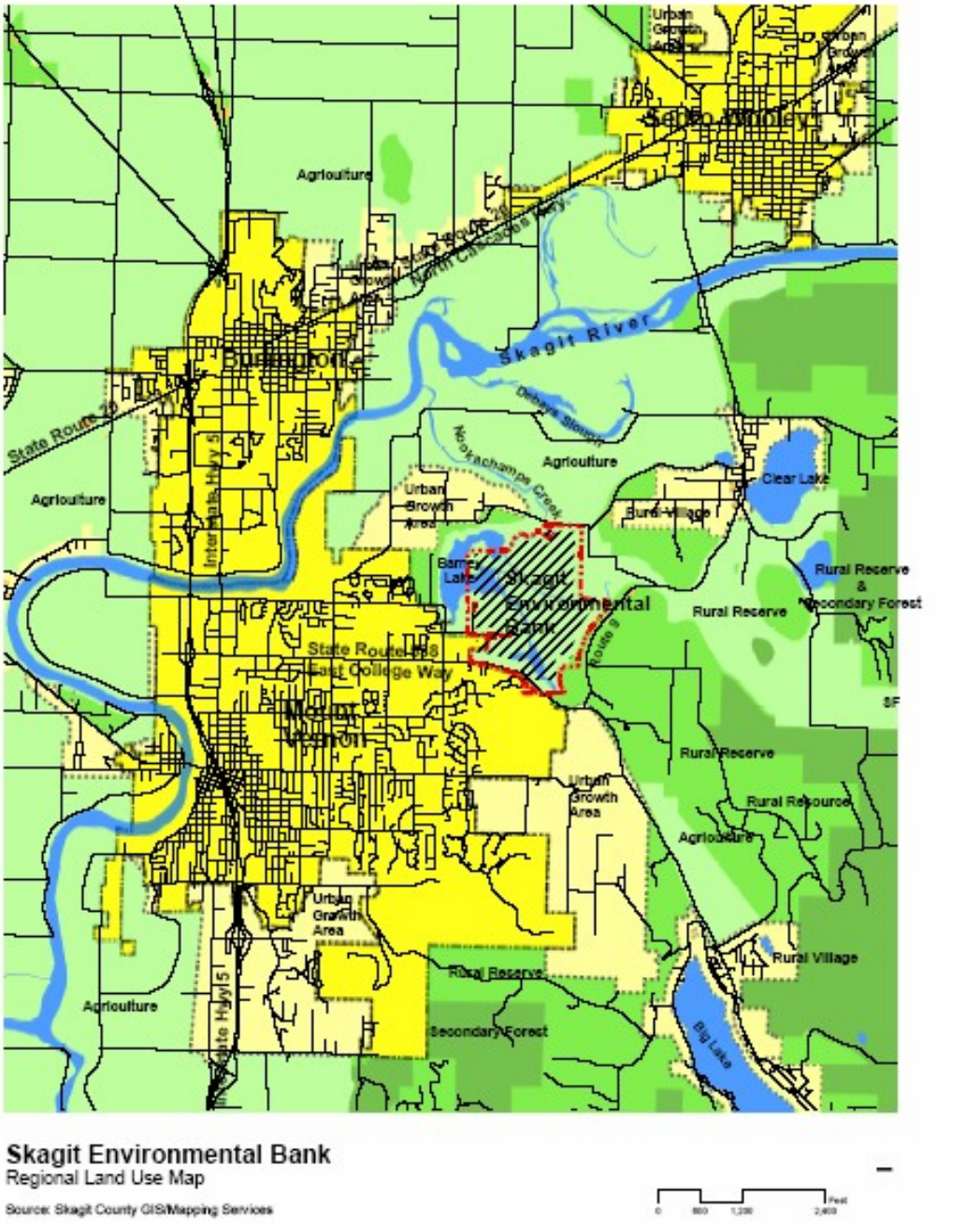


Figure 4: Typical Cross Section A1

THIS GRAPHIC IS A TYPICAL CROSS SECTION OF WHAT WILL BE RESTORED ON THE BANK SITE. PLEASE REFER TO PAGE 14 FOR MORE DETAIL REGARDING THIS GRAPHIC.

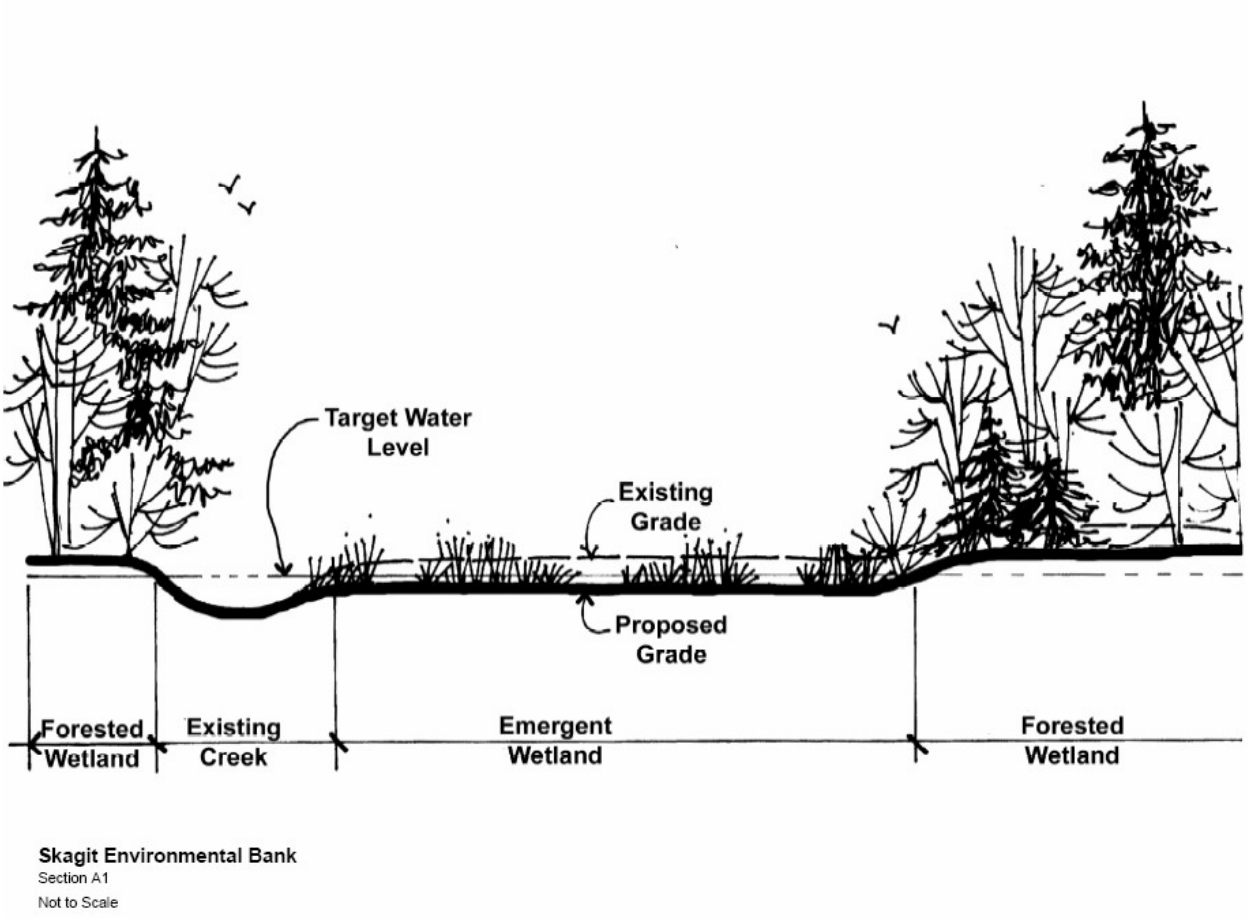


Figure 5: Typical Cross Section A2

THIS GRAPHIC IS A TYPICAL CROSS SECTION OF WHAT WILL BE RESTORED ON THE BANK SITE. PLEASE REFER TO PAGE 14 FOR MORE DETAIL REGARDING THIS GRAPHIC.

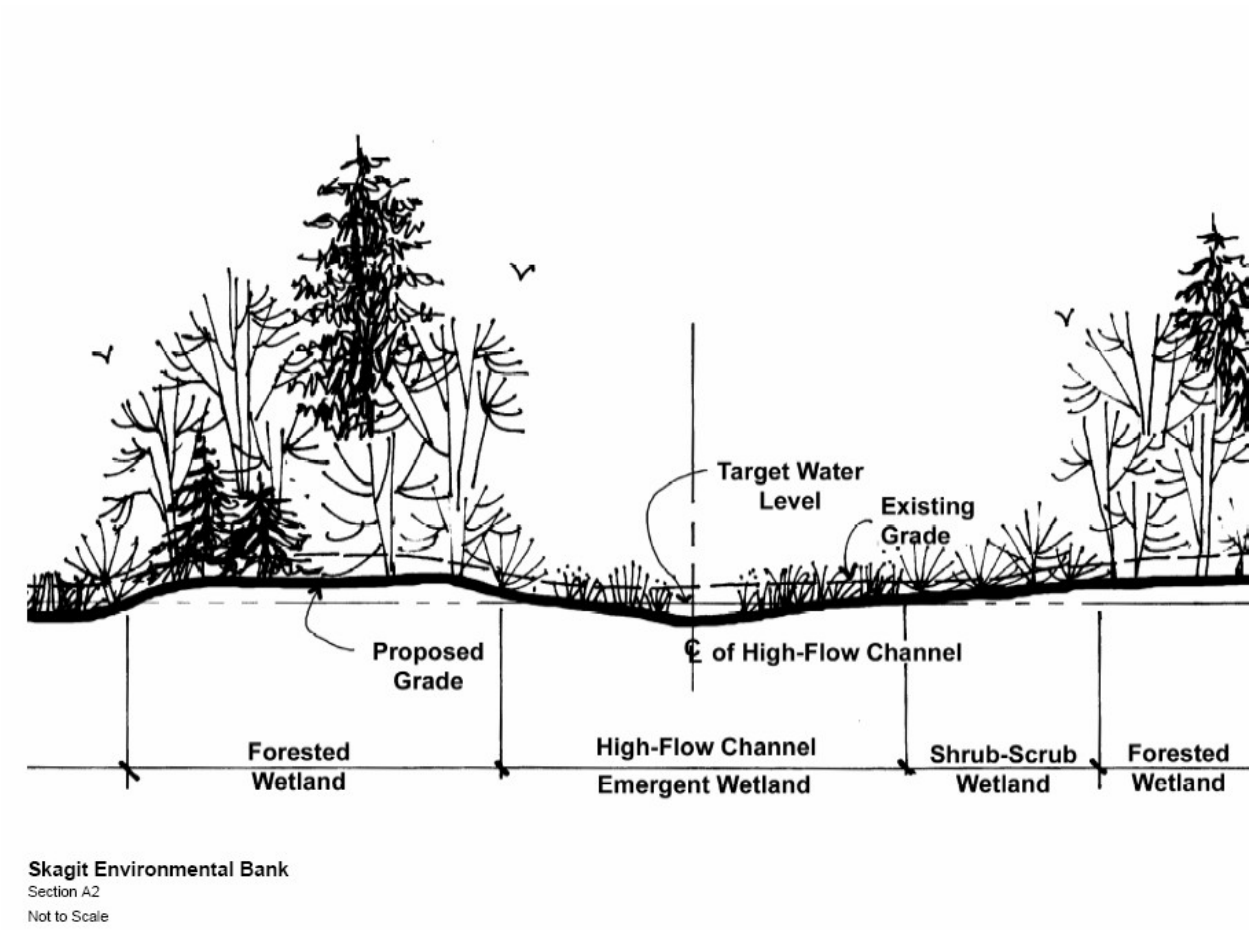


Figure 6: Typical Cross Section B1

THIS GRAPHIC IS A TYPICAL CROSS SECTION OF WHAT WILL BE RESTORED ON THE BANK SITE. PLEASE REFER TO PAGE 14 FOR MORE DETAIL REGARDING THIS GRAPHIC.

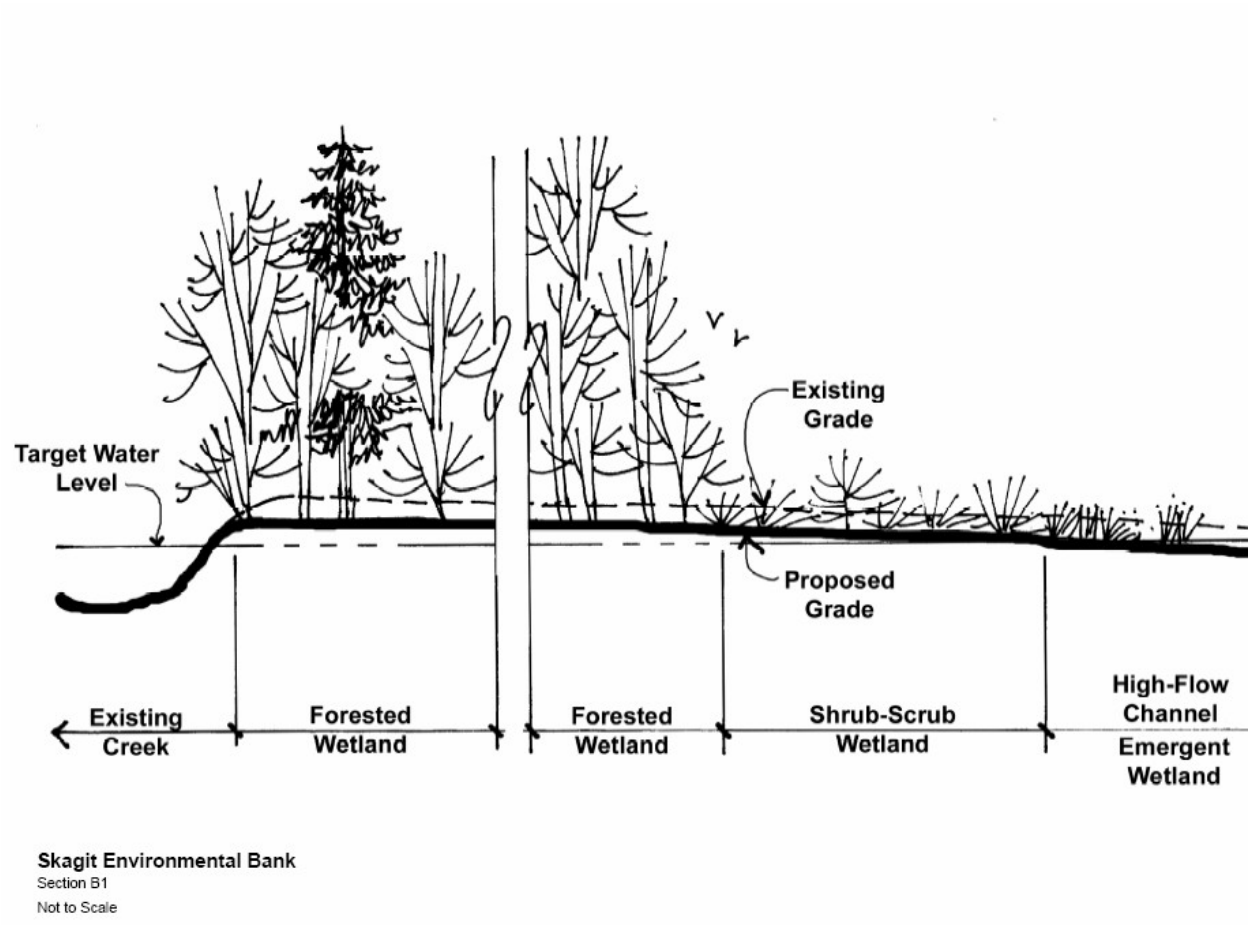


Figure 7: Typical Cross Section B2

This graphic is a typical cross section of what will be restored on the Bank Site. Please refer to page 14 for more detail regarding this graphic.

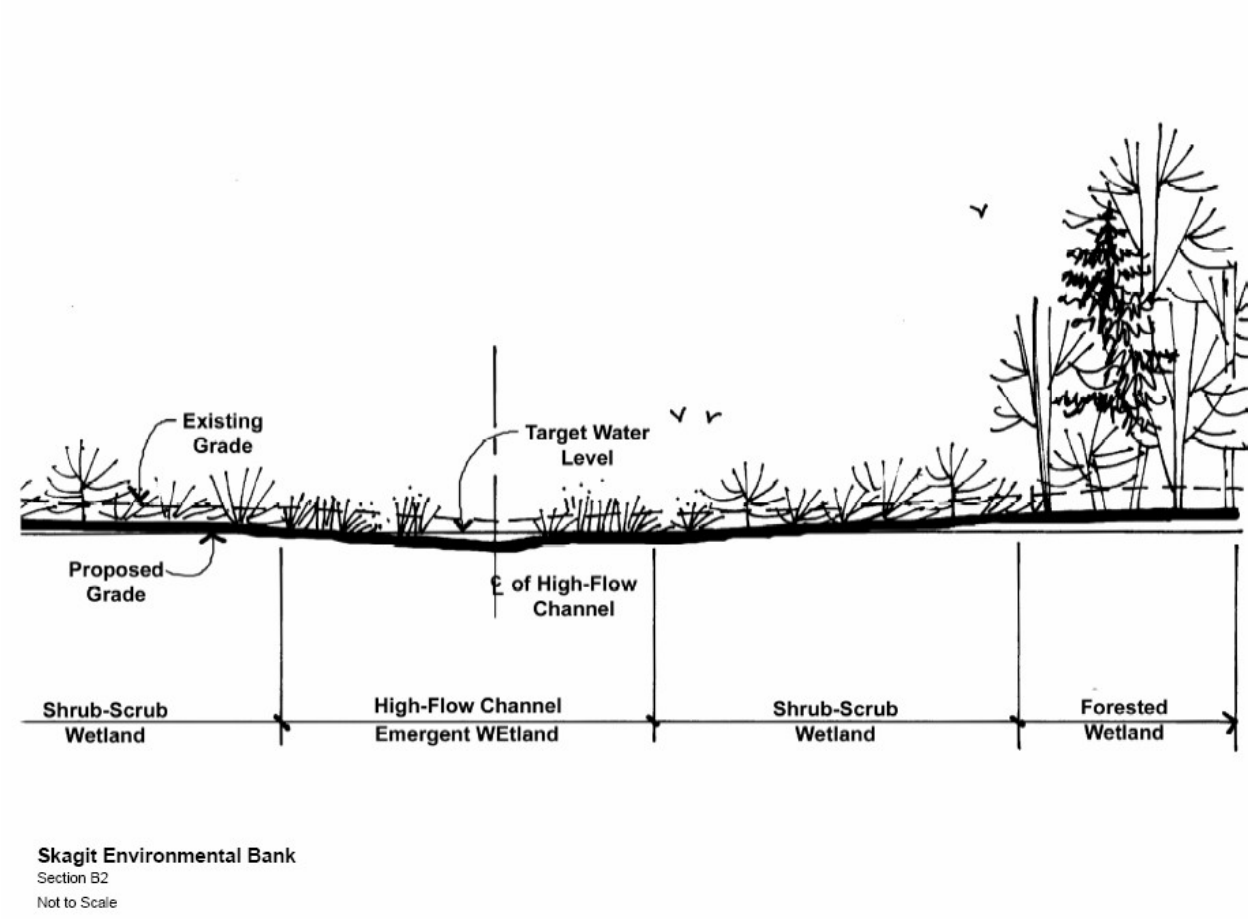
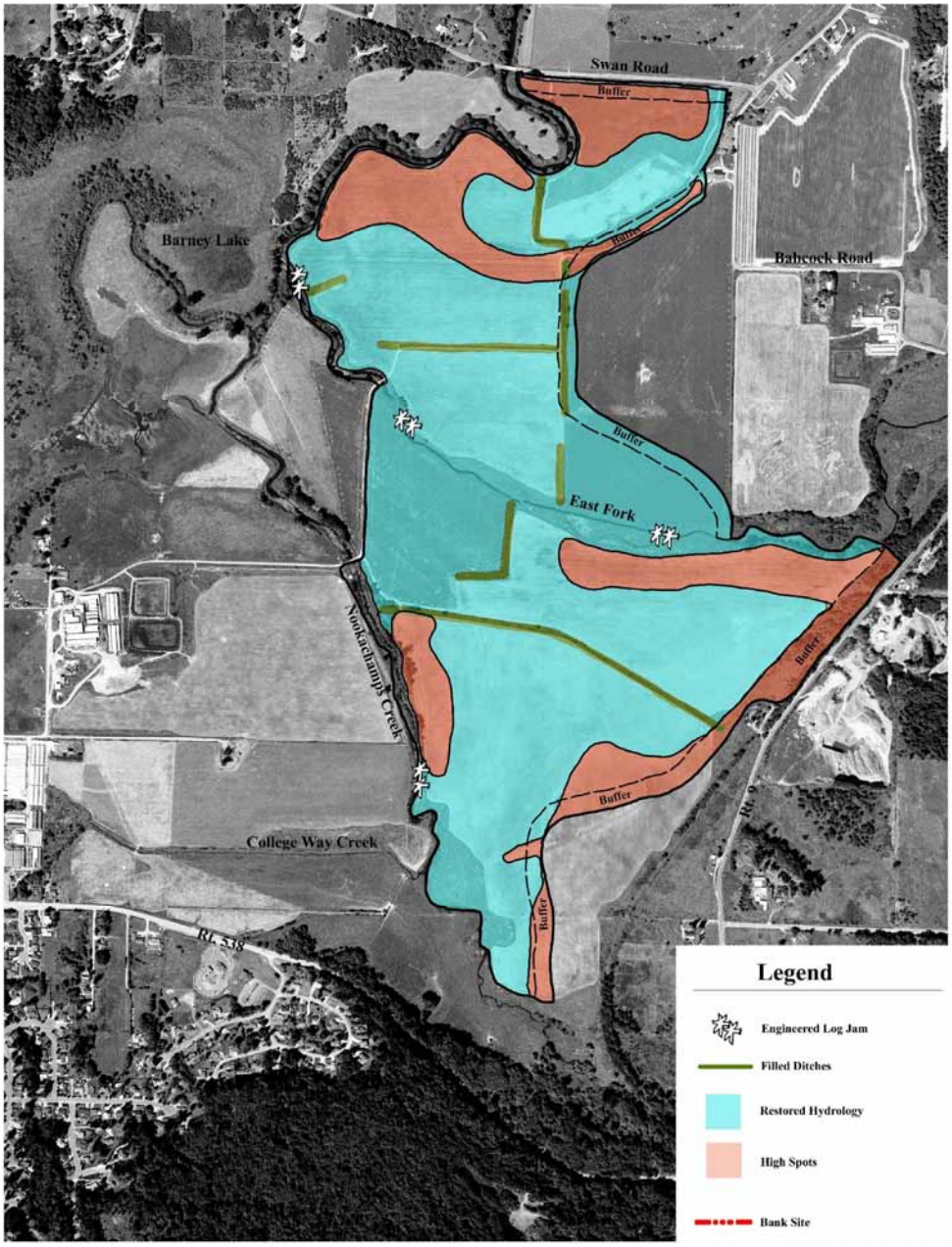


Figure 8: Proposed Service Area WRIA 3

This graphic denotes the Service Area that the Skagit Environmental Bank believes it should be granted. This area is the entire WRIA 3, excluding any estuarine wetlands, and adjacent Islands of the Puget Sound. The Service Area is the ecologically consistent area within which it is felt that the Bank Site can appropriately compensate for impacts to like wetland habitats. Please refer to page 20 for more detail regarding this graphic.

Figure 9: Functional Phase 1 Map

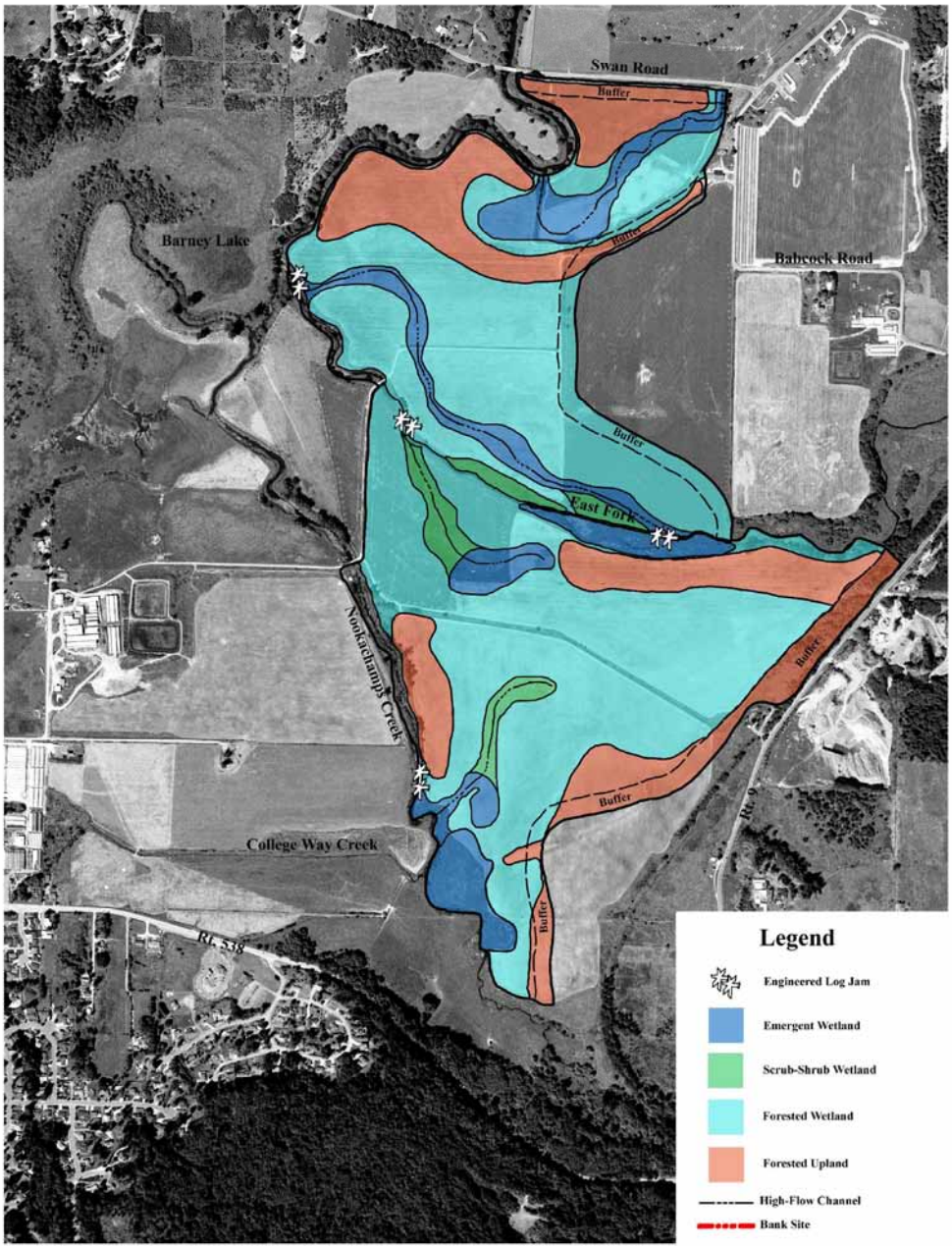
THIS GRAPICH DENOTES THE PHASE 1 CONSTRUCTION PLANS FOR THE BANK SITE. PLEASE REFER TO PAGES 16, 17 AND 19 FOR MORE DETAIL REGARDING THIS GRAPHIC.



Skagit Environmental Bank
Functional Phasing Plan - Phase 1 Hydrologic Conditions Restored

Figure 10: Functional Phase 2 Map

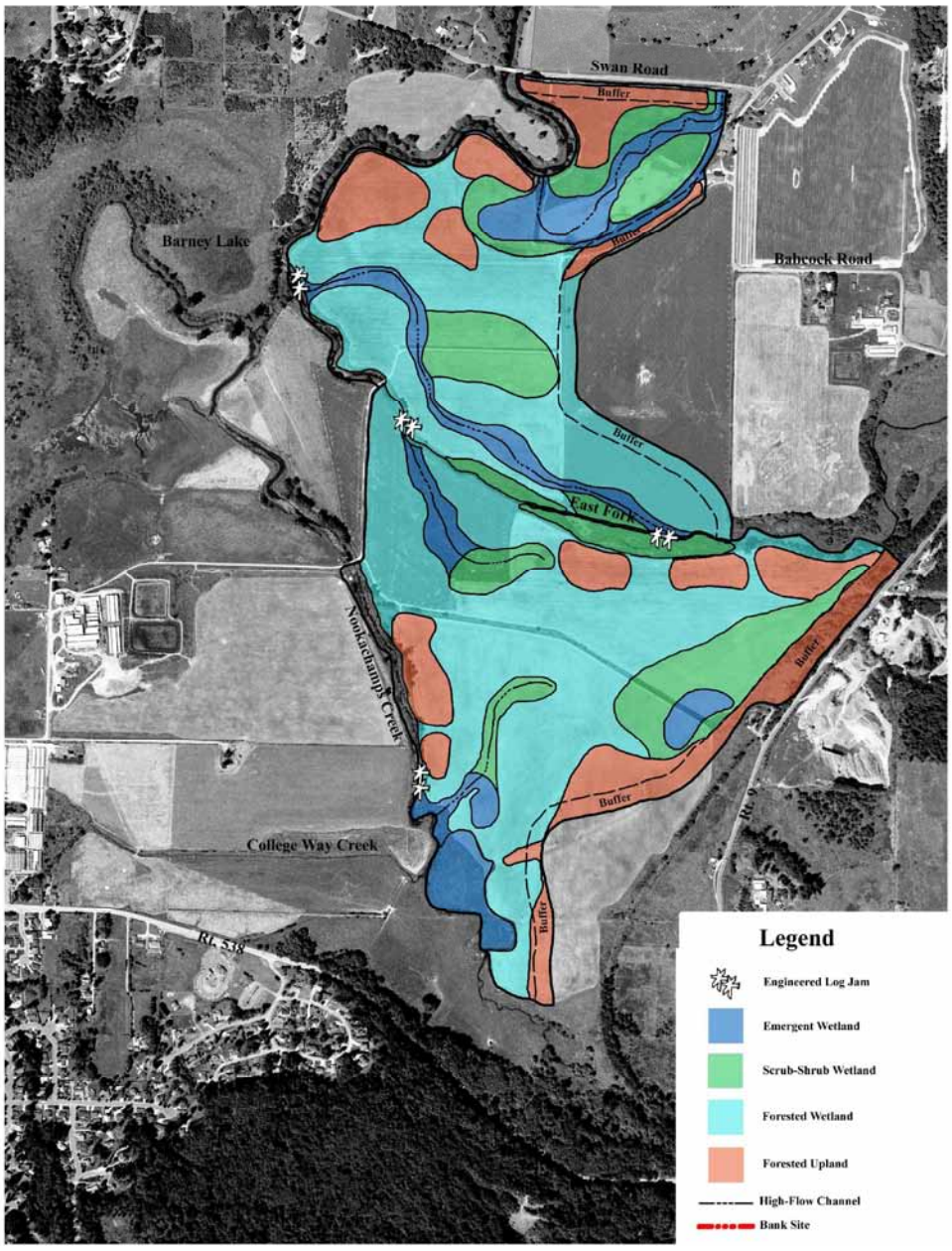
THIS GRAPICH DENOTES THE PHASE 2 CONSTRUCTION PLANS FOR THE BANK SITE. PLEASE REFER TO PAGES 16, 17 AND 19 FOR MORE DETAIL REGARDING THIS GRAPHIC.



Skagit Environmental Bank
Functional Phasing Plan - Phase 2 High-Flow Channels Constructed

Figure 11: Functional Phase 3 Map

THIS GRAPICH DENOTES THE PHASE 3 CONSTRUCTION PLANS FOR THE BANK SITE. PLEASE REFER TO PAGES 16, 18 AND 19 FOR MORE DETAIL REGARDING THIS GRAPHIC.



Skagit Environmental Bank

Functional Phasing Plan - Phase 3 Grading and Planting Finalized

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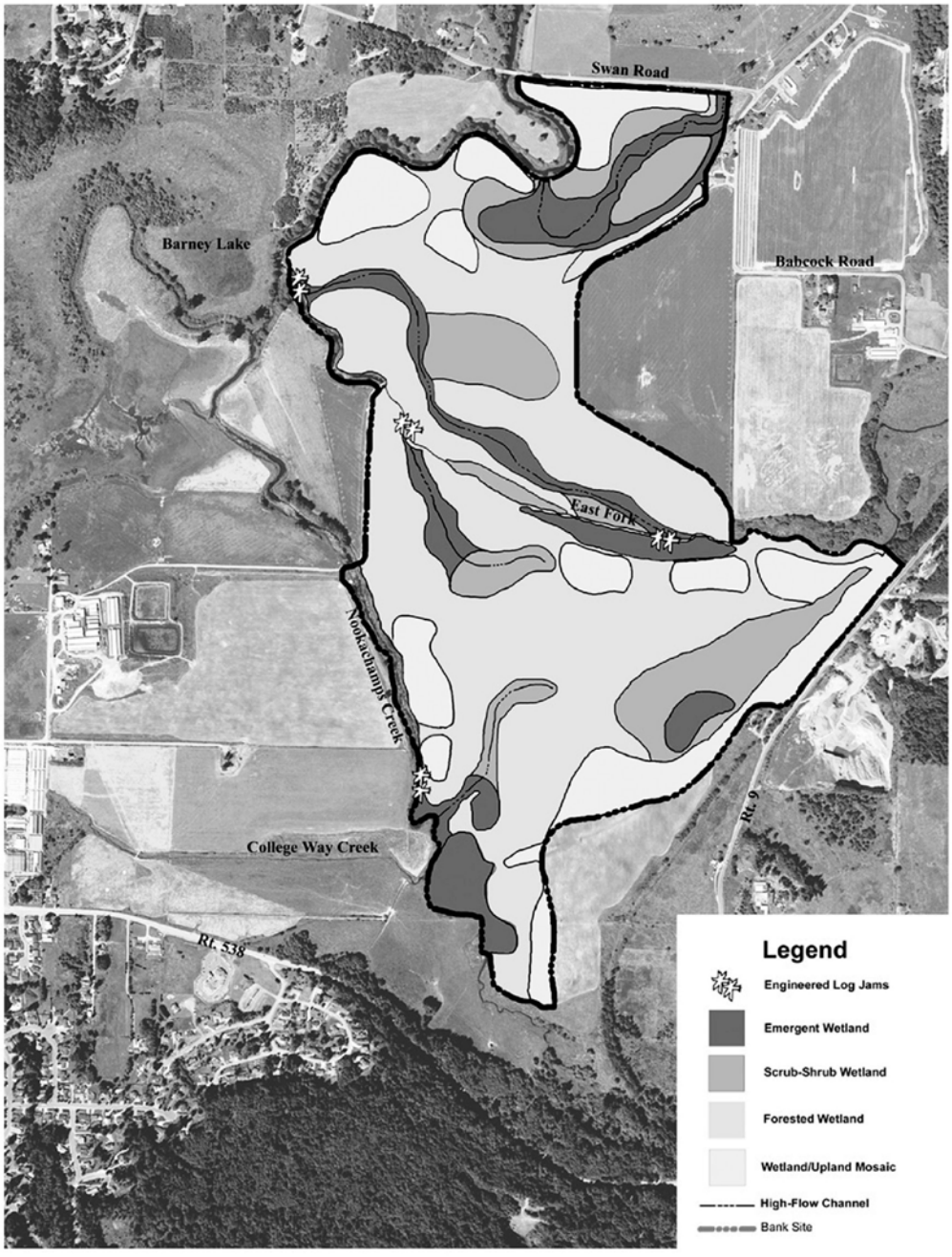
Figure 12 Post Final Construction Bank Site, Black and White



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Design Plan