

City of Bainbridge Island
PLANNING & COMMUNITY DEVELOPMENT



MEMORANDUM

TO: Dwight Sutton, Open Space Commissioner
FROM: Peter Namtvedt Best, Planner
DATE: Thursday, September 16, 2004
RE: Strawberry Plant Property Restoration

Following a discussion regarding restoration at the Strawberry Plant property, you asked me to take a preliminary look at ecological restoration opportunities there while keeping in mind recreational needs and report back. My time for the preparation of this memo and further consultation and assistance regarding the restoration of the Strawberry Plant property is provided under the City's Shoreline Stewardship Program and recommendations regarding recreational development of the site are provided as part of my shoreline planning responsibilities. This memo contains a brief discussion of the existing site conditions and preliminary ideas for the ecological restoration of the Strawberry Plant property based on a field visit (conducted 9/10/04) by myself and Paul Dorn, a biologist with the Suquamish Tribe, and additional consultation with other biologists, ecologists, and a coastal geologist familiar with the site. Further consultation with restoration experts, landscape architects, and contractors as well as further site evaluations would be necessary to prepare a more formal restoration plan for the property.

The area surrounding the Strawberry Plan property has seen extensive residential development in recent years and will eventually become a fairly high density residential neighborhood. A waterfront park at the Strawberry Plan property will be a highly attractive and utilized community asset. The Strawberry Plant property has significant recreational and restoration potential; these opportunities are not mutually exclusive and can benefit each other. Restoration and development of the property should be done so as to present an example of exceptional shoreline stewardship to the public and private property owners.

Existing Conditions (see Figure 1)

The site contains a mature forest on the northern portion of the property, a stream and small stream mouth sub-estuary, a large asphalt area immediately adjacent to part of the stream mouth and upland of the shore, significant fill placed over tidelands, bulkheading and piles in the intertidal beach, and fringing tidal marsh. There is also significant debris (concrete, building materials, boat remains, etc) in the creek mouth and on the tidelands. There are several monitoring wells on the site – the purpose of these is not known to me. If there is contamination on the site, the recommendations contained in this memo will need to be revisited and likely revised.

The uplands contain a mature forest of Douglas Fir, hemlock, cedar, madrone, and maple as well as some willow. This mature forest likely provides good perches for raptors and other birds. The uplands also contain a significant amount of invasive noxious weeds, including scotchbroom, ivy, blackberry, and morning glory, but these have not spread beyond reasonable control. A Great Blue Heron, an unidentified diving bird, pacific oyster, muscle, and very productive clam beds were observed on site. Evidence of raccoon, deer, burrowing crab, and dogs were also observed on site.

The stream that runs through the property has an urbanized watershed that drains the area south of High School Road along Weaver Road and east towards Grow Avenue. Water quality conditions in this stream are unknown at this time. The stream north of Shepard Way has very limited habitat due to extensive piping and stormwater pond facilities and the culvert under Shepard Way is very likely a fish passage barrier. The stream south of Shepard Way is relatively intact with good amounts of large woody debris (downed trees and branches which are a valuable habitat component), but could use some minor habitat improvements. The stream mouth is restricted by fill, contains concrete debris, and has experienced scouring on the southern side due to directed stormwater flows or water utility flushing. Small stream mouths act as small estuaries (even when contained within larger estuaries) where fresh and salt water mix and sediments, if any, are deposited as deltas. This mixture of water (lower salinity than the harbor), sediment, and large woody debris provide very productive rearing habitat for young juvenile salmon emerging from the stream, nearby streams, and to juvenile salmon migrating along the shore as well as a rich area for shorebirds and terrestrial animals to forage for food.

Greater Eagle Harbor

Eagle Harbor has historically contained significant salt marsh habitat complexes. In Eagle Harbor, like throughout Puget Sound, marshes were filled and dredged for industrial, residential, and commercial development. Figure 2 provides a comparison for the two largest marsh habitat complexes in Eagle Harbor, both of which are now permanently lost to future restoration due to their Superfund status. There are several salmon-bearing streams within Eagle Harbor, who's outmigrating juvenile salmon and salmon from other watersheds throughout Puget Sound used these marsh habitats as important rearing areas. One of these streams is Cooper Creek, in which the City restored access to nearly ½ mile of habitat (August 2004) for fish and may conduct salmon enhancement with the help of the Suquamish Tribe and the Watershed Council. Another local salmon stream is the Winslow Ravine Creek.

The restoration of the Strawberry Plant could return some of the important historic marsh habitat that has been lost in Eagle Harbor, which will benefit salmon populations including fish from locally restored streams like Cooper Creek as well as ESA listed and candidate species. Additionally, Eagle Harbor water quality is degraded, water clarity is diminishing, and important habitats like eelgrass are disappearing – most likely due to the contribution of excessive nutrients from human-related activities (septic, sewer, fertilizer, boats, pets, etc). Restoring marsh habitat, increasing the abundance of filter feeders (clams and maybe oysters), as well as incorporating low-impact water filtration and storage capacity in the watershed will contribute to improving water quality in Eagle Harbor.

Restoration Potential and Recommendations (see Figure 3)

Stream - The stream north of Shepard Way contains very little suitable fish habitat and is not likely accessible to fish due to the Shepard Way culvert. This northern portion of stream is not a high priority for fish habitat restoration, although managing the entire stream corridor and watershed to protect water quality and manage stormwater flows is a priority for maintain healthy habitat and safe recreation at the site and in Eagle Harbor. Maintaining vegetated buffers, protecting and restoring wetlands, using bioswales and other low-impact stormwater techniques at the site of development and throughout the watershed will help clean polluted runoff as well as store and release water in more natural flow patterns; thereby benefiting fish, wildlife, and people.

The stream south of Shepard Way (Figure 3, area 2) contains habitat that may be suitable for fish and should be protected. Healthy riparian vegetation along this portion of the stream provides shade to help maintain cool water temperatures; recruitment of woody debris that provides habitat structure and

opportunities for food (particularly insect) production; recruitment of food resources (particularly insects); and leaf litter that help support insect production. Adult and larval insects are known to be an important food for juvenile salmon in freshwater and the nearshore.

Uplands – Existing forest cover should be retained to provide wildlife and bird habitat, water quality functions, and scenery (Figure 3, area 1). Invasive noxious weeds should be controlled as soon as possible and could be easily controlled by dedicated volunteers. A significant amount of the asphalt on the site should be removed and restored to riparian and upland forest cover with appropriate view corridors retained and recreational development (Figure 3, area 6). Recreational facilities on the site could include playground and picnicking facilities in this area located to capitalize on view corridors designed into the restored areas. Some of the asphalt on the western portion of the property should be retained for parking and handicapped access (Figure 3, area 7). Overflow parking could be incorporated into the City property on the corner of Weaver Road and Shepard Way (Figure 3, area 7). Pedestrian and bicycle connections should be made to the waterfront trail and other non-motorized facilities. Stormwater runoff from all paved surfaces and roofs should be directed through vegetated buffers, bioswales, or rain gardens with a capability to treat the water before being released into restored marsh, the creek, or Eagle Harbor.

Shoreline – The most significant restoration on the property should be done along the shoreline, including the stream mouth subestuary and throughout the intertidal beach. Remnant piles and floats should be removed because they leach toxic contamination, smother or displace habitat, shade aquatic vegetation, and provide artificial habitat that results in a shift of species composition (Figure 3, area 5). Debris scattered throughout the stream mouth and intertidal beach should be removed to improve intertidal habitat for aquatic vegetation, clams and other benthic invertebrates, birds, and fish. Most of the debris could be removed by volunteers while items like boat remains and concrete would require heavy equipment.

The intertidal beach that was once under the Strawberry Plan is likely the historic beach and can be used as a guide for the extent of shoreline restoration. Removal of the intertidal fill and bulkheads that make up the east and west peninsulas that once extended along either side of the Strawberry Plant would restore approximately ½ acre of intertidal beach, salt or brackish marsh, and backshore habitat (Figure 3, area 4). Large woody debris (drift logs) should be added to the marsh and backshore portions of the restoration to provide habitat complexity, to naturally anchor the beach sediments and vegetation. The existing intertidal habitat is highly productive with clams and removal of this fill would restore additional clam beds as well as habitat for many other invertebrate species (worms, burrowing shrimp, crab, copepods, amphipods, etc), which in turn would support fish (flounder, salmon, sandlance, surfsmelt, etc) and birds (diving birds, wading birds, raptors, etc). The stream mouth subestuary has been artificially constricted by fill and concrete. The stream mouth should be widened by removing fill and concrete and large woody debris should be added (Figure 3, area 3). Riparian vegetation should be planted along the stream mouth and behind the backshore areas to provide additional ecological functions through a natural continuum of habitats. Appropriate view corridors and recreational facilities could be located and maintained through the riparian vegetation.

Site Design and Use Considerations

- Wildlife viewing opportunities would be abundant if the restoration was done to maximize forest, riparian, backshore, marsh, and intertidal habitat. This natural continuum of habitats would naturally maximize the diversity of habitats and attract the greatest diversity of species. Educational signage and appropriate facilities for wildlife and habitat viewing should be integrated into the design.
- Appropriate beach design must also be based on the historical or expected characteristics for the environmental setting. A sandy beach would be inappropriate and not natural to the site, but a marsh, backshore, and riparian habitat continuum would be appropriate and natural to the site.
- Establishing the correct beach gradients will be essential to ensure the establishment and natural maintenance of marsh, backshore, and riparian vegetation. Incorrect beach gradient may cause erosion problems. Therefore, the restoration design must allow for enough space to appropriately design the beach, marsh, backshore, and riparian zones, which are dependant upon gradient transitions relative to tides.
- There are several techniques for pile removal, including some experimental techniques that attempt to remove the entire below ground portion of pile as well as the contaminated sediments that surround the piles while minimizing the release of contaminants back into the environment and refilling the area with clean sediments. Other techniques include cutting the pile off at or just below ground level and leaving any contaminants in place and sometimes refilling the top portion of the sediment column with clean sediments.
- Several utilities that currently extend out into the area that is intertidal fill will need to be removed or relocated. Based on the site visit, these appear to include an electrical utility pole and a fire hydrant as well as at least one stormwater pipe, all located on the eastern peninsula. An electrical utility box and a second fire hydrant are located adjacent to the small building on the southwest portion of the property and could probably stay at their existing locations.
- Removal of fill should be fairly cost effective at the site because all the work could be done from land as opposed to from a barge. Fill removal would start at the waterward edge and proceed landward, likely grading the beach to the appropriate elevations as the work progresses landward.
- Transport and disposal of the removed fill could be a significant cost. One possibility would be to utilize as much of the removed material on site, perhaps by creating one or more small hills where the asphalt will be removed. Much of that type of work might be able to be done with bulldozers and excavators without the need for dump trucks. The piles, contaminated soils, asphalt, and bulkhead debris would need to be hauled off for disposal however.
- The small building on the southwest portion of the property appears to be in good shape and could be used in some fashion, perhaps as restrooms, storage, and/or park stewardship center. The present location may be suitable or could be relocated based on the design of the restoration and recreation components of the property.
- The proximity of the site to existing and future neighborhoods as well as trail networks would allow for minimized parking and the maximization of non-motorized means of park access. However, some parking should be provided on site, especially for handicapped access. Overflow parking could be incorporated into the City-owned property on the corner of Weaver Road and Shepard Way, which is conveniently just across the road from the driveway into the Strawberry Plant property.
- A bridge could be constructed across the stream north of the stream mouth as a trail connection to the Leslie Landing portion of the Waterfront Trail. As a cost saving measure, utilizing the sidewalk along Shepard Way would be more cost-effective, minimize habitat impacts, and is not much of a longer route than what could be provided via a bridge.

- Restoration of the Strawberry Plant property would be a strong contender for grant funding, including funds from the Salmon Recovery Funding Board, Aquatic Lands Enhancement Account (ALEA), NOAA Community-based Restoration Program, as well as various federal and state wetlands restoration funds and from private groups such as Ducks Unlimited and Trout Unlimited. One currently available funding source includes the WA Dept of Fish and Wildlife Landowner Incentive Program, which provides up to \$50,000 available only for the restoration of privately owned property and may be a good initial source of funds to do some of the restoration work while the property is still in private ownership. This program is available on an annual basis. The application deadline for the program this year is December 31, 2004. The other funding sources mentioned above are usually available on an annual basis. Local contractors and volunteers may also be willing to donate time and materials as part of a community-based approach to the restoration project, which can be used as match funding for many grants thereby reducing the amount of local cash contributions. The Kitsap County Conservation District would be a low cost source for most of the trees and plantings and could provide assistance designing an upland revegetation plan.
- Some portions of the recreation community may desire a dock facility on the site to provide water access for kayaks, fishing, and possibly rowing shells. The City's Shoreline Management Master Program (SMP) does not outright prohibit a dock at the Strawberry Plant property, but the site would likely be a difficult location to design a suitable dock that meets the intent and standards of the SMP. The greatest challenge for developing a dock at the site is the natural low gradient in this part of the harbor causing shallow waters, which would necessitate a dock approximately 300-feet long to reach a tidal elevation of mean lower low water that would leave the dock in shallow or no water for a significant portion of the tidal cycle (dry during minus tides and shallow during tides below +4.5' MLLW). Such a dock would produce significant view and navigational impacts. Dredging is not allowed and special design features would be required to keep any floating docks from resting on the bottom. Concrete or steel piles would be required since creosote is prohibited and other treated wood is inappropriate in Eagle Harbor due to existing contamination levels and the proximity of the site to an aquatic conservancy area.



Figure 1 – Existing Conditions

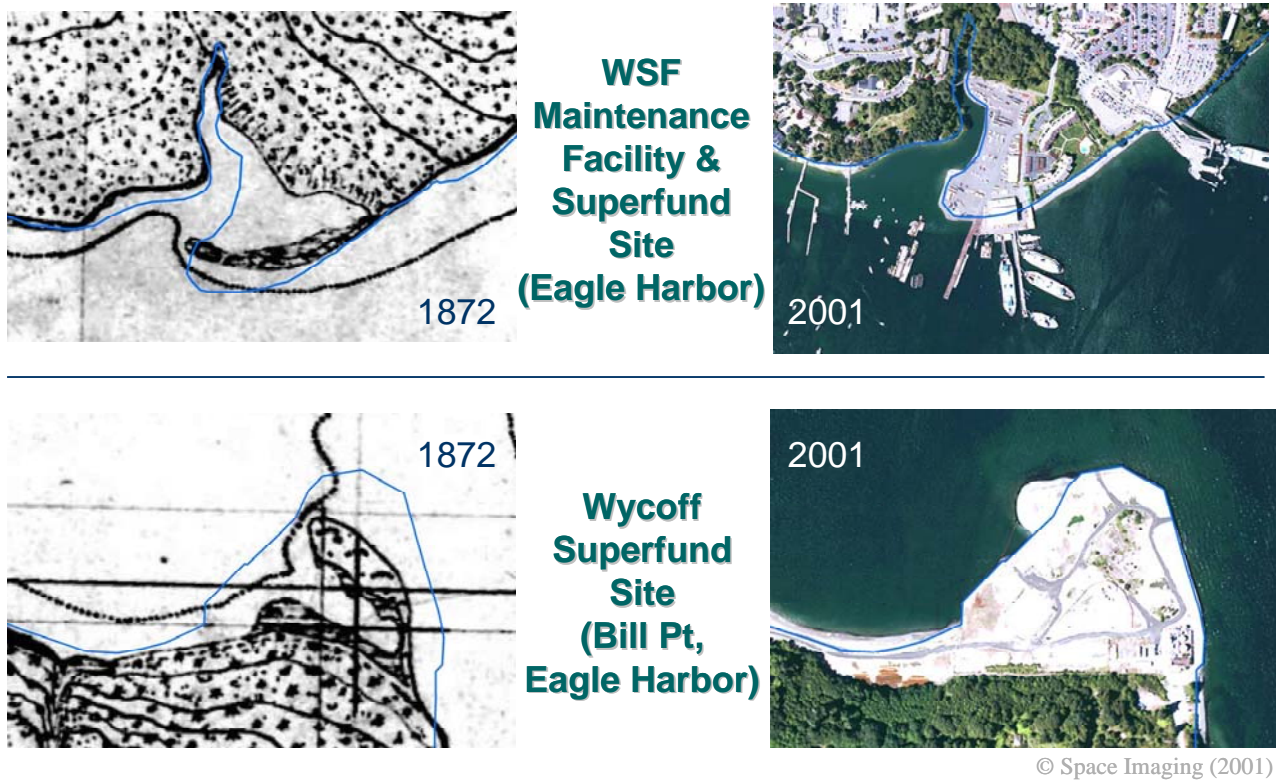


Figure 2 – Historic Comparison Showing Lost Estuarine Habitat in Eagle Harbor

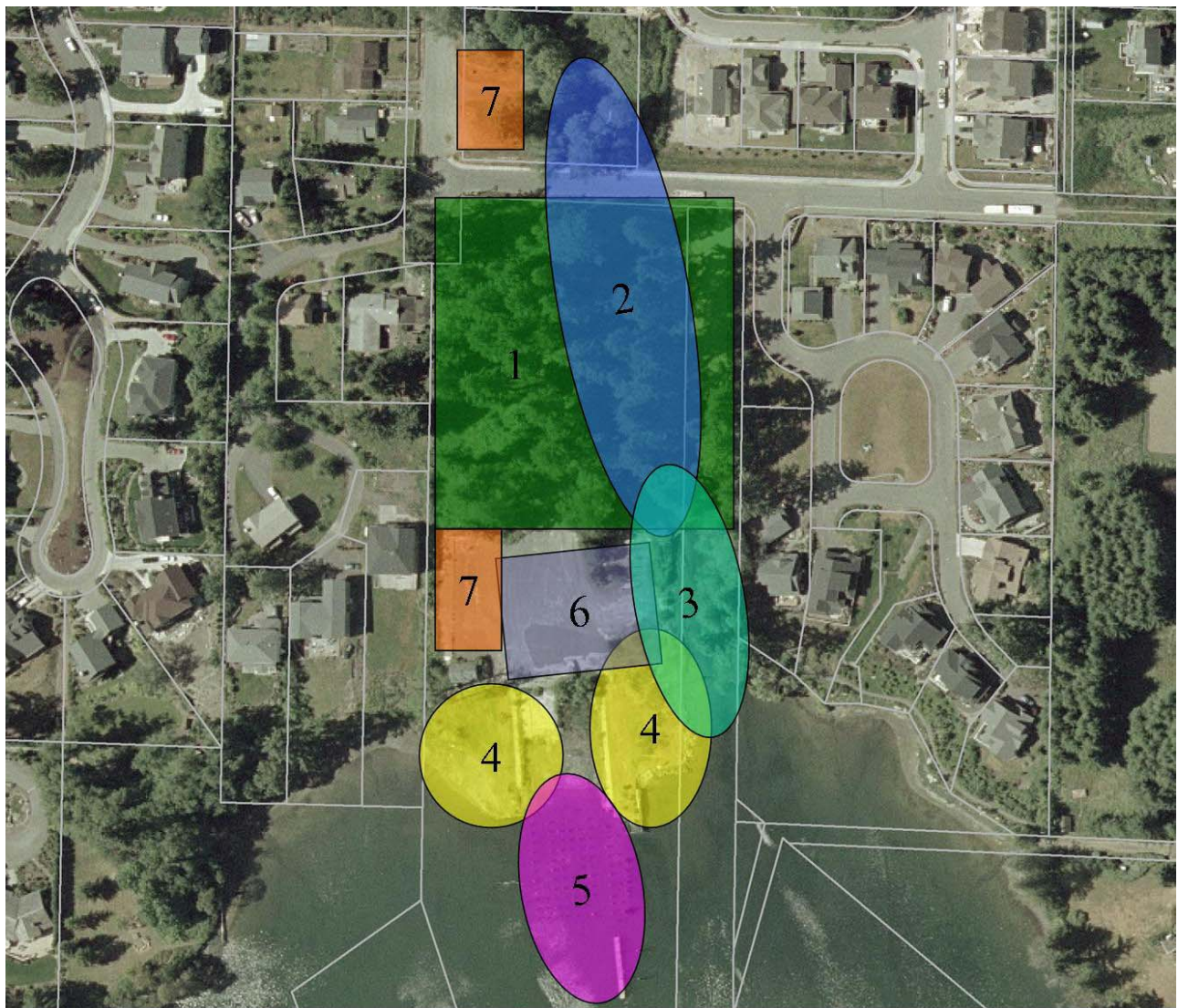


Figure 3 – Areas of Restoration Potential