



ENVIRONMENTAL STEWARDSHIP PROJECT

DRAFT SITE MANAGEMENT PLAN

NOVEMBER 11, 2008



Prepared for:

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

Prepared by:

CITY OF TACOMA

**ENVIRONMENTAL STEWARDSHIP PROJECT
DRAFT SITE MANAGEMENT PLAN
NOVEMBER 10, 2008**

BACKGROUND AND PURPOSE

The Commencement Bay Natural Resource Trustees (Trustees) have established restoration projects throughout the Puyallup River watershed. After several years of maintenance and monitoring, there are no longer regulatory or legal requirements to provide additional maintenance, monitoring or adaptive management at these restoration sites. Still, there is a need to perform site inspections, maintenance, qualitative (observational) monitoring and adaptive management (e.g., vegetation management) at many of the sites. The development of these sites has been the investment of much time and resources and has provided significant benefit to the environment in the Puyallup River watershed. It is necessary to continue to provide active site stewardship to ensure continuation of success.

As a result of a penalty issued to the City of Tacoma (City) at the completion of construction of the remediation of the Thea Foss and Wheeler-Osgood Waterways, the City entered into a Settlement Agreement with the Environmental Protection Agency. Through this agreement, an escrow account was established by the City to provide necessary funding for stewardship activities in the greater Commencement Bay area. In addition, the responsibility for performance of site stewardship activities has been given to the City. The City will maintain this role until the funding in the escrow account has been depleted. This project was undertaken in connection with the settlement of an enforcement action taken by the United States Environmental Protection Agency for violations of CERCLA.

General stewardship tasks have been established in the Settlement Agreement/Scope of Work (SOW) (July 2008) and include: administration, reporting and documentation, site monitoring, site maintenance, and adaptive management. This Site Management Plan presents site specific information and stewardship tasks/options for the latter three activities: monitoring, maintenance, and adaptive management. Please refer to the SOW for more specific information about the other general tasks.

The sites addressed in this Management Plan are:

- A. Yowkwala
- B. Skookum Wulge
- C. Squally Beach
- D. Mowitch
- E. Jordan/Lower Hylebos Marsh
- F. Middle Waterway – Simpson
- G. Middle Waterway – City of Tacoma
- H. Olympic View – City of Tacoma/Olympic View – WDNR
- I. Tahoma Salt Marsh
- J. Swan Creek

Site Specific Work Plans have been developed for each of these locations and are included herein as Attachments A through J.

GENERAL SITE MANAGEMENT STRATEGY

Historically, following the legally required post-construction monitoring, maintenance, monitoring and adaptive management activities on many of the above sites have been conducted by local non-profit groups – specifically Citizens for a Healthy Bay and Friends of the Hylebos. During this period while the City is acting in the role of steward, it is anticipated that continued involvement and input from these and potentially other local community groups will further the stewardship and restoration goals for each site. This will allow for continued use of valuable community resources as well as continuity in stewardship after the City is no longer performing in the stewardship role. In fact, it is anticipated that these groups will also have contracts in place with the Trustees providing for site activities during the time period when the City is performing in the role of steward. The City understands that the Trustees will coordinate the scope of work for these contracts to ensure that they are complementary and that responsibilities are clear.

Each of the eleven sites is divided into management zones based on site conditions, irrigation, or other features affecting management (see site maps in the Site Specific Work Plans). Planting and restoration treatment progress will be tracked per zone.

Qualitative Management Monitoring

As outlined in the agreement, Qualitative Monitoring will be performed at each site at regular intervals throughout the year. Qualitative monitoring consists of bi-monthly site visits performed by the steward or their designee. Field Forms (see Appendix A) will be filled out during each visit. The comments and trends noted by the stewards will be used to recommend successive restoration and management actions.

Seasonal assessments (summer and winter) by City staff and other stewards (if possible) are designated to correspond with the timing of effective management response. Assessments are made and recorded on the field forms noting the appropriate category as listed below. Each observation is linked to a particular zone identified on the site. Where appropriate and to the extent possible, each observation is described in terms of materials, labor, or area requiring action.

Seasonal assessments are accompanied by photo monitoring. Photos will be taken at the designated photo points shown on the figures in each Site Specific Work Plan in the summer and winter seasons. Each season offers a unique view of site development.

Category	Quantification	Description
Erosion	Materials Labor	The extent of erosion (i.e., gully, slope failure) is described for each zone. Propose solution.
Invasive Species Control	Labor/Species	The extent of invasion by species of concern is described. Propose treatment.
Mulch	Quantity Labor	Estimate quantities of mulch stockpiled and needed.

Human Impacts	Materials Labor	Observations are made of social trails, garbage, plant damage, unauthorized recreation, and vandalism. Propose treatment.
Fencing (Perimeter and Goose-Exclusion)	Materials Labor	Observe status of fencing. Propose solution.
Plant Vigor/Stress	Percent by Species	Observe plant success – indicate stress or vigor by species with suspect cause.
Supplemental Planting Areas	Percent Coverage Needed by Zone	Indicate the percent of each zone that could benefit from supplemental planting and propose species.

Based upon the results of these observations, the City will make recommendations to the Trustees for follow-up actions at each site. Upon agency approval of a prioritized list of follow-up actions, the City will schedule the work to best meet these priorities.

Site Safety and Communication

Prior to arriving on site both the Environmental Stewardship Project Health and Safety Plan and the appropriate site work plan(s) will be reviewed and followed by all site visitors/workers. Any volunteer organizations working on site will carry liability insurance for their staff and volunteers. Any volunteer events or maintenance activities must be coordinated through City staff.

Notably, when working on-site it is important to:

- Notify the City, steward or designee when you will be on site. All site work will be quantified and recorded by management zone. Include the number of workers, the time spent on the work, the extent of work done, including the area affected and/or the number of plants added and any observations.
- Carry a cell phone and use the buddy system if at all possible.
- Immediately report any dangerous or unusual site conditions.
- Wear appropriate clothing and footwear.
- If suspicious or threatening persons are encountered on-site, leave immediately and call 911.
- Leave the site in an orderly and safe condition. Store all materials above the high tide line.
- Site access points and foot traffic should be minimized to prevent damage to soils.

Site specific activities and the associated safety concerns are outlined in Attachments A through J. General safety requirements for the project are outlined in the Environmental Stewardship Project Health and Safety Plan. In addition to the safety requirements outlined in that plan, standard safety protocols as outlined in the City’s Accident Prevention and Safety Plan (see

Appendix B of the Environmental Stewardship Project Health and Safety Plan) will apply for City workers, and the Contractor's Health and Safety Plan will apply for Contractor employees.

Proposed Maintenance and Adaptive Management Tasks

A Task List has been prepared proposing initial tasks for each site based upon preliminary observations and input from the current site stewards (see Appendix B). The list is prioritized to facilitate discussion and work plan direction on the items. A cost estimate will be provided after further discussion about the scope of each task . Unless otherwise directed by the Trustees, the City will start work on the approved priority 1 tasks first, and so on as time permits. As a baseline, the City is dedicating 20 weeks of the Washington Conservation Corps' crew time. As the crew has other City sites to maintain any time over and above the 20 weeks will be negotiated. It is anticipated that at least 10 weeks of crew time will be devoted to invasive species removal – one week at each site.

ATTACHMENTS

Attachment A – Yowkwala

Taxpayer:	Puyallup Tribe of Indians
Site Access Contact:	Tyee Marina, Shari, 253-838-2280
Site Contact:	City of Tacoma, Desiree Pooley, 253-502-2126
Construction Completed:	n/a
Site Phase:	Maintenance
Restoration Goals:	Enhancement of the shoreline vegetation Preservation of the shoreline and bluff

Located on the northeast shore of Commencement Bay near the mouth of the Hylebos Waterway, these 15 acres have been set aside for preservation of the shoreline's intertidal habitat areas and native vegetation. The site consists of a rocky beach, a relatively flat, backshore, riparian planted area, and a steep forested hillslope behind (see attached figure). The majority of the work on this site will take place in the backslope riparian planting area. Access to this site will primarily be from a private, marina parking lot, Tyee Marina, to the southeast. In addition, there are two pullouts above the hillslope off of Marine View Drive. There will be minimal exposure to traffic when accessing on the shoreline portion of this site. If working from the pullout areas, traffic will be encountered and caution and appropriate PPE is needed as outlined in the Health and Safety Plan.

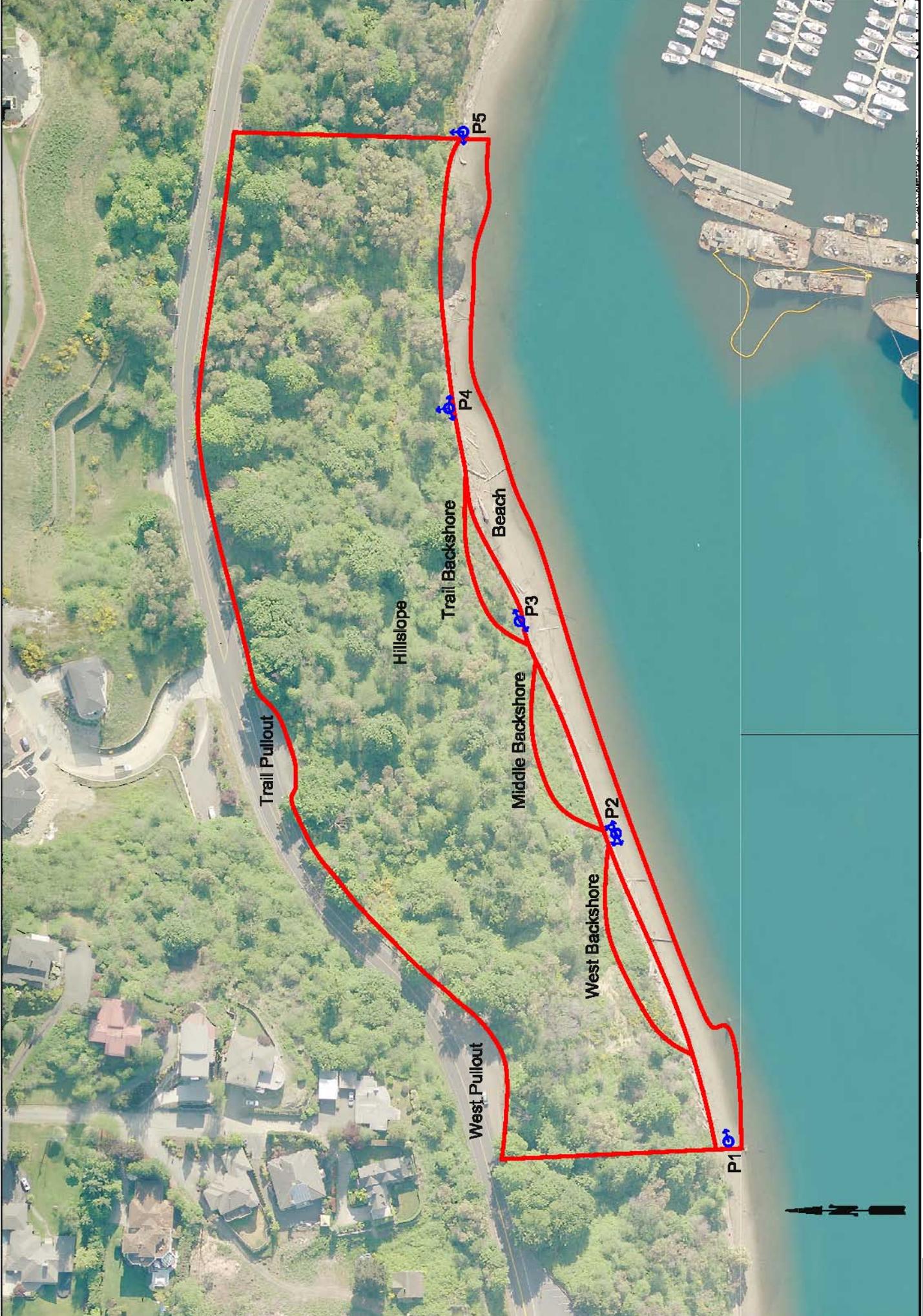
Inspection, monitoring, and photograph documentation of the site are required. Walking and stepping on uneven ground or slippery surfaces are the primary physical hazards associated with these activities. Local tide charts should be checked to ensure the safest working conditions. There may be areas of the beach that become isolated at a high tide. Any fires should be reported immediately. Any evidence of fires should be noted and reported.

Trash removal and invasive species removal will be the primary maintenance activities at this site, and planting events will likely also take place. Walking on uneven ground or slippery surfaces are the primary physical hazards at this site. In addition, poison oak is present at the base of the forested hillslope (see Attachment A-1 which contains photographs for identification and information) and contact should be avoided. If it is necessary to come into contact with the poison oak, protective, disposable clothing should be used, including tyvek suits and gloves with nitrile gloves as liners. See Attachment A-1 for more information.

A partially dismantled stairway remains on the forested hillslope running from Marine View Drive down to the beach. Removal of this structure may also be required. A portion of this work will occur adjacent to the roadway. When working in this area, workers shall wear reflective vests, and set traffic cones at the edge of the work area adjacent to the roadway. In addition, this will involve work on a steep slope, so appropriate workboots must be worn, and fall protection used as necessary.

Invasive species of concern:

- Poison Oak/Ivy
- Blackberry
- Pepperweed
- Scott's broom



YOWKWALA

Note:
P6 is located off the map to the East
N: 722211.826 E: 1162940.212



Attachment A-1



Poison Oak and Poison Ivy

Rhus diversiloba T. & G and *Rhus radicans* L.

L.C. Burrill, R.H. Callihan, and R. Parker

Poison oak is common in western Oregon and Washington. Its near relative, poison ivy, is found in eastern Oregon and Washington, throughout Idaho, and eastward. Both plants are native to the Pacific Northwest.

They are so similar in their appearance, growth, effects on humans, and responses to control efforts that their common names often are interchanged.

These plants are found in fencerows, waste areas, open forests, hill pastures, cut-over forest lands, stream banks, and rocky canyons in most Pacific Northwest counties. Each autumn, their brilliant red foliage attracts unsuspecting people who gather them for house decoration and then suffer poisoning, sometimes requiring hospitalization.

Poisonings are not limited to autumn, however. Swimmers, boaters, fishermen, hikers, and picnickers are most frequently exposed to and poisoned by these plants. These two plants substantially limit the use and enjoyment of our natural environment.

Larry C. Burrill, Extension weed specialist, Oregon State University; Robert H. Callihan, Extension weed specialist, University of Idaho; and Robert Parker, Extension seed scientist, Washington State University.



Figure 1.—Shiny, reddish, three-part leaves should be a warning sign in the early spring.



Figure 2.—Three-part leaves and a fruit that is often shiny yellowish or white and ridged are typical of both poison oak and poison ivy.



Figure 3.—Poison ivy leaflets are smoother than poison oak, and ivy's two lateral leaflets have short stalks.

Value and Use

Poison oak and poison ivy are eaten by goats and sheep as well as deer and other wildlife. Animals do not appear to be sensitive to the poison. Bees make a popular honey from their pollen, the only part of the plant that does not contain the toxic substance. Birds feed on the fruits during the winter and are largely responsible for the number of plants, especially near trees and fences.

These values generally are not considered significant virtues, however, since many non-poisonous and desirable plant species, both native and introduced, provide equal or better animal forage and erosion control. The colorful autumn foliage adds to the scenic beauty of the countryside, but is a deceptively sinister attraction.

Identification

Poison oak and poison ivy are in the Sumac (*Anacardiaceae*) family. The major taxonomic authority in this region, *Vascular Plants of the Pacific Northwest* (by Hitchcock, et al.), assigns the name *Rhus diversiloba* T. & G to poison oak and *Rhus radicans* L. to poison ivy. The names *Toxicodendron diversilobum* for poison oak and *T. radicans* L. or *T. rydbergii* for poison ivy also have been used.

Poison ivy and poison oak normally grow as shrubs from 3 to 10 feet tall, but they also grow as woody vines that twine around trees and larger shrubs. They reproduce both by seed and by lateral underground rootstocks. The vine develops rootlets on the stems, enabling the vines to adhere to tree trunks and other surfaces.

Poison ivy and poison oak are readily identified by their leaves. Young leaves are shiny red, turning to shiny green. Leaflets are from ½ to nearly 2 inches long. They grow in groups of three on a common stem and resemble oak or ivy leaves. Each of the three leaflets of poison ivy has a stalk, whereas only the terminal leaflets of poison oak have stalks. The tips of poison ivy leaflets are acutely pointed, while poison oak leaflets are more rounded. The leaf surface is glossy and may have a blistered appearance. Flowers are greenish-white, about ¼ inch across, and are borne in clusters on a slender stem. The fruits are white, berrylike, glossy and dry when ripe, with a striped stone inside the papery shell. Berries of poison ivy are about ⅓ inch in diameter, whereas those of poison oak are slightly larger.

Poisoning

Caution: If you know or suspect that you are susceptible and you intend to work near poison ivy or poison oak, avoid both direct and indirect contact with the plants. Wear rubber gloves and other protective clothing.

All parts of poison ivy and poison oak plants except the pollen contain an extremely poisonous oily substance, urushiol, during the entire year. This toxin causes painful irritation and blistering of the skin. Poison ivy and poison oak dermatitis is apparently an anaphylactic reaction; that is, it occurs only after sensitization by previous exposure. Human reactions vary from extreme

susceptibility to near immunity. Many people are immune when young, but suddenly or gradually become sensitive with age, possibly due to sensitization through repeated exposure.

A few cases have resulted in death because the poison affected large areas of the body or was severe internally. Such cases are rare, but doctors should be consulted in moderate to extreme cases.

To cause poisoning, the oil usually must contact the skin, either directly by touching the plant, or indirectly by touching things that have touched the plant such as gloves or other clothing, tools, animals, water, or firewood. The toxin may move systemically within the body after penetrating the skin. Broken blisters will not spread the poison because their content is solely body fluid. The harmful oil infiltrates the inner skin almost immediately. The exact time depends upon the amount of oil the skin has come in contact with.

Symptoms can begin within a few hours after contact, or can arise 3 to 5 days later. Washing is important to remove excess poison which might be transmitted to other parts of the body or to another person.

People who are exposed to poison ivy or poison oak should thoroughly wash the exposed skin with soap and cold water, followed with rubbing alcohol or a solution of water and alcohol in equal proportions to dissolve the unabsorbed poison. This solution must be used liberally to remove the poison, because the solution only flushes away the poison—it does not inactivate it. Bathing only spreads the toxic liquid to contaminate other body parts because the oil is transported by water.

Contaminated clothing and bedding can carry the poisonous oil for years. If poisoning occurs even after laundering, dry cleaning may be necessary. Do not wash contaminated clothes with other clothes. Take care to rinse the washing machine thoroughly.

Smoke from burning poison ivy and poison oak has poisoned people who were otherwise immune. Inhalation of such smoke results in lung poisoning that can require hospitalization and intensive care. The oil is not volatile at bonfire temperatures. Any transmission from smoke is by droplets on particles of dust and ash in the smoke, rather than from vapors.

Control

Mechanical Control

Poison ivy and poison oak plants can be removed by grubbing or hand pulling in areas that contain valuable ornamentals. All precautions discussed above should be followed. Persons who are sensitive to poison ivy and poison oak probably should not attempt hand methods of control. Roots and rootstocks can be removed most easily when the soil is thoroughly wet. Grubbing or pulling when the soil is dry and hard is almost futile because roots break off in the ground, leaving large pieces that can sprout vigorously later.

Poison ivy and poison oak vines climbing on trees should be cut at the base, and as much of the vine as possible should be pulled away from the tree. Often, tree roots and poison ivy roots are so intertwined that grubbing is impossible without injuring the tree.

Remember that the roots and stems removed during grubbing are poisonous.

A poison ivy or poison oak seedling 2 months old usually has a root system that a single mowing will not kill. Seedling plants at the end of the first year have well established rootstocks that only grubbing or herbicides will kill. Seedlings will recur as long as seedbearing plants are in the general area.

Mowing with a scythe or sickle is not an efficient means of controlling poison ivy and poison oak. It has little effect on roots unless it is repeated frequently. Cutting plants and allowing the sap to be exposed can present considerable risk to those who might come into contact with it.

A single plowing is of little value in combating poison ivy and poison oak, but good seedbed preparation and planting cultivated crops for 1 or 2 years will control them.

Weed burners are not practical or efficient for controlling poison ivy and poison oak.

Biological Control

Though some animals graze poison ivy and poison oak and may limit abundance of those plants, grazing will not eliminate the weeds or stop their spread unless it continues intensively for several years. No parasitic insects or microorganisms have been found to suppress poison oak or poison ivy.

Caution: Poisonous oils may be transferred from animals grazing in or moving through poison ivy or poison oak to people who handle those animals.

Chemical Control

Several commonly used brush killers control poison ivy or poison oak. Foliage spraying should be done in the late spring or early summer (June in most areas) after poison ivy or poison oak are in full leaf. Regrowth and missed plants should be resprayed the same year. Herbicides may drift if sprayed during breezy conditions and must be applied carefully in areas where susceptible plants are growing.

Selective herbicides can remove poison oak and poison ivy without destroying grass. Those herbicides can damage valuable plants such as ornamentals, however, so herbicides must be carefully applied. Some of these herbicides can be obtained in pre-mixed, ready-to-use forms in small consumer packages in garden and lawn stores.

Poison oak and poison ivy can be effectively controlled by treating the lower stems with herbicides registered for such a method in the winter when the plants are leafless and dormant.

Winter application is relatively safer than in other times of the year because there are fewer ornamental and other valuable plants nearby that may be injured by carelessness or accidental spraying. Also, leafless stems provide less exposure of the operator to the poisonous plants.

The purchase and use of some of these herbicides requires an applicator's license.

Soil-applied herbicides of some types are appropriate for control of poison oak and poison ivy in certain cases, but such herbicides are less selective and should not be used where susceptible plants are growing. If used at high rates, such herbicides may kill



Figures 4-6.—Poison oak and poison ivy can grow as shrubs, vines, or trees.



Figure 7.—In the winter, the leafless branches of poison oak or poison ivy still hold the harmful oils.

plants of all kinds on the site, leaving the soil bare for several years. Be sure that the long-range effects are desired on the site before using soil herbicides.

As with most perennial weeds, repeat applications over several years should be anticipated for complete control.

For suggested herbicides, refer to the *Pacific Northwest Weed Control Handbook*, an annually revised Extension publication available from the Extension Services of Oregon State University, Washington State University, and the University of Idaho.

Carefully read and follow label directions when using any herbicide.

Photographs provided by Larry Burrill, Extension weed specialist, Oregon State University.

Pacific Northwest Extension publications are jointly produced by the three Pacific Northwest states—Oregon, Washington, and Idaho. Similar crops, climate, and topography create a natural geographic unit that crosses state lines. Since 1949 the PNW program has published more than 450 titles. Joint writing, editing, and production have prevented duplication of effort, broadened the availability of faculty specialists, and substantially reduced the costs for participating states.

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Attachment B – Skookum Wulge

Taxpayer:	USA in Trust
Site Contact:	City of Tacoma, Desiree Pooley, 253-502-2126
Construction Completed:	n/a
Site Phase:	Maintenance
Restoration Goals:	Preservation of the shoreline and tidelands Enhancement of the shoreline vegetation

Located on the northeast shore of Commencement Bay near the mouth of the Hylebos Waterway, this narrow strip of 1.19 acres has been set aside for preservation of the shoreline's intertidal habitat areas and native vegetation. The site consists of a rocky beach, a small backshore embayment, and an upper riparian planted area (see attached figure). There is approximately a 3-4 foot elevation difference between the planted area and the upper beach due to erosion. The majority of the work on this site will take place in the riparian planting area. Access to this site will primarily be from a turnout off of Marine View Drive adjacent to the site. There will be some exposure to traffic when working on the vegetated portion of this site adjacent to the roadway.

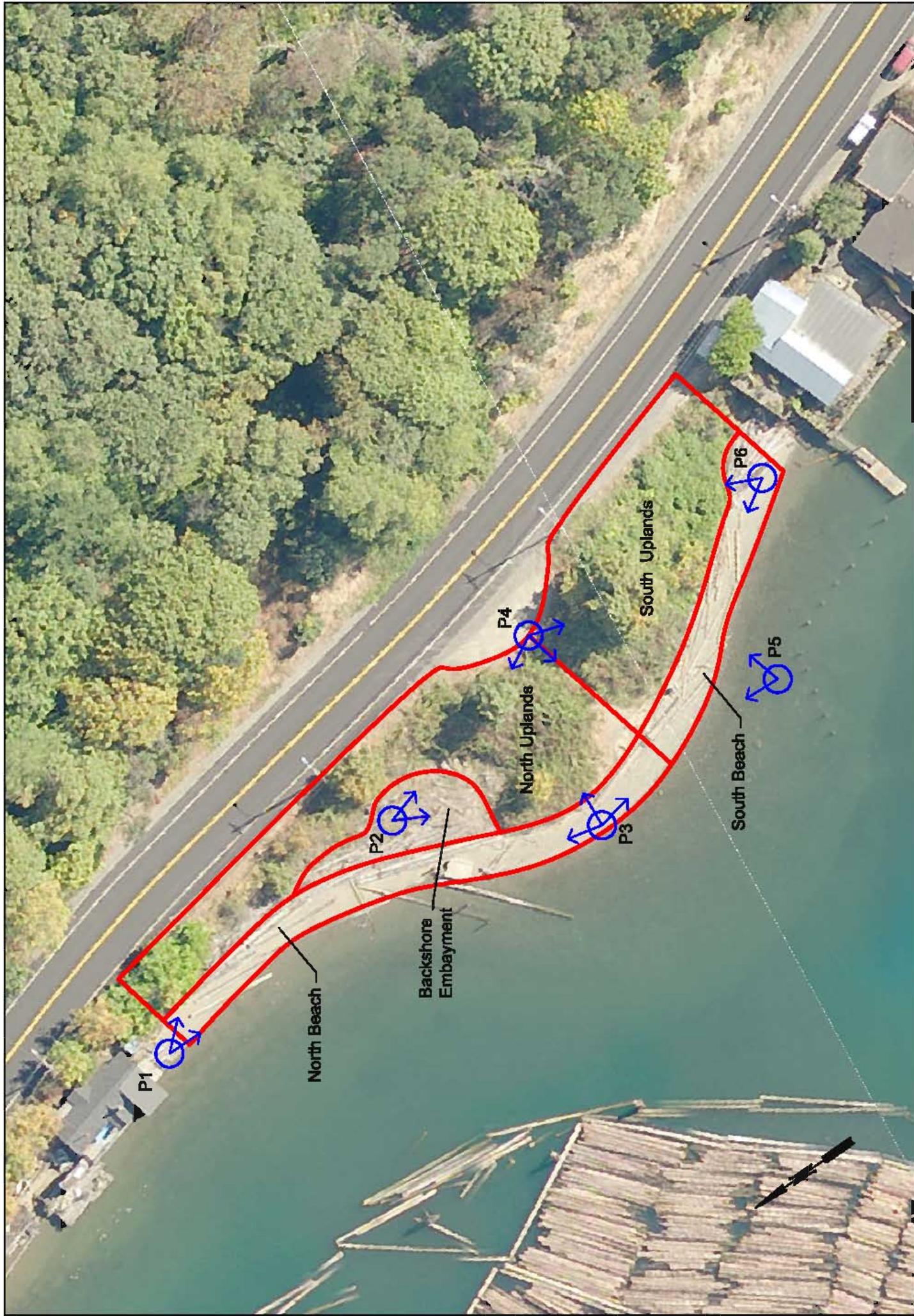
Inspection, monitoring, and photograph documentation of the site are required. Walking and stepping on uneven ground or slippery surfaces are the primary physical hazards associated with these activities. Local tide charts should be checked to ensure the safest working conditions. There may be areas of the beach that become isolated at a high tide.

Trash removal, invasive species removal, and goose exclusion device installation and maintenance will be the primary maintenance activities at this site, and planting events will likely also take place. Walking on uneven ground or slippery surfaces are the primary physical hazards at this site. A portion of the invasive species removal will take place next to the roadway, so safety vests and traffic control cones should be used when this work is underway. Due to the extensive presence of invasive species at the site, heavy equipment may be used for initial clearing and grubbing. In addition, herbicides may also be used for invasive species control. Herbicides will only be applied under the supervision of a properly licensed applicator.

Care should be used when getting to the beach area from the upper slope due to the potentially slippery slope and the grade difference.

Invasive species of concern:

- Blackberry
- Ivy
- Knotweed
- Pepperweed



SKOOKUM WULGE



Attachment C – Squally Beach

Taxpayer: USA in Trust
Site Contact: City of Tacoma, Desiree Pooley, 253-502-2126
Construction Completed: 2000
Site Phase: Maintenance
Restoration Goals: Creation of salt marsh and brackish marsh habitat

Located on the northeast shore of Commencement Bay just north of the 11th Street Bridge, seeps from the hill above are diffused over the shoreline creating an area of brackish marsh and backwater pools. This 0.66 acre site provides intertidal habitat, riparian habitat and native vegetation. The site consists of small raised island areas within the marsh area. A wooded strip of riparian area separates the site from the adjacent roadway. The majority of the work will take place in the marsh area, but some work may be required in the wooded area adjacent to the roadway. Access to the site is from a turnout off of Marine View Drive toward the northwest end of the site.

Inspection, monitoring, and photograph documentation of the site are required. Walking and stepping on uneven ground or slippery surfaces are the primary physical hazards associated with these activities. Local tide charts should be checked to ensure the safest working conditions. There may be areas of the beach that become isolated at a high tide.

Trash removal, invasive species removal, and goose exclusion device removal and/or maintenance will be the primary maintenance activities at this site, and planting events will likely also take place. Walking on uneven ground or slippery surfaces are the primary physical hazards at this site. A portion of the invasive species removal will take place next to the roadway, so safety vests and traffic control cones should be used when this work is underway. In addition, herbicides may also be used for invasive control. Herbicides will only be applied under the supervision of a properly licensed applicator.

Another potential work activity is the removal of an existing fence in place at the shoreline edge of the site which is in place to minimize woody debris entry into the marsh area. The replacement of this fencing with large woody debris would be a more natural alternative. Alternatives to using heavy equipment will be explored if this option is selected.

Invasive species of concern:

- Blackberry
- Pepperweed
- Knotweed
- White Sweet Clover
- Reed Canary Grass



SQUALLY BEACH



Attachment D – Mowitch

Taxpayer: Port of Tacoma
Site Contact: City of Tacoma, Desiree Pooley, 253-502-2126
Construction Completed: 2000
Site Phase: Monitoring
Restoration Goals: Creation of off-channel salmonid habitat

Located at the head of the Hylebos Waterway, this 2.3 acre site provides intertidal backwater fingers that enable brackish marsh vegetation to grow and foraging and refuge habitat for salmonids. The site consists of one island marsh area and three other marsh areas separated by backchannel areas. An upland riparian zone separates the habitat area from an adjacent industrial site (see attached figure). The majority of the work on this site will take place in the marsh areas. Access to the site is from the southeast corner of the site off of Marine View Drive and adjacent to the railroad tracks. Be aware of train traffic during access.

Inspection, monitoring, and photograph documentation of the site are required. Walking and stepping on uneven ground or slippery surfaces are the primary physical hazards associated with these activities. Local tide charts should be checked to ensure the safest working conditions. There may be areas of the beach that become isolated at a high tide.

Trash removal, invasive species removal, and goose exclusion installation and maintenance will be the primary maintenance activities at this site, and planting events will likely also take place. Walking on uneven ground or slippery surfaces are the primary physical hazards at this site. A portion of the invasive species removal will take place next to the roadway, so safety vests and traffic control cones should be used when this work is underway.

Invasive species of concern:

- Blackberry
- Reed Canary Grass
- Knotweed



MOWITCH - HEAD OF HYLEBOS



Attachment E – Jordan/Lower Hylebos Marsh

Taxpayer:	City of Fife
Site Contact:	City of Tacoma, Desiree Pooley, 253-502-2126
Construction Completed:	2006
Site Phase:	Installation Phase
Restoration Goals:	Creation of off-channel habitat for salmonids Creation of diverse, sustainable native vegetation dominated habitats

Located directly adjacent to Hylebos Creek in Fife, just downstream of the 4th Street bridge, the 15.3 acres site provides off channel intertidal habitat for fish migration, rearing, foraging, and refuge. The site consists of a steep, wooded hillslope, a public walking trail, planted riparian areas, marsh areas, and islands (see attached figure). The majority of work at this site will be performed in the planted riparian and marsh areas, as well as on the islands. Some work may be performed on the lower hillslope adjacent to the walking path. Access to the site is from 4th Street East or 8th Street East at the northwest or southeast sides of the site, respectively.

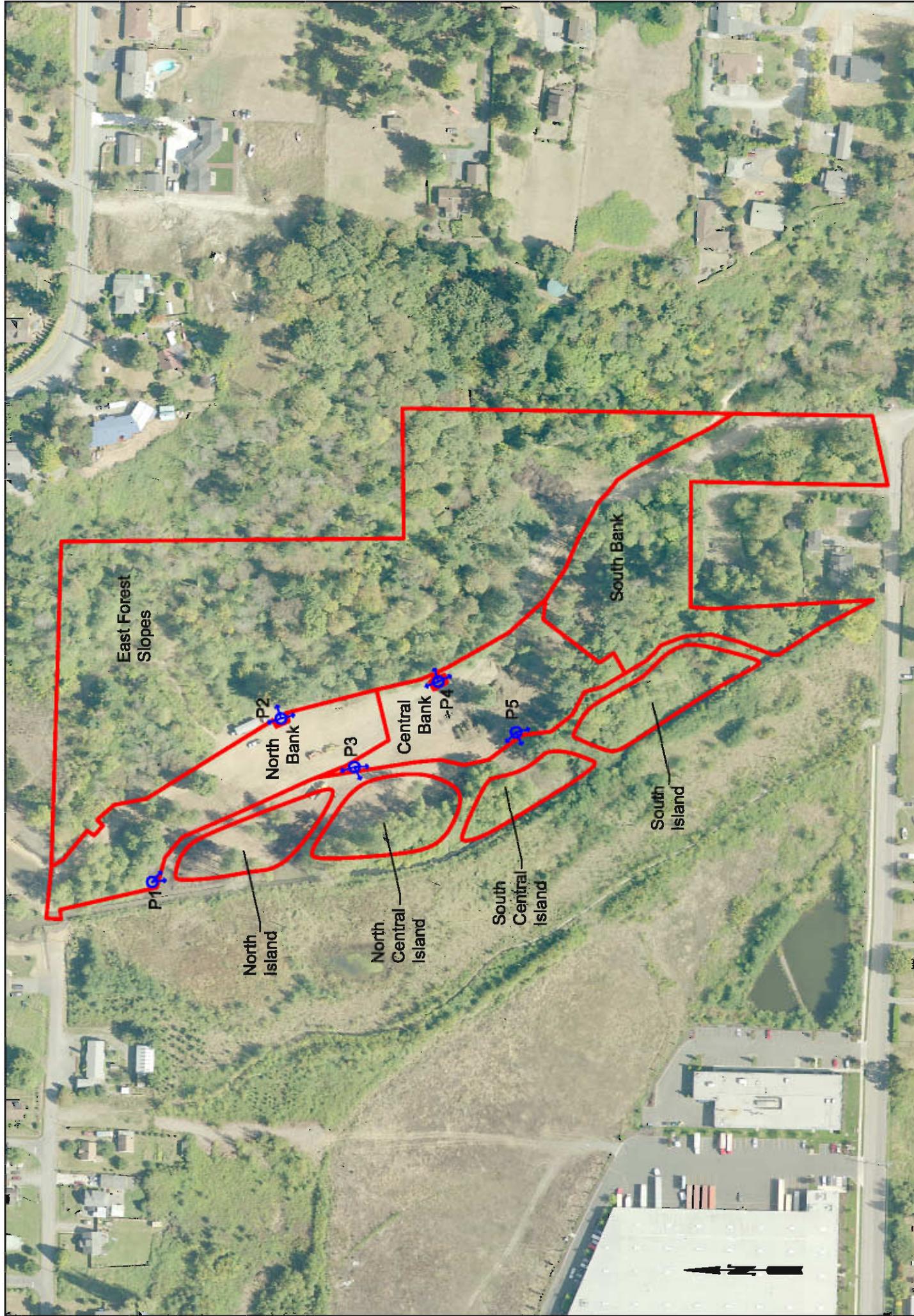
Inspection, monitoring, and photograph documentation of the site are required. Walking and stepping on uneven ground or slippery surfaces are the primary physical hazards associated with these activities. Local tide charts should be checked to ensure the safest working conditions. There may be areas of the beach that become isolated at a high tide.

Trash removal and invasive species removal will be the primary maintenance activities at this site, and planting events will likely also take place. Walking on uneven ground or slippery surfaces are the primary physical hazards at this site. Due to the extensive presence of invasive species at the site in some areas, herbicides may be used for invasive control. Herbicides will only be applied under the supervision of a properly licensed applicator.

The majority of the site is well established and some thinning of the volunteer red alder trees may be required to optimize site development and achieve the various vegetation goals of the site.

Invasive species of concern:

- Morning glory
- Blackberry
- Nightshade
- Purple Loosestrife
- Reed Canary Grass
- Knotweed



JORDAN/LOWER HYLEBOS MARSH



Attachment F – Middle Waterway (City)

Taxpayer: City of Tacoma
Site Contact: City of Tacoma, Desiree Pooley, 253-502-2126
Construction Completed: 2000
Site Phase: Maintenance
Restoration Goals: Creation of salt marsh habitat
Creation of salmonid migration habitat

Located at the head of the Middle Waterway near 11th Street, this 1.85 acre site provides intertidal habitat and salt marsh vegetation beneficial for juvenile salmonid migration. The riparian areas provide habitat for shore birds and other wildlife. The majority of the work at this site will be performed in the marsh area and riparian areas. Access to this site is off of F Street or 11th Street.

Inspection, monitoring, and photograph documentation of the site are required. Walking and stepping on uneven ground or slippery surfaces are the primary physical hazards associated with these activities. Local tide charts should be checked to ensure the safest working conditions.

Trash removal and invasive species removal will be the primary maintenance activities at this site, and planting events will likely also take place. Walking on uneven ground or slippery surfaces are the primary physical hazards at this site. A portion of the invasive species removal will take place next to the roadway, so safety vests and traffic control cones should be used when this work is underway.

Invasive species of concern:

- Blackberry
- Butterfly bush
- White Sweet Clover



MIDDLE WATERWAY, CITY



Attachment G – Middle Waterway (Simpson)

Taxpayer:	Simpson Tacoma Land Company
Site Contact:	City of Tacoma, Desiree Pooley, 253-502-2126
Construction Completed:	Approximately 1996
Site Phase:	Monitoring
Restoration Goals:	Creation of intertidal salt marsh habitat Creation of salmonid migration habitat

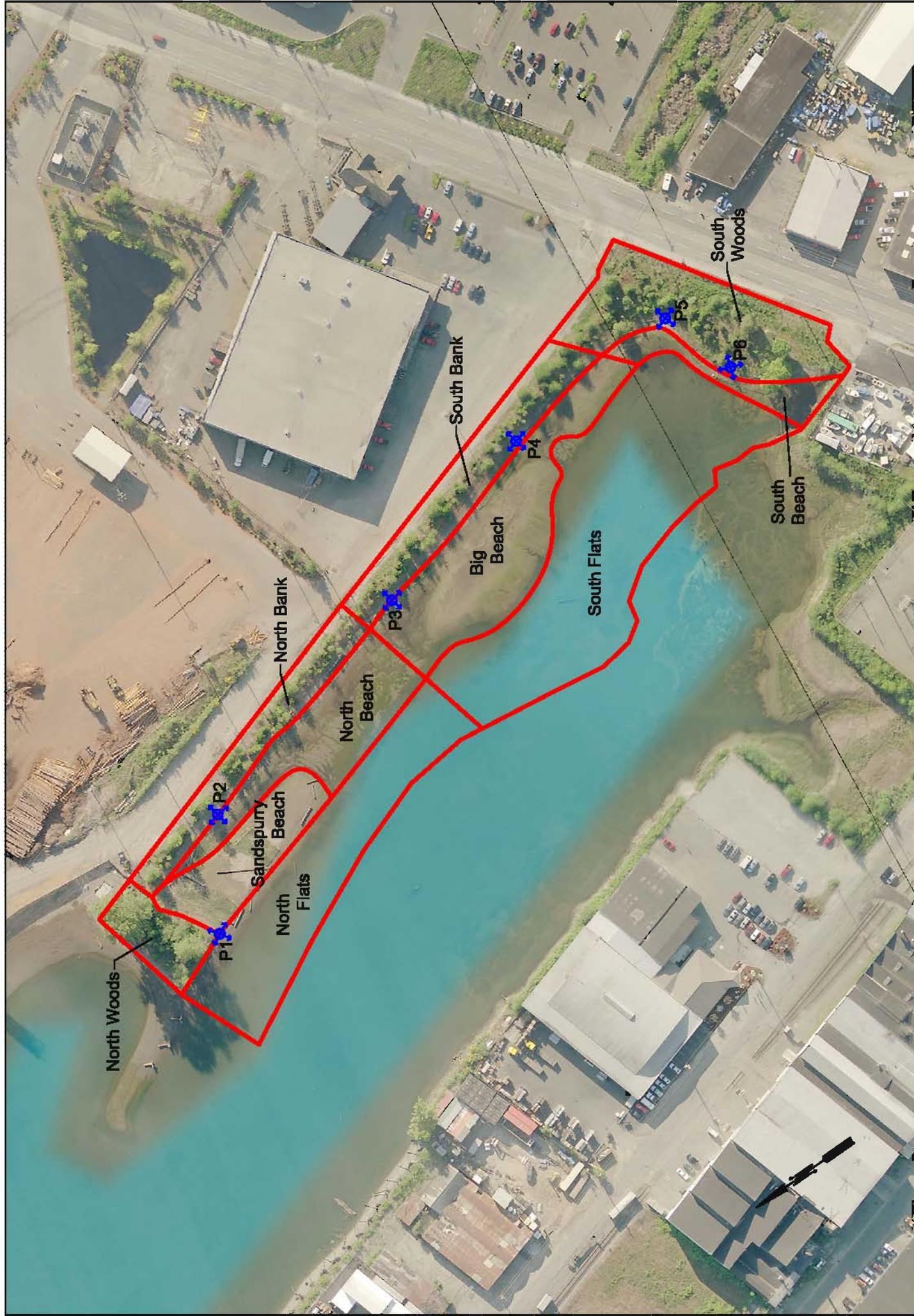
Located at the head of the Middle Waterway near 11th Street, and adjacent to the Middle Waterway (City) site, this site provides intertidal habitat and salt marsh vegetation beneficial for juvenile salmonid migration. The riparian areas provide habitat for shore birds and other wildlife. A combination of mudflat areas, beach areas, and bank/wooded areas are present at the site (see attached figure). The majority of the work will take place in the beach areas, however, most of the invasive species removal will occur in the bank/wooded areas. Access to this site is off of the Middle Waterway Access Road.

Inspection, monitoring, and photograph documentation of the site are required. Walking and stepping on uneven ground or slippery surfaces are the primary physical hazards associated with these activities. Local tide charts should be checked to ensure the safest working conditions.

Trash removal and invasive species removal will be the primary maintenance activities at this site, and planting events will likely also take place. Walking on uneven ground or slippery surfaces are the primary physical hazards at this site. A portion of the invasive species removal will take place next to the roadway, so safety vests and traffic control cones should be used when this work is underway.

Invasive species of concern:

- Butterfly bush
- Sweet Pea
- Blackberry



MIDDLE WATERWAY, SIMPSON



Attachment H – Olympic View (City) and Olympic View Triangle (DNR)

Taxpayer: City of Tacoma
Site Access Contact: Foss Maritime, John Lewis, 253-272-0362
Site Contact: City of Tacoma, Desiree Pooley, 253-502-2126
Construction Completed: 2002 (City)/2007 (DNR)
Site Phase: Maintenance/Installation
Restoration Goals: Restoration of natural beach
Creation of riparian habitat
Creation of salt marsh intertidal habitat
Preservation of eelgrass beds

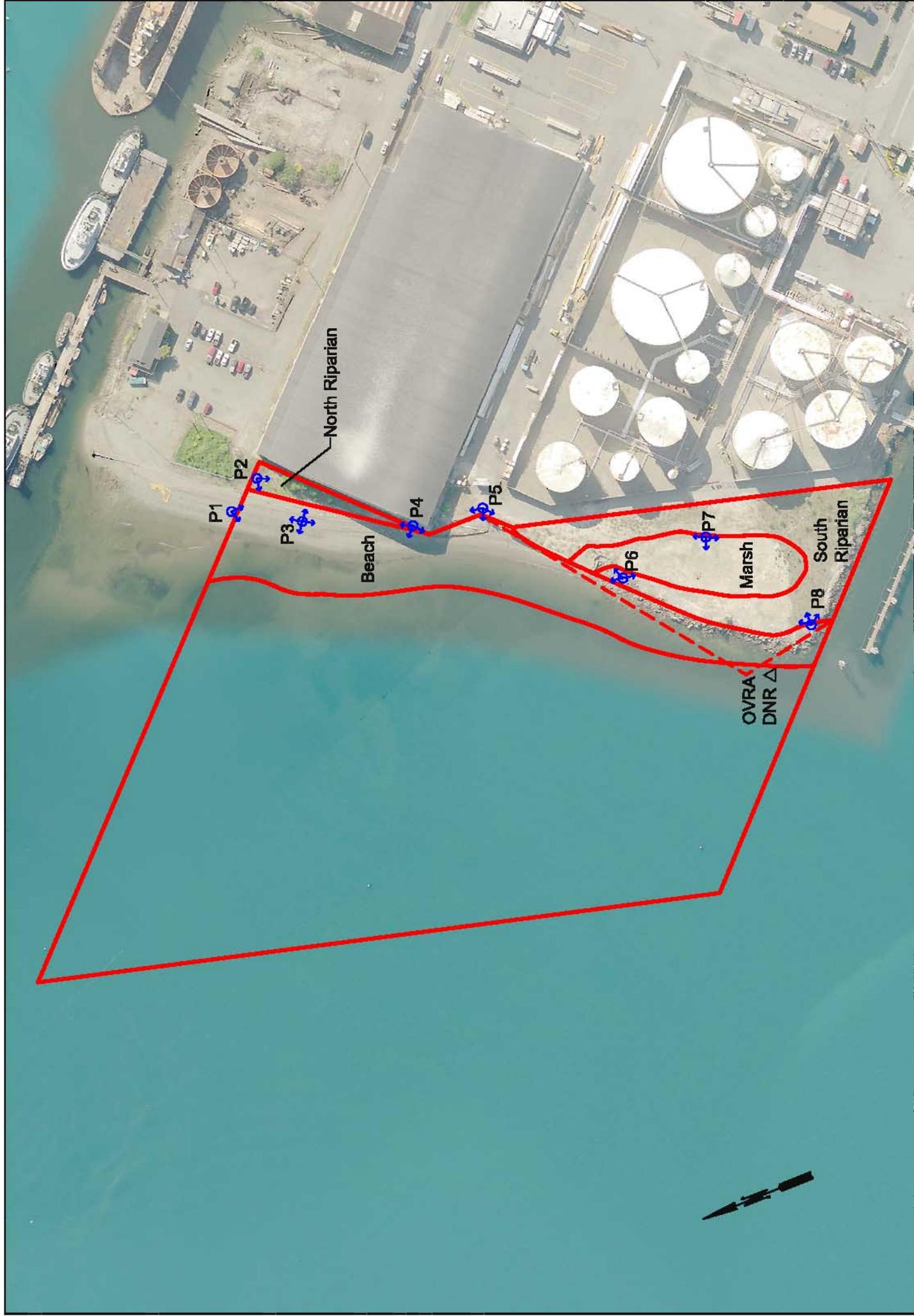
Located at the tip of the peninsula between the Thea Foss and Middle Waterways, this 12.4 acre site consists of restored beach, tidelands, and riparian areas. In 2007, the DNR Triangle portion of the site was completed that remediated soil and added salt marsh habitat. On-site, but just off-shore, is one of the few remaining eelgrass beds in Commencement Bay. The majority of the work on this site will take place on the upper beach/riparian area. Access to this site will be from the end of East F Street near Foss Maritime.

Inspection, monitoring, and photograph documentation of the site are required. Walking and stepping on uneven ground or slippery surfaces are the primary physical hazards associated with these activities. Local tide charts should be checked to ensure the safest working conditions.

Trash removal, invasive species removal, and goose exclusion removal/maintenance will be the primary maintenance activities at this site, and planting events will likely also take place. Walking on uneven ground or slippery surfaces are the primary physical hazards at this site.

Invasive species of concern:

- Pepperweed
- Blackberry
- Mustard
- Nightshade



P1
P2
P3
North Riparian

Beach

P4

P5

P6

P7

Marsh

P8

South Riparian

OVRA
DNR Δ



OLYMPIC VIEW, CITY & WDNR



Attachment I – Tahoma Salt Marsh

Taxpayer: City of Tacoma
Site Contact: City of Tacoma, Desiree Pooley, 253-502-2126
Construction Completed: 2003/2004
Site Phase: Maintenance
Restoration Goals: Creation of salt marsh habitat
Creation of riparian habitat

Located along the Ruston Way shoreline near Jack Hyde Park, this 1.95 acre bowl-shaped riparian and salt marsh habitat provides intertidal habitat for juvenile salmonids. The riparian areas provide habitat for shore birds and other wildlife. The site consists of a planted intertidal salt marsh area and surrounding riparian slope (see attached figure). The majority of the work at this site will occur within this bowl area in both the intertidal marsh and riparian zones. Access to this site is through the parking lot located across Ruston Way from Jack Hyde Park.

Inspection, monitoring, and photograph documentation of the site are required. Walking and stepping on uneven ground or slippery surfaces are the primary physical hazards associated with these activities. Local tide charts should be checked to ensure the safest working conditions.

Trash removal and invasive species removal will be the primary maintenance activities at this site, and planting events will likely also take place. Walking on uneven ground or slippery surfaces are the primary physical hazards at this site.

Invasive species of concern:

- White Sweet Clover
- Pepperweed
- Blackberry
- Nightshade
- Thistle
- Tansy ragwort



TAHOMA SALT MARSH



Attachment J – Swan Creek

Taxpayer: City of Tacoma
Site Contact: City of Tacoma, Desiree Pooley, 253-502-2126
Construction Completed: 2001
Site Phase: Monitoring
Restoration Goals: Enhancement of surface water connection from Swan Creek to the Haire Wetland
Enhancement of riparian area vegetation

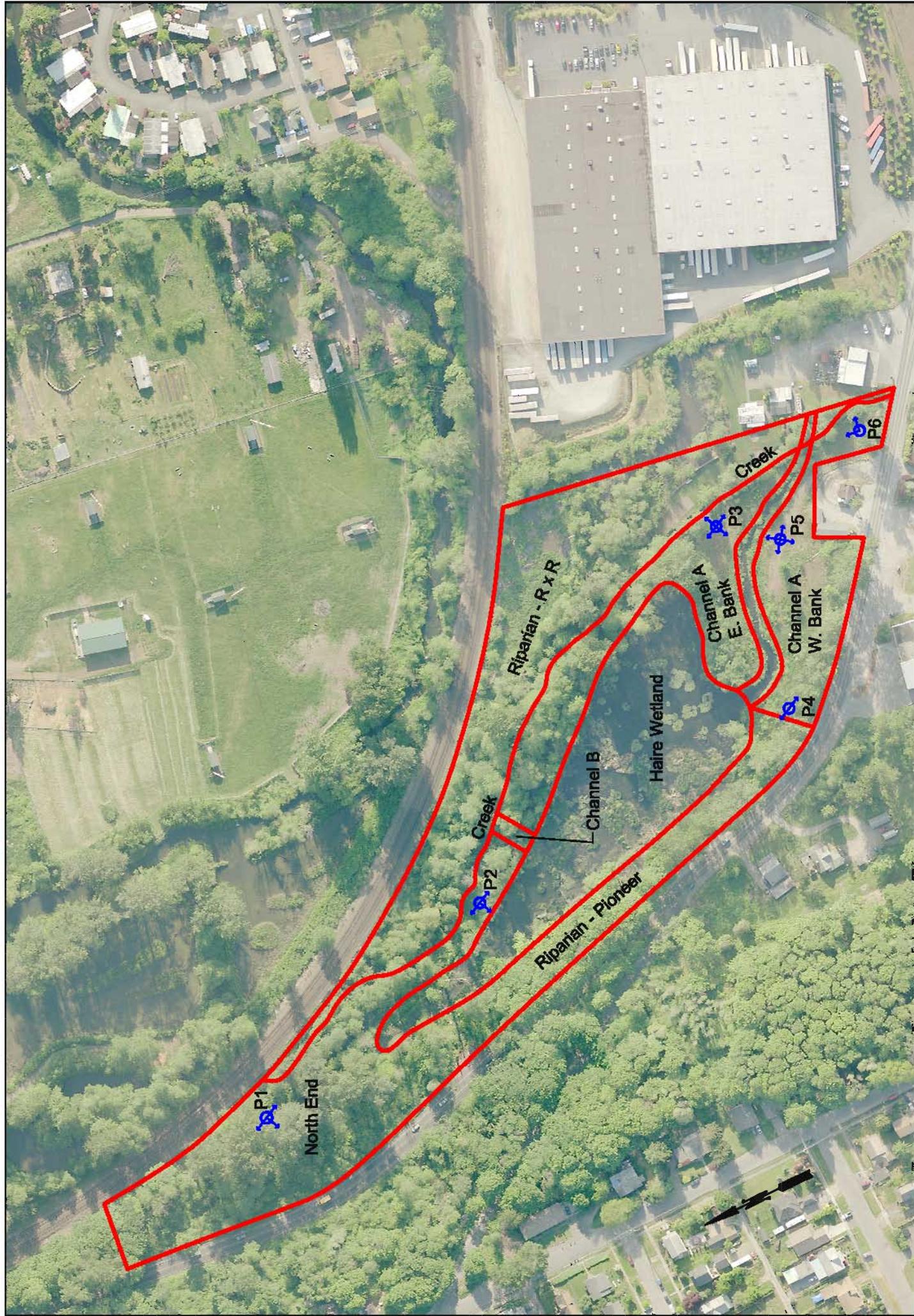
Located just outside the City of Tacoma limits, bordered by Pioneer Way and the railroad tracks, these 12 acres include Swan Creek, the Haire wetland and associated riparian areas. The created channels provide an improved surface water connection that allows easier passage for fish into the wetland complex. This site consists of many habitat types that provide avian, amphibian, and fish habitat for rearing, refuge, and foraging. The majority of the work at this site will take place in the riparian areas and near Channels A and B.

Inspection, monitoring, and photograph documentation of the site are required. Walking and stepping on uneven ground or slippery surfaces are the primary physical hazards associated with these activities. Beavers are very active on-site and it is not unusual to note extreme fluctuations in water depth, water flow, and tree predation as a result of their activities.

Trash removal and invasive species removal will be the primary maintenance activities at this site, and planting events will likely also take place. Walking on uneven ground or slippery surfaces are the primary physical hazards at this site. A portion of the invasive species removal will take place next to the roadway, so safety vests and traffic control cones should be used when this work is underway.

Invasive species of concern:

- Blackberry
- Ivy
- Policeman's Helmet
- Nightshade
- Knotweed
- Reed Canary Grass



SWAN CREEK



APPENDIX A

Field Forms

Environmental Stewardship Project Qualitative Ground Survey

Date: _____ Time: _____

Year: 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10

Site (circle): Yowkwa (YWK), Skookum Wulge (SKW), Squally Beach (SQB), Mowitch (MOW), Jordan/Lower Hylebos Marsh (JOR), Middle Waterway - Simpson (MWS), Middle Waterway – City (MWC), Olympic View (OVRA), Tahoma Salt Marsh (TSM), Swan Creek (SWN)

Steward(s) Present (Volunteer, Staff): _____

Weather Conditions: _____

Qualitative Observations:

	Hillslope/Riparian	Backshore/Marsh	Beach (below 9 MLLW)
Vegetation (general)			
Invasive Species			
Volunteer Species			
Survival of recent plantings			
Plant Damage by animals (percent damage)			
Plant Vigor (list species)			
Plant Disease/Stress (percent by species)			
Supplemental Planting Needed			
Human Impacts (general)			
Trash (volume)			
Vandalism (extent)			
Perimeter Fencing (condition/maintenance needs)			
Goose Exclusion Fencing (condition/maintenance needs)			
Large Woody Debris (recruitment, presence)			
Mulch (quantity needed)			
Erosion/Sedimentation			

Wildlife Notes (Species observed, other evidence):

General Comments:

Photo Points (Record Picture # and Time):

Site: _____
Date: _____

Year: 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10

Site:	P	P	P	P	P
P	P	P	P	P	P
P	P	P	P	P	P

APPENDIX B

Task List

Appendix B
Environmental Stewardship Project Task List - DRAFT
Work Proposed for 2009-2010

Site	Category	Zone	Task Description	Priority	Timing
				1,2,3	Spr, S, F, W
Yowkwala	Human Impacts	Hillslope	Remove remains of staircase from Marine View Drive to beach including stringers and ropes.	1	W
Yowkwala	Human Impacts	Hillslope	Install No Trespassing signs or Dangerous Slope signs	1	W
Yowkwala	Invasive Species	Beach/Backshore	Control Pepperweed population	1	Spr, F
Yowkwala	Human Impacts	Hillslope	Regrade, mulch and plant social trail from treeline down to beach.	2	F
Yowkwala	Human Impacts	Beach	Remove beach "party house" out at the point.	3	S
Yowkwala	Supplemental Planting	Backshore	Increase diversity of backshore areas	2	F
Yowkwala	Invasive Species	Beach/Backshore	Remove invasive species as directed	1	On-going
Skookum Wulge	Invasive Species	Backshore	Control Pepperweed population	1	Spr, F
Skookum Wulge	Invasive Species	Uplands	Remove blackberry, knotweed and ivy, provide erosion control, and replant with native species	1	S,F
Skookum Wulge	Erosion	Beach/Uplands	Place LWD on beach in front of erosional areas	2	S
Skookum Wulge	Supplemental Planting	Backshore Embayment	Enhance beach plant community	3	Spr
Squally Beach	Invasive Species	West Woods/Tribal Property	Inject Knotweed Population to the west to control encroachment onto site (Phased approach over time)	1	S, F
Squally Beach	Supplemental Planting	Woods/Alder Grove	Enhance riparian area with additional tree shrub planting	3	F
Squally Beach	Invasive Species	Marsh/Islands	Control Pepperweed population	1	Spr, F
Squally Beach	Invasive Species	Woods/Alder Grove	Remove invasive species as directed	1	On-going
Squally Beach	Fencing/Erosion	Islands/Beach	Remove LWD fence and replace with large pieces of anchored LWD to assist in the control of wood debris floating into the site	2	S
Squally Beach	Human Impacts	Marsh	Cut and Remove exposed fish netting only if it will not damage plants during its removal.	3	On-going
Squally Beach	Supplemental Planting	Islands	Plant islands with high marsh species	3	Spr
Mowitch	Invasive Species	Riparian F1-F7	Remove invasive species as directed	1	On-going
Mowitch	Invasive Species	Riparian F1-F7	Weed and spot mulch around native plants in the riparian area	1	F
Mowitch	Plant Stress	Riparian F1-F7	Soil analysis in Riparian areas	2	
Mowitch	Supplemental Planting	Riparian F1-F7	Enhance riparian area by planting both native shrubs and canopy species	2	F
Mowitch	Supplemental Planting	Marsh	Expand test plot area on the islands with the successful salt marsh species	2	Spr
Jordan	Invasive Species	Marsh	Control Purple Loosestrife Population	1	S
Jordan	Invasive Species	Marsh/Uplands	Remove invasive species as directed. Continue to keep blackberry at bay to the North of restored area	1	On-going
Jordan	Plant Vigor	Uplands	Thinning of Alder less than an agreed upon diameter and/or not more than X cut stems in a specified area also clearing of alder in a 3 foot radius around planted native species.	1	Spr, S
Middle Waterway - Simpson	Mulch	North Bank/SouthBank	Mulch riparian area focusing on the newest of plantings.	1	F, W
Middle Waterway - Simpson	Supplemental Planting	North Bank/SouthBank	Plant riparian area with both shrubs and trees	2	F
Middle Waterway - Simpson	Invasive Species	Uplands	Remove invasive species as directed	1	On-going
Middle Waterway - Simpson	Fencing/Supplemental Planting	Sandspurry Beach	Extend goose exclusion and plant new salt marsh areas	2	Spr
Middle Waterway - City	Invasive Species	Riparian	Remove invasive species as directed	1	On-going
Middle Waterway - City	Plant Vigor	Riparian	Maintain trail to sign	3	Spr
Middle Waterway - City	Supplemental Planting	Riparian	Enhance riparian areas with conifers	2	F
Olympic View - City/DNR	Invasive Species	Riparian/Beach	Remove invasive species as directed	1	On-going
Olympic View - City/DNR	Invasive Species	Riparian/Beach	Control Pepperweed population	1	
Olympic View - City/DNR	Supplemental Planting	Riparian	Add to riparian species diversity and area	2	F
Olympic View - City/DNR	Invasive Species	Beach	Control potential Pepperweed and invasive population	1	Spr, F
Olympic View - City/DNR	Erosion	Beach/Marsh	Monitor sedimentation/erosion in salt marsh and Beach shift	2	S, W
Tahoma Salt Marsh	Invasive Species	Marsh	Control Pepperweed population	1	Spr, F
Tahoma Salt Marsh	Invasive Species	Riparian	Remove invasive species as directed	1	On-going
Tahoma Salt Marsh	Supplemental Planting	Marsh	Add plant diversity to salt marsh area	2	Spr
Swan Creek	Invasive Species/Supplemental Planting	North Riparian	Remove ivy and replant slope with trees/shrubs	1	F
Swan Creek	Invasive Species	Riparian	Remove invasive species as directed	1	On-going
All Sites	General		Cover rebar tops with caps	1	On-going
All Sites	General		Locate marsh stock suppliers	2	On-going
All Sites	General		Clean signs	2	Spr
All Sites	General		Establish or Re-establish photopoint monitoring locations and confirm with GPS.	1	Prior to first photos and then On-going
All Sites	General		Garbage pickup (in accordance with SOW)	1	On-going