

Plants, Animals and Wetlands Reports

**Technical Discipline Report: Plants, Animals
and Wetlands**

Port Gamble Redevelopment Project
Kitsap County, Washington

for
Pope Resources

August 14, 2018



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File No. 2378-044-07

August 14, 2018

Prepared for:

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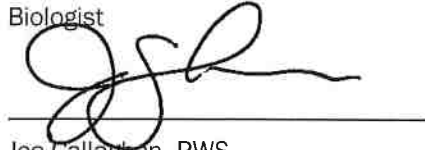
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INTRODUCTION

Olympic Property Group (OPG) on behalf of Pope Resources (Pope), the Project applicant, is proposing redevelopment of the Port Gamble site. The 318.3-acre site is comprised of three main areas including a former Mill Site along the waterfront, a town site on the bluffs above the Mill Site, and an agrarian area which lies southwest of the town site. Proposed redevelopment of Port Gamble could ultimately contain approximately 225 to 265 new residential units, a 100 room hotel/visitor accommodations, 80,000 to 202,000 square feet of commercial space and 218 to 233 acres of open space. Build-out of the proposed development is anticipated to take approximately 10 years but would depend on market conditions.

GeoEngineers, Inc. (GeoEngineers) has been contracted by Pope to prepare this technical discipline report for the Port Gamble Redevelopment Project, located in Port Gamble, Kitsap County, Washington (Figure 1). This report documents habitat conditions over the 318.3-acre site. For additional information, the following reports should be reviewed: the Wetland and Stream Delineation Report (GeoEngineers, 2013a), the Biological Assessment reports prepared for the Mill Site for the Alternative 1 site plan (GeoEngineers, 2018a), the Alternative 2 site plan (GeoEngineers, 2018b), and the Port Gamble Heron Management Plan (Tetra Tech, 2018).

This technical discipline report is intended to provide environmental baseline condition information for the project site and to identify the potential impacts to the environment from the three alternatives developed for the project. Information for this technical discipline report addressing plants, animals and wetlands came from material gathered through file review, database research and a site visit. This report considers the following:

- Existing upland plant and animal habitat.
- Existing marine habitat and marine animal communities.
- Presence of Endangered Species Act (ESA)-listed species throughout the entire site.
- Impacts of the Alternative 1, Alternative 2 and No Action development plans on upland, marine and ESA-listed plants, animals and habitats.
- Impacts of the Alternative 1, Alternative 2, and No Action development plans on coastal processes and associated marine habitat.
- Proposed and recommended mitigation measures.
- Identification of unavoidable adverse impacts.
- Figures identifying the project location and specific habitat and coastal features throughout the site.

Site Location and Setting

The Port Gamble Property site includes approximately 320 acres of land in the north end of Kitsap County within and adjacent to the community of Port Gamble, Washington. The site is located in Sections 5, 6, 7 and 8 of Township 27 North and Range 02 East of the Willamette Meridian and within Water Resources Inventory Area (WRIA) 15 (Kitsap). The site extends from the shorelines of Port Gamble Bay and Hood Canal west and south, respectively, encompassing the existing town site (commercial, residential and associated areas), other developed areas, agricultural lands, and forest lands. State Route (SR) 104 extends through

the project site, generally separating the commercial portion of the town site and shoreline areas from most of the residential area and the uplands. More specifically, the site contains a variety of land uses (Figure 2) including:

- Former Mill Site/Industrial uses located along the Port Gamble and Hood Canal shorelines.
- Residential homes (west and south portions of the town site).
- Business district (northeast portion of the town site).
- Recreation area field and trail head (southeast corner).
- Hood Canal Nursery (western portion).
- Pasture lands used for grazing (southwest portion).
- Trails throughout the property that vary in form from older maintenance and logging roads to primitive trails cut into the brush.
- Electrical transmission line corridor that cuts east/west through the project site.
- Undeveloped forested areas (central to southern portions of the site).

DESCRIPTION OF ALTERNATIVES (ABRIDGED)

A total of three alternatives (Alternatives 1 and 2 and No Action) have been envisioned for the project, as described below. Our understanding of these alternatives is based on our prior work experience on the site (including critical areas assessment and ESA compliance services) and information provided by Triad Associates and OPG, including: Chapter 2 Proposed Action and Alternatives from the *Port Gamble Redevelopment EIS* (provided by Triad Associates on January 11, 2018).

Both alternatives will have the same pathways for utilities. The existing water system will be replaced and upgraded with a new system providing both potable water and fire flow. The new water source will be provided by connecting to the Kitsap Public Utility District water main that was extended to the site in 2013/2014. A new membrane bioreactor (MBR) sewer system has been established in the Rural Wooded (RW) zone adjacent to the site. The new MBR system includes a new treatment facility and pump station, new upland drain field and abandonment of the previous sewage outfall to the Port Gamble Bay. In addition, stormwater would be managed with a new conveyance system, water quality treatment facilities, detention facilities and outfalls designed in accordance with the 2010 Kitsap County Stormwater Design Manual. Water quality treatment would be achieved using water quality detention ponds, storm filters located in manholes or vaults and would be discharged to Hood Canal or Port Gamble Bay using new or existing stormwater outfalls. The remainder of the site's stormwater would be discharged to Machias Creek, a ditch system at open space tracts or to on-site wetlands. Portions of the site such as open spaces, forested tracts and the existing cemetery would have no stormwater drainage features, except as required to maintain wetland hydrology.

Access for Alternatives 1 and 2 are also similar. Primary access to the Port Gamble site would continue to be provided via SR 104. In general, the existing street grid system would be retained and expanded to reflect the town's historic character, with some streets improved to new standards. One potential major road improvement, if implemented by the applicant, would be the extension of Carver Drive, primarily to the south, to provide access to the proposed residences and open space in the RW zone and the large onsite

sewage system (LOSS) drain fields. A number of new alleys are also proposed as part of the residential development in the Rural Historic Town – Residential (RHTR) zone. In addition, a roundabout would be built at the intersection of SR 104 and Puget Way/Olympian Avenue in order to aid traffic turning onto SR 104 from the site and to cross SR 104 in a north/south direction.

Both alternatives would also include a wildlife rehabilitation facility, to be owned and operated by West Sound Wildlife Shelter (WSWS), which is proposed within the Rural Residential (RR) and RW zones (a small amount of parking for the facility is located in the RHTR zone). In order to access this rehabilitation facility, a stream crossing over Stream 4 (a non-fishbearing perennial stream) would be required. In addition, the rehabilitation facility would place remote rehabilitation cages within open space areas away from development and human uses; these cages would be placed in upland areas outside wetlands, streams, wetland buffers and stream buffers.

The main differences between Alternatives 1 and 2 include: (1) the intensity of development in the shoreline area, currently identified as the “former mill site,” and (2) level of commercial/retail development. Otherwise, development plans included in Alternatives 1 and 2 are virtually identical. Alternative 1 generally accommodates a higher and/or more intense level of development in the shoreline area. Alternative 2 includes a reduced level of development and having more open space. These two alternatives are described in more detail in the following sections.

In addition to these alternatives, there are two independent planned activities on the Port Gamble property that have gone, or will go, through independent environmental review processes; these activities are described below and are not analyzed as part of this report:

- 1. Environmental Cleanup.** Water and sediment cleanup in Port Gamble Bay was completed under an Agreed Order pursuant to the Model Toxics Control Act (MTCA) between the Washington State Department of Ecology (Ecology), Pope, and OPG Properties LLC.
- 2. Construction of a New/Replacement Dock.** Pope submitted an application for construction of a new/replacement dock in 2013; this permit application will have full State Environmental Policy Act/ National Environmental Policy Act (SEPA/NEPA) analysis by regulatory agencies as part of that permitting process. The Port Gamble Redevelopment Project would proceed with or without approval of the new dock. The proposed site redevelopment would, however, result in the potential for increased use of a new/replacement dock.

Alternative 1

Alternative 1 assumes site redevelopment reflecting the full amount of development allowed under current zoning. This Alternative 1 also reflects infill development on the entire site, including the Town Site and Mill Site including approximately 293 residential units (including 28 existing residences), approximately 156,000 square feet of commercial uses, 15,000 square feet of restaurant, 30,480 square feet in education/industrial/other use, and a 100-room hotel/visitor accommodation. New parks would be provided throughout the site and open space would be provided to surround retained critical areas. The Mill Site would be developed with both commercial and residential uses in buildings up to 35 feet in height outside the Shoreline designation and 35 feet for the hotel/visitor accommodations within the Shoreline designation. Alternative 1 is anticipated to generate approximately 570 residents and approximately 500 employees. Drawings for Alternative 1 are included in Appendix A.

In general, the majority of the single family residential units would be located in and around the Town Site in the Rural Historic Town – Commercial (RHTC) and RHTR-zoned portions of the site, but single family residential units may be located within all zones. Cottages are planned for the Rural Historic Town – Waterfront (RHTW) and RHTR zones and are also allowed in the RHTC zone. Condo and mixed-use units would also be located in the RHTW and RHTC zones. The majority of the proposed commercial (including hotel/visitor accommodations) and multifamily residential uses (townhomes and cottages) would be located on the Mill Site in the RHTW-zoned portion of the site. Rural residential, agritourism, and agricultural uses would generally be located in the RR and RW-zoned portions of the site.

Alternative 2

Alternative 2 assumes site redevelopment reflecting a lesser amount of development than the total allowed under site zoning. This proposed alternative would be dependent on others purchasing development rights or a portion of the Mill Site area for open space uses. In general, development under Alternative 2 would be similar to that under Alternative 1 for the RHTR, RHTC, RR and RW-zoned portions of the site, with the primary difference relating to development in the RHTW-zoned portion of the site (Mill Site). Retention of a portion of the Mill Site area for restoration or open space would result in certain differences in site development compared to Alternative 1, including 39 fewer residential units, approximately 121,000 fewer square feet of commercial/retail use, approximately 41,000 less square feet in education/industrial use, and approximately 15 additional acres in open space (primarily Tract 951). Development in the upland portion of the site would be similar to Alternative 1. This alternative assumes that purchase of any portion of the Mill Site for open space would be accomplished by others. To meet the objectives under this alternative, purchase of portions of the Mill Site by public agencies, tribes, or other parties would be necessary.

No Action

The No Action Alternative assumes one of the following would occur:

- **Continuation of existing conditions.** This possibility assumes essentially no change from the current baseline condition.
- **Redevelopment of the entire site under existing zoning and other land use regulations.** This possibility assumes OPG sells the property and redevelopment occurs in piecemeal fashion by others. Development of the former Mill Site would be industrial.
- **Redevelopment of the upland portion of the site under existing zoning and other land use regulations, and purchase and restoration of the Mill Site.** This possibility assumes OPG sells the property and redevelopment of the upland portion of the site occurs in piecemeal fashion by others. The former Mill Site would be sold for ecological restoration, to be implemented by others.

METHODS

Paper Inventory

GeoEngineers completed a file review of available information on existing and historic sensitive fish, wildlife and plant species and nearshore littoral drift processes occurring in the vicinity of the project site. This file review included the existing Ecology drift cell data for the project area, the U.S. Department of Interior- U.S. Fish and Wildlife Service (USDI-USFWS) species list for the project area (USDI-USFWS, 2018), the National

Oceanic and Atmospheric Administration Fisheries (NOAA Fisheries) species list for the Puget Sound (NOAA Fisheries, 2016), the Washington Department of Natural Resources (DNR) Natural Heritage Program (NHP) (DNR, 2017), the Washington Department of Fish and Wildlife (WDFW) Priority Habitat and Species (PHS) maps and database (WDFW, 2018) and the WDFW SalmonScape database (WDFW, 2017).

Field Reconnaissance

GeoEngineers performed biological and geomorphic field reconnaissance on May 24, 2013 to supplement the previous wetland, stream and shoreline investigation. The biological field reconnaissance included observing and documenting fish and wildlife habitat conditions within the project area. General habitat characteristics of the site were documented as well as direct observations of the physical habitat features (snags, nests, burrows, trails, dens, streams, marine shoreline habitat, etc.). Visual observations of fish and wildlife tracks and scat were also documented. Vegetation on the site was assessed for general species composition, stand age, and heterogeneity both within the project area and across the adjacent surrounding landscape for context.

The 2013 geomorphic field reconnaissance included completing a site survey to evaluate existing shoreline conditions and littoral drift cell processes that would complement previous drift cell mapping completed by Ecology. Shoreline processes were evaluated for bank conditions, substrate, and drift cell direction pathways. Pathways were determined by examining either ripple mark patterns or sediment accumulation processes in the absence of discernible ripple marks.

AFFECTED ENVIRONMENT

The Port Gamble Bay Subbasin covers 66 square miles of the extreme northern portion of the western part of WRIA 15 (Kuttel, Jr., 2003). Most streams within this subbasin (except for Gamble Creek) are small, flowing directly into Port Gamble Bay or Hood Canal within a mile of their origin at their headwaters. Terrain in the area is dominated by gently rolling hills generally less than 400 feet in elevation. Development in this subbasin is less dense than other areas to the south and east on the Kitsap Peninsula, with homes and farms generally scattered throughout. Watershed and streambank cover are generally favorable for aquatic life because of the limited level of development. Vegetation conditions within the subbasin consist of a mix of second growth coniferous and deciduous forests with a generally well-developed understory.

Upland Plant and Animal Habitats

Four general upland land cover types occur within the project area, as shown on Figure 2: Developed Areas, Pasture Land, Young Forest/Shrub Lands, and Mature Forest. A description of these areas follows:

Developed Areas

Existing developed areas total approximately 111 acres, and include: the former Mill Site; existing town site; and a recreation area that has been cleared and maintained for trailhead access and other recreational uses. As described below, these areas provide very limited habitat value.

Former Mill Site

The Mill Site is located in the northeast portion of the project area and is approximately 28 acres in size (Figure 2). It is bordered to the north, east and south by marine areas associated with Port Gamble Bay and Hood Canal, and to the west and south by a steep slope up to the town site. The mill was originally developed

in the 1850s (Ecology, 2013) and is no longer in use. Pope Resources/Olympic Property Group completed the cleanup of Port Gamble Bay in early 2017 and during the two-year project, removed 8,592 piling, 1.3 acres of over-water structures and docks, dredged 110,000 cubic yards of wood waste and sediments, placed 200,000 tons of clean cap materials and in total cleaned up over 106 acres of Port Gamble Bay. Currently (post cleanup), only an environmental lab, a kayak business, small utility buildings, and concrete slabs used for previous industrial buildings remain. Much of the Mill Site remains unused or under-utilized at this time.

Terrestrial areas within the Mill Site have been cleared and retain little in the way of native vegetation or habitat value. Existing vegetation is sparse and limited primarily to the perimeter of the property. Surface conditions include a mix of pavement, gravel and compacted earth.

The shoreline has been altered and armored throughout the Mill Site in the last 160 years to accommodate construction, expansion and maintenance. Shoreline conditions around the Mill Site are discussed in further detail under the Marine Plants and Animal Habitats section.

Town Site

The existing town site is approximately 65 acres in size and is located both north and south of SR 104. The town site area is characterized by residential, retail and commercial development. There is also a horticultural compound and associated administrative building in the southwest portion of the town. Vegetation throughout the town consists mostly of landscaping with native and ornamental trees, shrubs and mowed grass. In addition, some areas within the Port Gamble town site not actively being maintained have become invaded by Himalayan blackberry (*Rubus armeniacus*) and Scotch broom (*Cytisus scoparius*).

Recreation Area

The recreation area in the southeastern corner of the property (Figure 2) consists of approximately 18 acres of land currently lacking native vegetation but without other significant development. There are access roads and parking areas as well as extensive areas of mowed grass. The perimeter of this cleared area is dominated by invasive species, particularly Himalayan blackberry. There are no aquatic critical areas or buffers extending into this area. This area was used as a permitted-limited-purpose landfill for the Mill Site cleanup efforts; sediment materials and wood waste removed from the Mill Site were placed within this area.

Pasture Lands

Approximately 28 acres located in the western portion of the project site (Figure 2) are used as pasture. The area is currently accessed via a dirt road extending from the western terminus of Carver Drive. These lands consist primarily of non-native grass pastures grazed by cattle.

Young Forest/Shrub Lands

Young forest and shrub lands occur in two distinct areas on the site (Figure 2). The first area is located on the west side of the project area where shrub lands with sparse tree cover have developed after relatively recent logging activities. The second area occurs in the central portion of the site near Carver Drive where it appears the land was previously cleared and subsequently allowed to return to a forested condition. The total area of these lands is approximately 30 acres. These areas are currently dominated by a community of young trees and shrubs, with a few scattered remnant mature trees. Dominant species include Douglas fir (*Pseudotsuga menziesii*), western hemlock (*Tsuga heterophylla*), red alder (*Alnus rubra*), salmonberry

(*Rubus spectabilis*), salal (*Gaultheria shallon*), huckleberries (*Vaccinium* spp.), Himalayan blackberry, bracken fern (*Pteridium aquilinum*) and sword fern (*Polystichum munitum*). There are no aquatic critical areas in these areas.

Mature Forest

Mature forested habitat occurs throughout a large portion of the site that has not been otherwise developed or cleared (Figure 2), occupying roughly 157 acres and likely representing the dominant land cover type prior to human settlement. However, on-site forests are typical of second growth, rather than old growth, stands. Forested areas include upland and wetland habitats and include most of the Machias Creek riparian corridor as well as bluffs above the shorelines of the site. Some wetland areas within the mapped forested landscape are dominated by shrubs or open water rather than forest as the climax vegetation condition. There are also some smaller cleared areas, secondary and/or abandoned roads, and a utility corridor within the mature forest landscape.

Mature forest habitat in upland areas of the site is representative of typical lowland second-growth seral forest stands in the *Tsuga heterophylla* (western hemlock) zone (Franklin and Dyrness, 1973). This zone is the most extensive native vegetation type in western Washington and the most important as far as timber production. These stands are generally dominated by Douglas fir, western red cedar (*Thuja plicata*), big leaf maple (*Acer macrophyllum*), and red alder, with an understory of salmonberry, Indian plum (*Oemleria cerasiformis*), red elderberry (*Sambucus racemosa*) and sword fern. Hardwood tree species are less common on the site than conifers and typically occur in areas of recent disturbance. Evidence of former logging activities on the site is widespread.

With the exception of the Mill Site, discussed above, most marine shorelines on the site are characterized by forested bluffs that rise steeply from the high water line. These bluffs extend west from the Mill Site along Hood Canal and south along Port Gamble Bay. Forest conditions include an overstory of bigleaf maple, Douglas fir, and red alder, with a thick understory consisting of Himalayan blackberry, English ivy (*Hedera helix*), oceanspray (*Holodiscus discolor*), Queen Anne's lace (*Daucus carota*), and Canada thistle (*Cirsium arvense*). There are also some areas apparently affected by landslide activity, which are currently lacking in forest canopy and instead dominated by shrubs with some exposed soil surfaces. In general, forested bluffs have the potential to provide valuable habitat for predatory birds (e.g., bald eagle, osprey) that may perch and/or nest in tall trees.

Wetlands and Streams

GeoEngineers performed wetland and stream delineations within the project site (GeoEngineers, 2013a). A total of 17 wetlands (Wetlands A through Q, totaling approximately 24 acres) and five streams (Machias Creek and Streams 1 through 4) were identified and delineated during the field investigation (Figure 3). Wetlands and streams are shown on the conceptual project drawings for each alternative (Appendix A). The table below (Table 1) provides a summary of these critical areas and required buffers as prescribed by Kitsap County Code (KCC) 19.200.220. In addition to the required buffers, KCC 19.200.220F and KCC 19.300.315 also require a minimum impervious surface/building setback of 15-feet from the edge of any wetland or stream buffer.

TABLE 1. PORT GAMBLE PROPERTY - EXISTING WETLANDS AND STREAMS

Wetland / Stream Name	Wetland Category / Stream Type ¹	Buffer Width ² (feet)
Wetland A	Category II	150
Wetland B	Category II	150
Wetland C	Category III	150
Wetland D	Category IV	40
Wetland E	Category III	150
Wetland F	Category III	40
Wetland G	Category IV	40
Wetland H	Category III	110
Wetland I	Category IV	25
Wetland J	Category IV	25
Wetland K	Category III	40
Wetland L	Category III	80
Wetland M	Category III	80
Wetland N	Category III	80
Wetland O	Category III	40
Wetland P	Category IV	50
Wetland Q	Category IV	25
Machias Creek	Type F	150
Stream 1	Type NS	50
Stream 2	Type NS	50
Stream 3	Type NP	50
Stream 4	Type NP	50

Notes:

1. Wetland rating in accordance with Washington State Wetlands Rating System for Western Washington, (Hruby, revised 2008) and stream typing in accordance with KCC 19.300.310 (Fish and wildlife habitat conservation area categories).
2. Kitsap County Code (KCC) 19.200.220 - Wetland buffer requirements and KCC Table 19.300.315 (Fish and Wildlife Habitat Conservation Area Development Standards). The final buffer widths are determined by land intensity use and is subject to approval by the jurisdictional authority.

The location and condition of these wetlands and streams and their buffers with respect to the upland land cover types are as follows:

- **Town site.** Wetlands N and P, and portions of the buffers for Wetland M and Machias Creek, extend into developed and/or landscaped portions of the town. These areas are highly degraded as a result of past land clearing activities and ongoing landscape maintenance, including mowing.
- **Pasture Lands.** Wetlands D, E, F, G, I, and J, and Stream 2. Wetland habitats are degraded as a result of land clearing and grazing activities, and are typically dominated by weedy herbaceous species.

Wetlands D and G also contain young forest/shrub components where it appears the land was formerly cleared and vegetation allowed to grow back. Stream 2 is essentially a ditch along the dirt road with a degraded riparian condition completely lacking canopy cover.

- **Mature Forest.** Wetlands A, B, C, H, K, L, M, O and Q, and Streams 1, 3, 4 and Machias Creek. However, Wetlands K and L are located within a utility corridor that has been cleared of overstory trees and Wetland Q is located in a small clearing that is not typical of the forested area. Buffers for Wetlands A, B, C, H, K, L and Q are generally intact although they are interrupted by abandoned road beds currently used as recreational trails, as well as by smaller trails interspersed throughout the site. Buffers for Wetlands M and O extend into landscape and developed areas and have been degraded as a result. Buffers for Streams 1, 3 and 4 are generally intact. Much of the buffer for Machias Creek is also intact, although the riparian corridor is broken by SR 104, the utility corridor, and an abandoned road bed.

Wetland and stream critical areas in the mature forest portions of the site provide a variety of habitats that are important for wildlife within urban and suburban landscapes.

Machias Creek is the only stream within the project site that is mapped as containing and providing habitat for salmonid fish species. The 1.2-mile-long stream is located within a ravine, and is fed from groundwater seeps, a spring collection box, and wetlands. Machias Creek conveys runoff from the central portion of the project site north, and into Hood Canal, via a 36-inch by 140-foot pipe culvert under SR 104. This culvert is mapped by WDFW as a “total barrier” to fish migration (WDFW, 2017). A second, smaller culvert under an old maintenance access road crosses the creek further south, and is mapped as a “partial barrier” (WDFW, 2017). This culvert appears to contribute to minor, localized erosion.

Coho (*Oncorhynchus kisutch*) and resident coastal cutthroat trout (*Oncorhynchus clarkii clarki*) have been documented within Machias Creek. The creek is vegetated with a forested canopy dominated by coniferous tree species including Douglas fir and western red cedar. Riparian vegetation consists of salmonberry, Indian plum and red elderberry.

Ladine-DeCouteau Creek, located immediately south of the Port Gamble project site, conveys water from the southern portion of the project site to Port Gamble Bay. Ladine-DeCouteau Creek is also mapped as containing and providing habitat for Coho salmon and resident cutthroat trout.

For more information on these wetland and stream features see the Wetland and Stream Delineation Report, Port Gamble Redevelopment Plan, Kitsap County, Washington (GeoEngineers, 2013a).

Wildlife Networks and Corridors

Wildlife corridors provide habitat, pathways for movement, extension of foraging ranges for large, wide-ranging species and escape routes from predators. Within the Port Gamble project site, wildlife corridors include large forested areas, large wetland complexes and linear riparian zones. Movement along these corridors and to natural areas to the west and south is currently easy for most animals. SR 104 currently separates the northernmost portion of the site, including the outlet of Machias Creek and the Hood Canal shoreline, from the remainder of the project site.

According to WDFW, Machias Creek, south of SR 104, provides a corridor for coho salmon, resident fish and other riparian species even though the culvert under SR 104 is mapped as a total fish barrier. Ladine-DeCouteau Creek also provides a corridor for coho salmon and resident cutthroat trout. The Hood Canal and Port Gamble Bay shorelines also act as salmon migration corridors along the coast.

Marine Plant and Animal Habitats

The project site is bordered by the marine areas of Port Gamble Bay to the south and east, and Hood Canal to the north. For the purposes of discussion, marine areas are considered those areas below the mean higher high water level (high tide line) which includes marine shoreline, intertidal and littoral nearshore environments.

Shoreline Conditions

The nearshore area throughout much of the project site has been significantly altered. The Salmonid Limiting Factors Report includes survey information covering the Port Gamble Bay area (including the project area), which documented eight docks, one jetty, one boat launch, and 13 sets of stairs that access shoreline habitats (Kuttel, Jr., 2003). The jetty, made of large pieces of riprap, is located at the northeast corner of the project site and extends into Hood Canal. The Shoreline Inventory and Characterization (Kitsap County, 2011) identified continuous and patchy eelgrass and macroalgae adjacent to the site, both on the Hood Canal side and within Port Gamble Bay.

GeoEngineers' 2013 field observations generally confirmed the work by Kuttel (2003). The shoreline has been altered and armored around the Mill Site with a mix of concrete bulkheads, large riprap, concrete pieces and bricks to accommodate construction, expansion and maintenance as an industrial facility throughout the last century and a half. As a result, shoreline habitat function has been severely compromised. Concrete bulkheads, concrete pieces and other types of anthropomorphic debris serving as shoreline armor from the centerline of the jetty to the south end of the Mill Site, was removed as part of the 2015 to 2017 in-water cleanup. The shoreline was cut back to a more gradual slope and is protected by natural rock of various sizes in different locations. However, impervious surfaces still directly abut Port Gamble Bay through much of the Mill Site.

Several docks, piers, structures, and wooden piles, totaling approximately 1.3 acres of overwater structures, were located within Port Gamble Bay below the mean high water level. These structures, most of which were derelict, were removed as part of the cleanup effort that was permitted through a separate independent environmental review process. Since the cleanup has been completed, the shoreline conditions have improved. As noted, a new/replacement dock is also proposed as part of another separate independent project; however, if approved, net overwater coverage would still be less than past conditions and, consequently, shoreline and nearshore habitat conditions would improve overall.

Beyond the Mill Site, a steep bank of resistant silty material occurs about 500 feet east of the western project boundary (Figure 4). Banks containing sandy/silty material are also located south of the Mill Site. A mass wasting event (landslide) was observed about 800 feet south of the Mill Site, south of the proposed development area (Figure 4).

Vegetation along the shoreline occurs sporadically between the water and along the upper edges. The vegetation primarily consists of Himalayan blackberry and Scotch broom with some Queen Anne's lace, fireweed (*Chamerion angustifolium*), pickleweed (*Salicornia virginica*) and Puget Sound gumweed (*Grindelia integrifolia*). Some of the areas of the shoreline have been seeded with grasses as part of the cleanup efforts. Forested shoreline bluffs also occur in the western and southern portions of the marine shoreline at the site, as described previously.

Sediment

Sediment in the nearshore littoral environment in the project area is provided by shoreline banks and bluffs. Mass wasting events or bank erosion typically produces a large input of sediment to the nearshore environment. Tidal energy increases erosion of cohesive banks and introduces sandy/silty material to the nearshore environment. Strand lines of drift sediment and wood were found along the mean higher high water line in areas lacking riprap during the 2013 site visit.

The 2013 site visit revealed that a wide assortment of shoreline substrate exists in the project area (Figure 4). Sand is the dominant substrate, particularly near the mean lower low water. West of the boulder jetty sand is dominant with gravel as subdominant substrate composition. Parallel bands of cobbles were found immediately west of the boulder jetty. Fine gravels and cobbles are intermixed with sand in some locations east and south of the jetty beneath the overwater structures. Sandbars about 150 feet wide extending several hundred feet in length are forming in about five different locations south of the Mill Site on the south end of the project area. A large sand bar approximately 400 feet in length about 50 feet in width is also forming near the western project boundary.

Littoral Drift Processes

Drift cells are directional paths of sediment transport along the nearshore. Drift cell pathways represent general patterns of sediment deposition. The Ecology data indicates that most of the project area has no appreciable net shore drift (NAD) pattern (Figure 4). However, during the 2013 field reconnaissance, indicators of drift cell directional patterns were found in a number of locations as evidenced by ripple marks and sediment accumulation behind obstructions such as drift wood and boulders.

Drift patterns were primarily right to left (if viewing the shoreline from the water) west of the boulder jetty to the west end of project area (Figure 4). There were several areas of no drift cell direction detected in the ripple marks, coinciding with the NAD as mapped by Ecology (Figure 4). Areas of NAD exhibited multidirectional ripple marks. Lunate (crescent-shaped) ripple marks exhibited unidirectional patterns in right to left orientation for approximately 600 feet southeast of the jetty (Figure 4). These lunate ripples contained stoss sides (those facing the origin of current) with gradual slopes aimed towards the east. Areas of NAD occurred south of the right to left drift cell patterns for the remainder of the southern portion of the riprapped area. Left to right drift was found south of the riprapped area along Port Gamble Bay for approximately 1,500 feet to the southern project area boundary (Figure 5). Left to right drift cell patterns were indicated by lunate ripple marks with unidirectional lee sides dipping towards the north. Sediment accumulation was found on the south side of large boulders near the mean higher high tide elevation in areas lacking discernible ripple marks.

Plants

DNR lists known occurrences of rare plants by county. A search of the DNR Natural Heritage Program database for Kitsap County revealed no records of any listed plants, high quality ecosystems or other significant natural features within the vicinity of the project (DNR, 2017). Plant assemblages in undeveloped forest and shrub lands within the site are described generally in the preceding sections.

Animals

Information on animals in the vicinity of the Port Gamble project site is summarized from general field observations and the following documents: List of threatened and endangered species that may occur in the proposed project location (USDI-USFWS, 2018); Species Lists: Pacific Salmon, Marine Mammals, Other Marine Species and Marine Turtles (NOAA Fisheries, 2018); and Priority Habitats and Species data (WDFW, 2018).

State-Listed and Priority Habitats and Species

WDFW lists state threatened and endangered (T&E) species, and the PHS data provides available locations of these species and priority habitats based on field observations. According to the WDFW PHS web mapper, there are no T&E species located immediately within the area assessed for this project (WDFW, 2018). Priority habitats within the project area consist of wetland habitat, and streams. Breeding areas for Pacific sand lance (*Ammodytes hexapterus*), surf smelt (*Hypomesus pretiosus*) and pacific herring (*Clupea pallasii*), which are state priority species, are mapped along the shoreline of Port Gamble Bay and Hood Canal (WDFW, 2018). Pacific pond turtles are not mapped on the site, but this state endangered species may occur within the project site based on the presence of suitable habitat. Because of the presence of federally listed fish and marine mammal species in marine areas adjacent to the site, these areas (adjacent marine habitat) would likely be regulated as Class 1 Wildlife Habitat Conservation Areas according to Kitsap County Code (KCC) 19.300.310(B)(3). Wetland habitats are regulated separately from other Fish and Wildlife Habitats. Streams and disturbed (developed or cleared of native vegetation) habitats on the site, which do not contain documented threatened, endangered and sensitive species (coho salmon and cutthroat trout are not considered sensitive) would not qualify as Wildlife Habitat Conservation Areas according to the KCC.

Federal Threatened and Endangered Species

The USDI-USFWS lists species and critical habitat designated as threatened or endangered under the federal Endangered Species Act (ESA). The USDI-USFWS identifies five ESA animal species, no plant species and no designated critical habitats occurring in the project area (USDI-USFWS, 2018). The five listed species include: Marbled Murrelet (*Brachyramphus marmoratus*), streaked horned Lark (*Eremophila alpestris strigata*), yellow-billed cuckoo (*Coccyzus americanus*), bull trout (*Salvelinus confluentus*) and Dolly varden (*Salvelinus malma*). Bull trout, Dolly varden and marbled murrelet, are found in marine waters within Kitsap County (USDI-USFWS, 2018). Yellow-billed cuckoo are typically associated with large deciduous forested or shrub riparian habitats. Streaked horned Larks are typically associated with large open fields. NOAA Fisheries identifies west coast fish species listed under the ESA (NOAA Fisheries, 2018). NOAA Fisheries listed species that could be present within the marine waters of the project area include: Hood Canal Summer-run chum (*Oncorhynchus keta*), Puget Sound Chinook salmon (*Oncorhynchus tshawytscha*) and Puget Sound Steelhead (*Oncorhynchus mykiss*). Species from both the NOAA Fisheries and USDI-USFWS lists are likely found in the marine waters adjacent to the project area but none were observed.

Port Gamble Bay estuary and nearshore areas provide important salmonid migration corridors and rearing habitat (May and Peterson, 2003). Nearshore estuary refugia include the Gamble Creek estuary (approximately 2.5 miles south of the project site) and the surrounding nearshore areas (approximately 1 mile south of the project site and directly across Port Gamble) according to the 2003 Kitsap Salmonid Refugia Report (May and Peterson, 2003). Juvenile salmonids utilize the estuary for rearing and migration. Other nearshore areas include gravel beaches, mud flats, sand spits, and the estuaries of numerous small streams that provide important nursery habitat for multiple species of salmonids (May and Peterson, 2003). Although a good portion of the shoreline in this area has been altered, including the Mill Site, patches of natural forested and nearshore areas remain.

Field Observations

The project site is expected to be used by a variety of resident and migratory birds, amphibians, reptiles, and common mammals such as mice, squirrels, raccoon, bear and deer. During the 2013 field investigation, GeoEngineers located a large raptor nest in the vicinity of a mapped eagle nest, and observed

an osprey perched in the nest tree. At this time, GeoEngineers cannot confirm if the nest is an eagle or osprey nest. GeoEngineers directly observed mountain quail (*Oreortyx pictus*), northern flicker (*Colaptes auratus*), and American robin (*Turdus migratorius*) within terrestrial habitats. Indirect evidence (e.g., tracks, scat) of Columbian black-tailed deer (*Odocoileus hemionus columbianus*) was observed and, based on habitat conditions, there appears to be high potential for other mammals such as black bears (*Ursus americanus*) and coyotes (*Canis latrans*) to utilize the project area.

Within the nearshore habitat adjacent to the project site, GeoEngineers biologists commonly observed the following: various crabs (family Cancridae), harbor seal (*Phoca vitulina*), sand dollar (*Dendraster excentricus*), a variety of barnacles, purple sea stars (*Pisaster ochraceus*), and eelgrass (*Zostera marina*). We also observed great blue heron (*Ardea herodias*), bald eagles, seagulls (family Laridae), killdeer (*Charadrius vociferus*), and osprey (*Pandion haliaetus*) using marine and tidal areas.

The following sections address animal species that may occur in the various habitats within the project site.

Potential Species Utilization of the Project Site

Table 2 summarizes animal species that may be expected or potentially could occur on the site. This table was developed following GeoEngineers review of available literature and field observations as described above. Specifically, we evaluated (1) potential utilization of the project site based upon known occurrences when available from habitat distribution maps (e.g., WDFW PHS) or based upon each species' habitat preference, and (2) our field identification of habitats that exist on the site when specific map data was not available.

TABLE 2. SPECIES LIST

Species Name	Status		Habitat Requirements, Mapped Occurrence, and Utilization of the Site	Habitats			
	Federal	State		Upland Forest	Wetland	Streams	Coastal/Marine
SPECIES DOCUMENTED ON OR ADJACENT TO THE SITE							
Bald eagle (<i>Haliaeetus leucocephalus</i>)	SC	-	<ul style="list-style-type: none"> Likely to utilize upland forest and marine shoreline habitats. Observed along the shoreline during the site visit. 				X
Mountain quail (<i>Oreortyx pictus</i>)	-	P	<ul style="list-style-type: none"> Likely to utilize upland forest habitats. WDFW PHS reports occurrence on the site. 	X			
Osprey (<i>Pandion haliaetus</i>)	-	M	<ul style="list-style-type: none"> Likely to utilize upland forest and marine shoreline habitats. Observed in a nest on the project site. Observed along the shoreline during the site visit. 	X			X
Great blue heron (<i>Ardea herodias</i>)	-	M	<ul style="list-style-type: none"> Likely to utilize upland forest and marine shoreline habitats. Observed breeding area within the project site (Tetra Tech, 2018). Observed along the shoreline during the site visit. 	X			X
Harbor seal (<i>Phoca vitulina</i>)	-	M	<ul style="list-style-type: none"> Haulout areas for this species are mapped east of the project site. Suitable marine habitat is located adjacent to the site. Observed during field reconnaissance. 				X
Chinook salmon (<i>Oncorhynchus tshawytscha</i>)	T	C	<ul style="list-style-type: none"> Documented in marine waters adjacent to site. Designated critical habitat occurs in nearshore marine areas of Puget Sound. 				X
Steelhead (<i>Oncorhynchus mykiss</i>)	T	-	<ul style="list-style-type: none"> Not documented in onsite freshwater habitats (streams). Documented in marine waters adjacent to site. Proposed critical habitat does not occur in this area. Not documented in onsite freshwater habitats (streams). 				X
Chum (<i>Oncorhynchus keta</i>)	T	C	<ul style="list-style-type: none"> Documented in marine waters adjacent to site. Designated critical habitat occurs in nearshore marine areas of Puget Sound. Not documented in onsite freshwater habitats (streams). 				X
Bull trout (<i>Salvelinus confluentus</i>)	T	C	<ul style="list-style-type: none"> Documented in marine waters adjacent to site. Designated critical habitat does not occur in this area. Not documented in onsite freshwater habitats (streams). 				X

Species Name	Status		Habitat Requirements, Mapped Occurrence, and Utilization of the Site	Habitats			
	Federal	State		Upland Forest	Wetland	Streams	Coastal/Marine
Coho salmon (<i>Oncorhynchus kisutch</i>)	-	P	<ul style="list-style-type: none"> Documented in marine waters adjacent to site. Documented in Machias and Ladine-Couteau Creeks. 			X	X
Coastal resident cutthroat (<i>Oncorhynchus clarki clarki</i>)	-	P	<ul style="list-style-type: none"> Documented in Machias and Ladine-Couteau Creeks. 			X	
Pacific sand lance (<i>Ammodytes hexapterus</i>)	-	P	<ul style="list-style-type: none"> Breeding areas are documented along the shoreline of the project site. Beach substrates suitable for spawning were observed at the project site. 				X
Surf smelt (<i>Hypomesus pretiosus</i>)	-	P	<ul style="list-style-type: none"> Breeding areas are documented along the shoreline of the project site. Beach substrates suitable for spawning were observed at the project site. 				X
Pacific herring (<i>Clupea pallasii</i>)	-	C	<ul style="list-style-type: none"> Breeding areas are documented along the shoreline of the project site. Habitat suitable for spawning was observed at the project site. 				X
Pacific geoduck (<i>Panopea generosa</i>)	-	P	<ul style="list-style-type: none"> Documented occurrence along the shoreline of the project site. Beach substrates suitable for this species were observed at the project site. 				X
Subtidal hardshell clams	-	P	<ul style="list-style-type: none"> Documented occurrence along the shoreline of the project site. Beach substrates suitable for this species were observed at the project site. 				X
SPECIES WITH POTENTIAL TO OCCUR ON OR ADJACENT TO THE SITE							
Northern goshawk (<i>Accipiter gentilis</i>)	-	C	<ul style="list-style-type: none"> Occurs in a variety of forested habitats in Washington. Suitable forested habitats exist onsite. Potential to occur in upland forest habitats. 				X
Peregrine falcon (<i>Falco peregrinus</i>)	SC	-	<ul style="list-style-type: none"> Occurs in a variety of forested habitats in Washington. Suitable forested habitats exist onsite. Potential to occur in upland forest habitats. 				X
Killer whale (<i>Orcinus orca</i>)	E	E	<ul style="list-style-type: none"> This species in marine habitats throughout Puget Sound. Nearshore habitats of Puget Sound are designated as critical habitat for this species. Potential to occur in adjacent marine areas. 				X
Northern sea otter (<i>Enhydra lutris kenyoni</i>)	SC	E	<ul style="list-style-type: none"> This species has been sighted in marine habitats throughout Puget Sound. Suitable marine habitat is located adjacent to the site. Potential to occur in adjacent marine areas. 				X
Long-eared myotis (<i>Myotis evotis</i>)	-	M	<ul style="list-style-type: none"> Suitable habitats exist on the project site. Potential to occur in upland forests and within the town site. 				X

Species Name	Status		Habitat Requirements, Mapped Occurrence, and Utilization of the Site	Habitats					
	Federal	State		Upland	Forest	Wetland	Streams	Coastal/ Marine	
Long-legged myotis (<i>Myotis volans</i>)	-	M	<ul style="list-style-type: none"> Suitable habitats exist on the project site. Potential to occur in upland forests and within the town site. 	X					
Pacific Townsend's big-eared bat (<i>Corynorhinus townsendii townsendii</i>)	-	C	<ul style="list-style-type: none"> Suitable habitats exist on the project site. Potential to occur in upland forests and within the town site. 	X					
Pacific pond turtle (<i>Actinemys marmorata</i>)	-	E	<ul style="list-style-type: none"> Suitable habitats exist on the project site. Potential to occur in wetland habitats on the site. 			X			
SPECIES NOT EXPECTED TO OCCUR ON THE SITE									
Northern spotted owl (<i>Strix occidentalis</i>)	T	E	<ul style="list-style-type: none"> Species requires old-growth forest habitat with complex characteristics. Critical habitat does not occur on or adjacent to the project site. 						
Marbled murrelet (<i>Brachyramphus marmoratus</i>)	T	E	<ul style="list-style-type: none"> Species requires old-growth forest habitat with complex characteristics. Critical habitat does not occur on or adjacent to the project site. 						
Yellow-billed cuckoo (<i>Coccyzus americanus</i>)	T	C	<ul style="list-style-type: none"> Species is likely extirpated from Washington. Species generally occupies riparian willow bottoms in dry/desert habitats. 						
Tailed frog (<i>Ascaphus truei</i>)	-	M	<ul style="list-style-type: none"> Species requires old-growth forest structure and cold clear rocky streams. 						
Western toad (<i>Anaxyrus boreas</i>)	-	C	<ul style="list-style-type: none"> Toads have not been documented historically within the project area. 						
Steller sea lion (<i>Eumetopias jubatus</i>)	SC	-	<ul style="list-style-type: none"> Steller sea lion haulout sites have not been documented in the Port Gamble area. Designated critical habitat does not occur on or near the project site. 						
Rockfishes (<i>Sebastes spp.</i>)	T/E	C	<ul style="list-style-type: none"> Species require deepwater habitats not typically observed near the project. 						
Humpback whale (<i>Megaptera novaeangliae</i>)	E	E	<ul style="list-style-type: none"> Not typically observed within the marine waters near the project. 						
Pacific lamprey (<i>Lampetra tridentata</i>)	SC	M	<ul style="list-style-type: none"> Generally restricted to major river systems and offshore habitats. 						
River lamprey (Lampetra ayresi)	SC	C	<ul style="list-style-type: none"> Generally restricted to major river systems. 						

Notes:

T = Threatened; E = Endangered; C = Candidate; M = Monitored; S = Sensitive; SC = Species of Concern; P = Priority Habitats and Species data.



ENVIRONMENTAL IMPACTS OF THE ALTERNATIVES

Existing zoning within the project area includes RHTW – also known as the Mill Site, RHTC, RHTR, RR, and RW (Kitsap County, 2016). Terrestrial land uses proposed under Alternatives 1 and 2 have been developed following regulations for each of these zoning districts.

Table 3 provides a summary of the acreage of specific land uses summed across the entire site under the baseline condition and as proposed under Alternative 1, Alternative 2, and No Action (Scenarios B and C). Details regarding the specific nature of these changes and their impacts on plants, animals, wetlands, and shorelines are discussed in detail in the following sections. Impacts are expected to be similar for Alternatives 1 and 2; where impacts would differ, they are so noted.

TABLE 3. EXISTING AND PROPOSED ACREAGES FOR LAND USE TYPES BY ALTERNATIVE

(Acres)	Baseline Conditions (No Action – A)	Alternative 1	Alternative 2	No Action	
				B Develop	C Restore
Built Environment					
Building Footprint	3.64	22.24	17.92	21.61	15.86
Paved (parking, roadways, sidewalks)	34.62	40.62	36.18	39.48	34.64
Other Built Area	–	–	–	2.29	–
Open Spaces					
Landscape/Lawn	53.43	66.50	63.90	93.63	106.51
Parks	–	1.07	1.07	–	–
Agricultural	–28?	10.34	9.24	3.71	3.71
Natural/Wooded	122.38	45.76	46.86	25.75	25.75
Critical Areas & Buffers	103.12	102.50	102.50	103.33	103.33
LOSS Area	–	16.28	16.28	16.28	16.28
Stormwater Ponds	–	2.09	2.09	2.09	2.09
Cemetery	1.11	1.11	1.11	1.11	1.11
Other Open Space	–	9.79	21.15	9.02	9.02

Notes:

Acres are the units of measure in this table.

LOSS = Large On-Site Septic System drainfield

As described previously, there are also two proposed actions on the Port Gamble property that have gone, or will go, through separate independent environmental review processes and are not included as part of the current proposed Project. These actions include a MTCA environmental cleanup of the Mill Site and adjacent marine waters, and a new (replacement) dock. The environmental cleanup has been completed in 2017 and the final steps for the land portion of the Mill Site are currently being identified with Ecology. The exact timing of the replacement dock is unknown but is anticipated to be within the next five years.

The completed clean-up included:

- Removal and/or modification of certain overwater structures (over 43,000 SF) that are shading shoreline and aquatic habitat, restricting eelgrass growth and inhibiting habitat use by small fish.
- Coordination with cleanup-related removal of creosote pilings in the Port Gamble Bay that contain contaminants potentially impacting water quality and aquatic life habitats.

Alternative 1

Upland Plant and Animal Habitats

With Alternative 1, existing upland natural and wooded areas, including young forest, shrub-dominated lands, and mature forested areas, will be reduced from 122.38 acres (baseline condition) to 45.76 acres. This habitat will be replaced with increased building footprints, paved areas, landscaping and lawns, parks, agricultural land use, the LOSS area, and stormwater ponds. Total impervious surfaces will increase from the existing 38.26 acres (approximately 12 percent of the project site) to 62.86 acres (approximately 20 percent of the project site). The increase in impervious surfaces will occur primarily within the upland RHTR area (from approximately 8 acres to 32 acres).

New development will displace forested areas near the periphery of existing developed areas (e.g., west of SR 104 south of the town site, south of SR 104 adjacent to existing residences, and east of the existing greenhouse facility) as well as in the southwest portion of the site where a new road and lots are proposed. For the most part, the newly developed areas will not provide habitat for native species, although some common human-commensal species (e.g., small rodents, common native and invasive songbirds, raccoons, etc.) may be tolerant of and/or make partial use of landscaped, park and agricultural areas. Pasture lands that will be lost likely have similar habitat value as new agricultural areas.

As a result of this alternative, habitat for species identified in Table 2 as occupying upland forested areas (e.g., bald eagle, mountain quail, northern goshawk, peregrine falcon) will be reduced. Those species that typically occupy upland forests along the shoreline bluffs (e.g., osprey, great blue heron) will remain unaffected, however. Construction of Alternative 1 would likely not result in removal of the nest trees located by GeoEngineers or in the Heron Management Plan as the trees are located within permanent open space. If the nest located by GeoEngineers is that of a Bald Eagle (most restrictive scenario), potential construction disturbance and permanent development within a 660-foot buffer management zone will be reviewed by USFWS at the time of permitting. Other upland species documented as on or adjacent to the site would not likely be affected. Species identified as having potential to occur on the site (Table 2) could be affected by the project if any of these species utilize on-site habitats. However, at this time, use of the project area by these species has not been verified.

It should be noted that any project encompassing a Kitsap County designated Class 1 Wildlife Habitat Conservation Area requires submittal and approval of a Habitat Management Plan (HMP) at the time of development permits. Adverse effects to wildlife species and/or habitat, including impacts to the potential bald eagle nest tree, will be addressed in the HMP and mitigation will be proposed.

Wetlands and Streams

Construction Impacts

Construction activities could result in temporary impacts to on-site wetlands and streams. Erosion and sedimentation, as well as pollutants from construction equipment and vehicles could impact the hydrology, water quality, and/or habitat functions of existing wetlands and streams. To avoid these potential impacts, the project will employ temporary stormwater and sedimentation control systems during construction and

utilize construction best management practices (BMPs) per the Ecology 2012 Stormwater Management Manual for Western Washington (SMMWW) adopted by Kitsap County.

Direct impacts to Machias Creek are limited to extension of an existing culvert under an old access road in order to accommodate the new Carver Drive and the associated creek crossing. In addition, there will be impacts to Stream 4 because of the new crossing to access West Sound Wildlife Shelter. The design of the new culverts will be determined during final design. Construction activities associated with the crossings will likely result in temporary impacts to riparian vegetation as a result of clearing and grading activities. Following construction, impacted areas will be restored with native vegetation in accordance with Kitsap County critical areas requirements, and provisions outlined in the Temporary Erosion and Sedimentation Control (TESC) Plan that will accompany construction documentation. An HPA would likely be required for this work.

Long-Term Impacts

Wetlands, streams, and their associated buffers will generally be protected per the requirements of KCC 19.200 and KCC 19.300. No direct impacts to wetlands (i.e., temporary or permanent fill) are proposed as part of this project.

Approximately 103 acres within the project site will be permanently retained as critical areas and associated buffers. Wetland and stream buffer averaging will likely be required for lots proposed for residential, open space and roadways; areas of buffer averaging will be proposed at the time of the final design. Utility/sewer easements will extend through the buffers of Wetlands A, B, C, and Q; these easements will be located within existing trail prisms to the extent feasible.

Those buffer areas that will be reduced through the use of buffer averaging are generally already degraded as a result of existing landscaping and do not provide significant wildlife habitat, nor do they significantly contribute to integrity of wetland or stream habitat function. Existing development within wetland and stream buffers will not result in a change from baseline conditions.

A series of Native Growth Protection Easements (NGPEs) and/or tracts will be established along Machias Creek consistent with the requirements of KCC 19.300.315. The NGPE will be 150 feet in width on either side of the creek, and will be supplemented by a further 15-foot impervious surface setback. Aside from the widening of the existing road prism and stream crossing associated with Carver Drive, there will be no new development within the stream buffer or setback. New storm water ponds and associated pipes and flow control structures, will be located outside of regulated critical areas and associated buffers.

Potential water quality impacts to wetlands from LOSS effluent is addressed in a separate memo.

No direct impacts to Ladine-DeCouteau Creek are proposed.

No federal- or state-listed wetland animal species are documented within the project site. Pacific pond turtles (state endangered) are the only listed animal species identified that may occur in on-site wetland/stream habitats. Coho salmon and cutthroat trout are not considered sensitive species. Other unlisted wetland and stream species likely occur, but these species are common. Because there will be no reduction of on-site wetland and stream habitat availability, development under Alternative 1 is not likely to have an impact on wetland and stream species.

Indirect Impacts

Potential permanent, indirect impacts to wetlands, streams and associated habitat include increased pollutants in stormwater runoff and changes in wetland and stream hydrology.

The proposed project includes a permanent stormwater control system, installed per the 2010 Kitsap County Stormwater Design Manual (KCSWDM); this system will replace and improve the majority of the existing drainage system. As described in the *Preliminary Drainage Report* (Triad Associates, January 17, 2013) the permanent stormwater system will include a conveyance system, new water quality treatment, detention facilities and new and existing outfalls to Machias Creek, Hood Canal, and Port Gamble Bay. Basic water quality treatment will be achieved through the use of water quality ponds, Contech stormfilters, located in manholes or vaults, and several rain gardens.

The hydrology of on-site wetlands is now partially maintained by surface runoff. To minimize the potential loss of wetland hydrology, the wetland basin has been identified and a portion of the runoff generated by roof tops in the contributing area will be diverted back to the wetlands via splash blocks and/or level spreaders (see *Preliminary Drainage Report*).

The hydrology of Machias Creek will not be significantly altered. The stormwater pond that outlets to Machias Creek has been designed with flow control standards that match the existing duration curve for discharge. The hydrology of the creek has been modeled; the results of the model with the proposed storm facilities show a slight increase in the 2-year storm peak flow rate (from 0.86 to 0.97 cubic feet per second), but the duration of high flows during smaller storm events will decrease. During storm events that exceed the 2-year flow, there will be substantially less flow. These results can be interpreted as flows that are slightly more “flashy” (i.e. high flows over a short duration) during smaller, more common flow events (2-year or less return interval), and slightly less flashy during extreme events (greater than 2-year return interval).

The proposed stormwater system is described in detail in *Preliminary Drainage Report*.

Assuming consistency with Kitsap County Critical Area regulations and construction of the temporary and permanent storm drainage systems, no significant impacts to wetlands or streams are anticipated.

Hood Canal and Port Gamble Bay Shorelines

Construction Impacts

Alternative 1 includes grading and development activities within limited areas of the shoreline buffer, and storm drainage improvements and removal of the existing sewage outfall below the ordinary high water mark (OHWM) of the adjacent marine waters.

Proposed grading activities within the Mill Site and its shoreline buffer include both cut and fill; all cuts and fill will occur landward of the OHWM. Within the Mill Site, up to approximately 10,000 cubic yards of cut could occur, primarily to remove paving and other existing impervious surfaces. Approximately 175,000 cubic yards of fill would be placed on the Mill Site (including the area within the shoreline buffer), in order to raise the ground elevation by five to eight feet, on average, and bring the elevation above the 100-year floodplain.

Proposed storm drainage improvements below the OHWM include installation of a storm drainage outfall along the base of the bluff east of Machias Creek and below the OHWM of Hood Canal; and improvements to an existing storm drainage outfall along the Mill Site; one in Port Gamble Bay and one in Hood Canal.

Construction activities could result in temporary impacts to the marine waters through erosion and sedimentation, pollutants from construction equipment, and underwater noise. If construction work occurs outside the permitted salmon “work window,” nearshore marine and intertidal habitat for forage fish, shellfish, and habitat for federally listed fish and marine mammal species could be significantly impacted. The timing of the salmon work window also protects sand lance and herring spawning; surf smelt spawn throughout the year. Removal of the existing sewer outfall into Hood Canal could result in temporary impacts to eelgrass, but the long-term impacts would likely be beneficial.

As noted under Mitigating Measures, all work associated with the proposed project that is located within the shoreline buffer and below the OHWM would be regulated through local, state, and federal permitting which would address when the work could occur (i.e., inside the fish “window,” only at low tide), construction means and methods, and restoration requirements. It is anticipated that all construction access would be via the uplands - barges or boats would not be required.

Coastal Processes Impacts

Although independent of the proposed project, it should be noted that the environmental cleanup and potential new dock proposed as part of separate project actions have and will affect the environmental baseline in coastal portions of the site. The cleanup action has generally improved near shore littoral function over current conditions. Removal of overwater structures and associated support pilings has augmented littoral drift function. The new dock, if approved, would increase overwater coverage with in-water support piles, but the cumulative effect of the cleanup and new dock together would still result in a net benefit to coastal processes and associated habitat.

Alternative 1 includes development of the Mill Site with residential and commercial uses. However, Alternative 1 would likely result in a slight improvement to nearshore coastal processes and habitat as a result of removing industrial activity from the immediate shoreline and implementing a shoreline buffer of 50 feet with a 5-foot building setback.

Removal of the existing sewer outfall to Hood Canal (already completed) is not anticipated to impact coastal processes. The proposed outfall along the Hood Canal shoreline also may not impact coastal processes as it will be buried, but further design and operational details and analysis will be required during the final design and permitting phase. Further design and analysis will also be required to determine potential impacts of the upsized storm drainage outfall in the Mill Site.

Long-Term Impacts - Noise, Marine Habitat Alteration/Loss

Alternative 1 would result in permanent changes to existing shoreline and nearshore marine habitat. Areas adjacent to the shoreline buffer within the Mill Site, and along Port Gamble Bay would be occupied by residential and commercial land uses together with associated parking and landscaping. Land uses within the shoreline buffer itself include access to the shoreline, a new shoreline trail or boardwalk situated at the landward edge of the buffer, and underground storm drainage pipes. When developed, activity levels along the shoreline will increase, with more people (and pets) utilizing the shoreline trail and shoreline access.

Alternative 1 includes water quality improvements benefitting existing marine habitats. The existing community sewage discharge has been shifted from Hood Canal to a large, upland on-site disposal system (LOSS). The existing sewage treatment plant and outfall has been abandoned and removed. As part of Ecology's 2012 Puget Sound Initiative, Ecology identified the need to prevent continuing and future pollution to Port Gamble Bay.

Improved water quality treatment is also proposed as part of the permanent Alternative 1 storm drainage system. Conceptual designs indicate the storm drainage outfall along Hood Canal will be approximately 500 to 600 feet in length and will discharge treated stormwater and clean run-off from non-pollution sources (e.g. rooftops). Treated stormwater from the townsite will similarly be routed to this outfall. Improvements to the storm drainage outfall to Hood Canal and Port Gamble Bay, located within riprapped shorelines, will include upgrading of the pipe size to increase capacity. Detailed engineering plans for these projects will be prepared during the engineering design and permitting phase of the project.

Because of the degraded nature of the marine shoreline throughout the Mill Site under the baseline condition, Alternative 1 is not anticipated to result in displacement of any species utilizing the site, and could result in benefit if the shoreline area is enhanced. A number of federally listed fish and marine mammal species have the potential to occur in nearshore environments adjacent to the site. Assuming compliance with all regulatory requirements, no marine or intertidal species would be significantly affected by the proposal, except those that may benefit from the improvement, as described above. Species that could benefit include marine salmon, trout, forage fishes and shellfish.

Wildlife Networks and Corridors

The proposed development associated with Alternative 1 will generally be concentrated in previously disturbed areas, thus minimizing impacts to wildlife networks and corridors. The extension of Carver Road north of Wetlands C and B, and across Machias Creek, will however, limit wildlife movement between Carver Drive and SR 104 in the northern portion of the site. New development within the westernmost portion of the site (Craver Drive/Rose Loop, agricultural area, LOSS) will also limit some animal movement to natural areas to the west. The majority of the existing large forested, wetland and riparian areas within the project site will remain intact. Therefore, wildlife movement along Machias Creek, Ladine-Couteau Creek, and the Hood Canal and Port Gamble Bay shorelines will not be significantly altered.

Alternative 2

With respect to plants, animals and wetlands, the impacts of Alternative 2 would be similar to those of Alternative 1, with the following exceptions:

- Approximately 15 acres within the Mill Site, adjacent to the shoreline, would be purchased and restored as a conservation area; the purchase and restoration to be completed by others, under separate permitting.
- Grading quantities (pavement removal and placement of new fill) within the Mill Site will be reduced.
- Residential and commercial building and parking footprints within the Mill Site will be reduced.
- Educational/institutional uses related to the waterfront and marine sciences will be increased.
- Changes to the storm drainage outfall into Port Gamble Bay from the Mill Site will not occur.
- Wetland buffers will be placed within common open space tracts instead of Native Growth Protection Easements.

Upland Plant and Animal Habitats, Wetlands and Steams

It is assumed all upland critical areas and associated buffers would be protected per the requirements of the Kitsap County Critical Area Regulations; impacts would be the same as those described for Alternative 1.

Coastal Processes

Alternative 2 is dependent on others purchasing and funding shoreline restoration in the Mill Site at a future point in time. If implemented, Alternative 2 would feature a greater amount of open spaces for shoreline restoration than Alternative 1 or No Action, potentially leading to a greater function of the near shore environment, including habitat. Specific impacts cannot be determined until such time as a restoration plan is proposed.

Marine and Shoreline Habitat Conditions

The intent of restoring approximately 15 acres within the Mill Site is to improve shoreline habitat conditions beyond that proposed in Alternative 1. Although a specific restoration plan is not yet proposed, approval of Alternative 2 would leave open the possibility of future restoration. It is assumed the restoration would benefit shoreline and marine habitat. In addition, human and pet activity along the Port Gamble Bay shoreline may be reduced due to the reduced level of development along the shoreline.

No Action Alternative

Scenario A - Continuation of Existing Conditions

Under Scenario A, it is assumed no new development or infrastructure improvements would occur. The project site would remain in its partially developed condition, and there would be no new temporary or permanent impacts to wetlands, streams, marine shorelines, or existing plant and animal habitats. Existing habitats and buffers that are intact would remain intact and degraded buffers and habitat would remain degraded. The existing sewage and storm drainage systems would be maintained. Human and pet activity along the shorelines would remain substantially unchanged. As noted, the MTCA clean-up action in Port Gamble Bay has been completed, and a replacement dock may or may not be approved and constructed.

Scenario B - Redevelopment of the Entire Site Under Existing Zoning and Land Use Regulations

Redevelopment of the entire project site by others over a long period of time by different property owners would result in more piecemeal development and could include up to 200,000 square feet of industrial development (i.e., manufacturing, boat building, and/or shellfish/fish processing facilities) within the Mill Site.

It is assumed that all individual development projects would comply with Kitsap County Critical Area and Shoreline regulations. Industrial development within the Mill Site may or may not result in increased impacts to shoreline and/or marine habitat. Direct impacts to wetlands, streams, and the marine shorelines may be similar to the proposed project. Piecemeal development would, however, result in a greater (+20 acres) loss of the upland natural wooded areas and associated habitat; this acreage would be largely replaced by residential landscape/lawn area. This loss of wooded areas would also result in more fragmentation of the large areas of natural open space, further impacting wildlife habitat.

Improvements to the existing sewage and storm drainage systems, including proposed conveyance and water quality treatment improvements, would still occur, although more staggered over time. Facilities for detaining and treating stormwater may be smaller and more scattered, but would comply with the most current regulations.

Scenario C - Redevelopment of the Upland Portion of the Site Under Existing Zoning and Land Use Regulations, and Purchase and Restoration of the Mill Site (by others)

Redevelopment of the upland portion of the site under existing regulations and purchase and restoration of the Mill Site by others would result in piecemeal development of the majority of the project site, as described in Scenario B (above), and restoration of the entire Mill Site as permanent open space.

Although no specific plans for restoration of the 28-acre Mill Site have been developed, it can be assumed that if the site is restored to natural conditions, the restoration would include removal of existing debris and invasive species, and planting a mix of native trees, shrubs, and shoreline grasses. A more natural shoreline edge could be established. Public access may be provided through the site and along the shoreline. That portion of the area lying within the floodplain would not be filled, so would be subject to periodic storm surges. Human-induced noise and light and glare would be significantly reduced.

The additional 28 acres of permanent open space would provide a greater opportunity for improving habitat for nearshore species including marine salmon, trout, forage fishes and shellfish. In time, mature trees would provide additional habitat for raptors.

MITIGATION MEASURES

Proposed/Potential Mitigating Measures

The following required/proposed mitigation measures address the potential impacts to plants, animals and wetlands that could result from the construction and long-term use of Alternatives 1 or 2.

Construction Activities:

- Construction would be conducted in accordance with the conditions of all applicable permits issued by regulatory agencies (Kitsap County, WDFW, Ecology, U.S. Army Corps of Engineers).
- All work below the mean high water level will be conducted during the approved work windows for fish species that may occur in the project area.
- A forage fish survey will be conducted along the Hood Canal and Port Gamble Bay shorelines prior to construction, consistent with WDFW requirements.
- Forage fish monitoring may be required during construction.
- Construction equipment will be stationed above the OHWM of Hood Canal and Port Gamble Bay whenever possible, and will operate as far from the water's edge as possible. Construction equipment will not enter any waterbody without authorization from appropriate agencies.
- Debris and sediments will be disposed of outside all critical areas and associated buffers.
- Waste materials will be transported off-site and disposed of in accordance with applicable regulations.
- A spill prevention, control and containment (SPCC) plan will be developed to ensure that all pollutants and products are controlled and contained.
- A TESC plan and a source control plan will be developed and implemented, including BMPs.
- BMPs will be implemented to ensure that no foreign material such as oil or fuel from construction equipment enters marine waters and that sedimentation is minimized.

- Adequate material and procedures to respond to unanticipated weather conditions or accidental release of materials will be available onsite.
- Contract documents will specify that equipment used for this project shall be free of external petroleum-based products while work is performed around the water.
- Equipment staging and/or materials storage will be restricted to existing un-vegetated surfaces.
- Daily inspections of the erosion control measures will be conducted throughout the construction period. This will ensure the effectiveness of the measures and determine the need for maintenance, repairs, or additional measures.
- All construction debris will be removed on a daily basis before leaving the construction area for the work day.
- Disturbance will be limited to those areas necessary for construction, which will be identified on-site plans and marked on the site before construction begins.

Site Design and Use:

- The project will comply with KCC Title 19, Kitsap County Critical Area Regulations, including:
 - Preparation of a detailed Habitat Management Plan, addressing potential impacts to species regulated under County Code, this may include a nesting survey. If applicable, the project will comply with USFWS guidelines pertaining to development in the vicinity of eagle nests.
 - Review and approval of Wetland and Stream Assessment Report, and Mitigation Plan, addressing impacts to wetland and stream habitats and buffers and specifying appropriate mitigation.
- Shoreline and shoreline buffer enhancement:
 - Removal and restoration of existing riprap in areas of stormwater outfall improvements.
 - Installation of native vegetation. Planting trees in the shoreline environment could contribute to habitat benefits for birds of prey, such as bald eagles and osprey, as well as herons, which use shoreline trees for rookeries.
- Additional site-specific critical area and engineering studies may be required during permitting to evaluate potential impacts associated with any utility work below OHWM.
- Installation of a permanent stormwater control system as approved by Kitsap County to avoid erosion, sedimentation and pollutant impacts on water resources and their associated habitat on and in the vicinity of the site.
- Incorporation of native plants into the landscaping in commercial areas, multifamily residential areas, and parks. Residents in single family residential areas would also be encouraged to incorporate native plants into their landscaping.
- Develop and make available interpretive or educational materials in order to foster an understanding and appreciation of the primary natural features (e.g. shoreline, wetlands and creeks) of the Port Gamble site and vicinity by future residents, employees, and visitors.

SIGNIFICANT UNAVOIDABLE ADVERSE IMPACTS

No significant unavoidable adverse impacts are anticipated. If development is proposed in the vicinity of an eagle nest, USFWS guidelines will be implemented during the local permitting process and development of an HMP.

REFERENCES

- Ecology Washington State Coastal Atlas. 2014. Shoreline photos. Available at: <https://fortress.wa.gov/ecy/coastalatlus/tools/ShorePhotos.aspx>.
- Ecology. 2017. Port Gamble Bay and Mill Site. Available at: <https://fortress.wa.gov/ecy/gsp/Sitepage.aspx?csid=3444>.
- Franklin, J.F. and C.T. Dyrness. 1973. Natural Vegetation of Oregon and Washington. General Technical Report PNW-8. Pacific Northwest Forest and Range Experiment Station, USDA Forest Service, Portland, Oregon.
- GeoEngineers, Inc. 2011. Opinion Letter – Amended, Marbled Murrelet Suitable Habitat Port Gamble, Washington. Prepared August 29, 2011.
- GeoEngineers, Inc. 2013a. Wetland and Stream Delineation Report, Port Gamble Redevelopment Plan, Kitsap County Washington. Prepared for Pope Resources. January 8, 2013.
- GeoEngineers, Inc. 2018a. Biological Assessment Port Gamble Redevelopment Plan, Kitsap County Washington. Prepared for Pope Resources. March 20, 2018.
- GeoEngineers, Inc. 2018b. Biological Assessment Port Gamble Redevelopment Plan, Kitsap County Washington. Prepared for Pope Resources. March 20, 2018.
- Hayes, G. and G.J. Wiles. 2013. Washington bat conservation plan. Washington Department of Fish and Wildlife, Olympia, Washington. Available at: <https://wdfw.wa.gov/publications/01504/wdfw01504.pdf>.
- Jefferies, S.J., P.J. Gearin, H.R. Huber, D.L. Saul, and D.A. Pruett. 2000. Atlas of Seal and Sea Lion Haulout Sites in Washington. Washington Department of Fish and Wildlife, Wildlife Science Division, 600 Capitol Way North, Olympia WA. pp 150. Available at: <https://wdfw.wa.gov/publications/00427/wdfw00427.pdf>.
- Kitsap County. 2011. Final Draft, Shoreline Inventory and Characterization. Kitsap County, Department of Community Development, Environmental Programs, Port Orchard, WA. June 2011.
- Kitsap County. 2016. Zoning, Kitsap County, Washington. Effective February 15, 1999; Amended June 30, 2016. Available at http://compplan.kitsapgov.com/Documents/Zoning_Map_2016_map.pdf.
- Kuttel, Jr., M. 2003. Salmonid Habitat Limiting Factors Water Resource Inventory Areas 15 (West), Kitsap Basin and 14 (North), Kennedy-GoldsBorough Basin. Washington State Conservation Commission.

May, C. and G. Peterson. 2003. Landscape Assessment and Conservation Prioritization of Freshwater and Nearshore Salmonid Habitat in Kitsap County. 2003 Kitsap Salmonid Refugia Report. Prepared for Kitsap County. Available at: http://www.kitsapgov.com/dcd/nr/refugia/kitsap_refugia_report_2003.pdf.

National Oceanic and Atmospheric Administration (NOAA Fisheries). 2018. Species Lists: Pacific Salmon, Marine Mammals, Other Marine Species and Marine Turtles. Available at: http://www.westcoast.fisheries.noaa.gov/protected_species/species_list/species_lists.html.

NatureServe. NatureServe Explorer: An online encyclopedia of life [web application]. 2018. Version 7.0. NatureServe, Arlington, Virginia. <http://www.natureserve.org/explorer/index.htm>.

Tetra Tech, 2018. Port Gamble Heron Management Plan Final, Port Gamble Redevelopment Master Plan, Kitsap County, Washington. Prepared for Stoel Rives, LLP. January 2018.

United States Department of Agriculture (USDA) Forest Service. Species Fact Sheet Western Pond Turtle.

United States Fish and Wildlife Service (USFWS). 2008. Sea Otter (*Enhydra lutris kenyoni*) Washington Stock, U.S. Fish and Wildlife Service Lacey, Washington. Available at: http://www.fws.gov/wafwo/pdf/WANSOSAR_Mar2008_final_draft.pdf.

United States Fish and Wildlife Service (USFWS). 2012. Pacific lamprey. Available at: <http://www.fws.gov/pacific/Fisheries/sphabcon/Lamprev/index.html>.

United States Fish and Wildlife Service (USFWS). Species Profile: Northern goshawk (*Accipiter gentilis*). Available at: <https://ecos.fws.gov/ecp0/profile/speciesProfile?spcode=B095>.

United States Fish and Wildlife Service (USFWS). Species Profile: American Peregrine falcon (*Falco peregrinus anatum*). Available at: <https://ecos.fws.gov/ecp0/profile/speciesProfile?spcode=B01H>.

Washington State Department of Fish and Wildlife (WDFW). 2018. Priority Habitat and Species (PHS) Mapping Application. Available at: <http://wdfw.wa.gov/mapping/phs/>.

Washington State Department of Fish and Wildlife (WDFW). 2017. SalmonScape Application. Available at: <http://wdfw.wa.gov/mapping/salmonscape/>.

Washington State Department of Natural Resources (DNR). 2005. Coastal Tailed Frog. Available at: https://wdfw.wa.gov/conservation/herp_atlas/html/4astr.html.

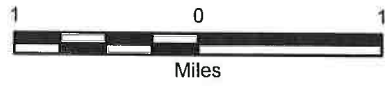
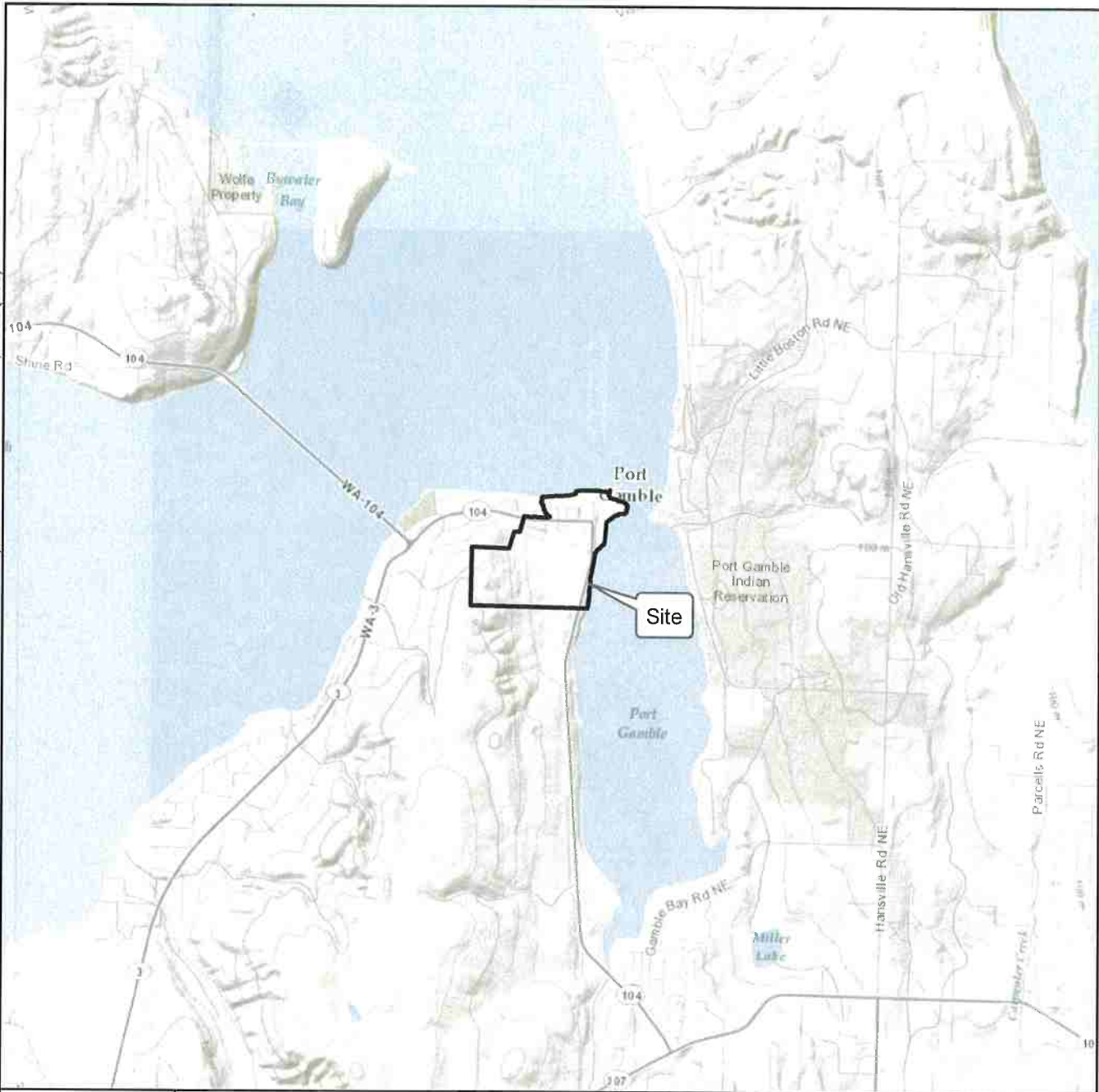
Washington State Department of Natural Resources (DNR). 2013. Western Toad. Available at: http://file.dnr.wa.gov/publications/em_fs13_011.pdf.

Washington State Department of Natural Resources (DNR). 2017. Forest Practices Application Review System (FPARS) Mapping Application. Available at: <https://fortress.wa.gov/dnr/protectiongis/fpamt/default.aspx>.

Washington State Department of Natural Resources (DNR). 2017. Sections that Contain Natural Heritage Features. Data Current as of February 6, 2017. Available at: http://www.dnr.wa.gov/Publications/amp_nh_trs.pdf.

Map Revised: November 29, 2012 (dbc)

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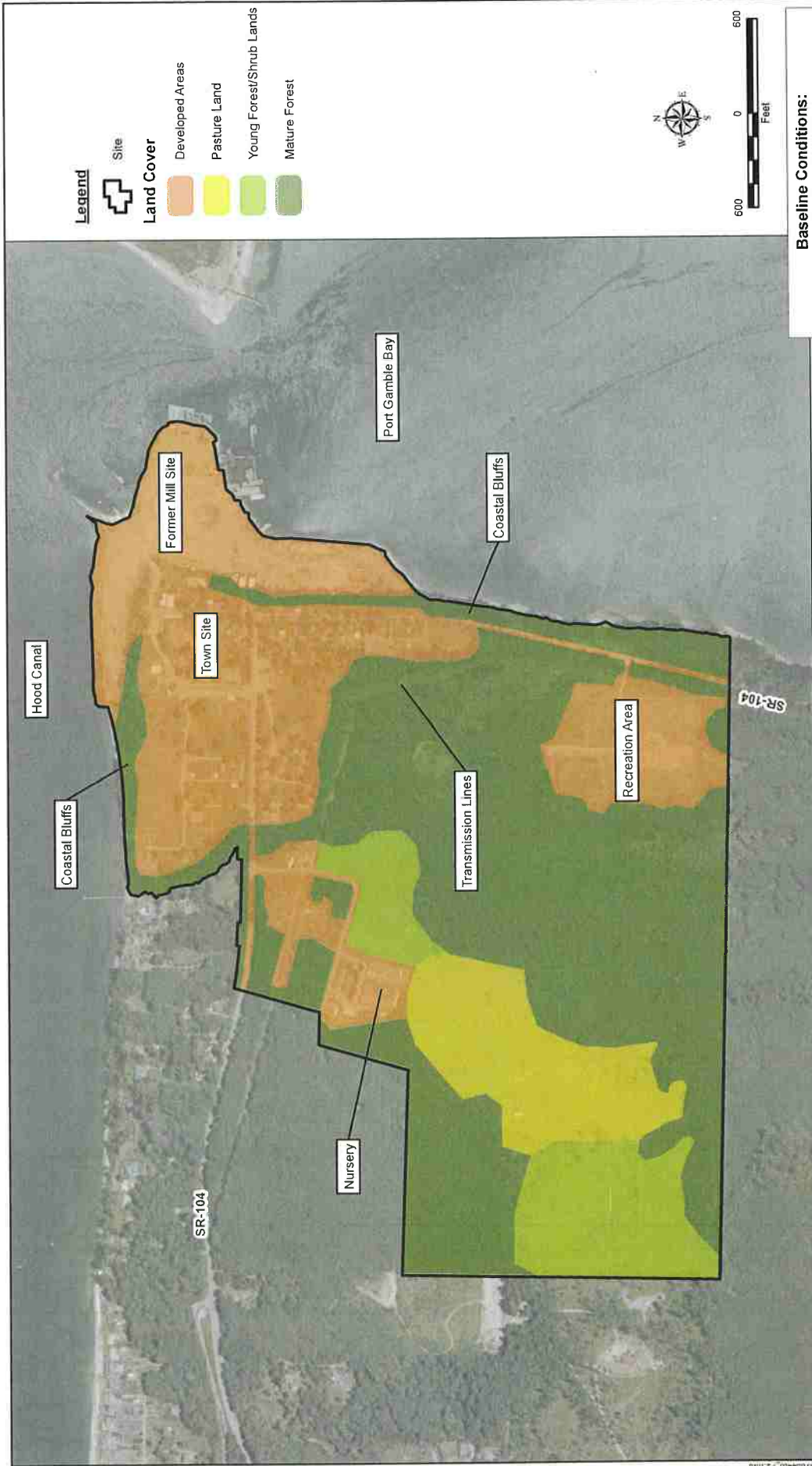


Notes:

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2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.
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Data Sources: ESRI Data & Maps, Street Maps 2005
 Transverse Mercator, Zone 10 N North, North American Datum 1983
 North arrow oriented to grid north

Vicinity Map	
Port Gamble Property Kitsap County, Washington	
	Figure 1

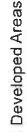


Legend



Site

Land Cover



Developed Areas



Pasture Land



Young Forest/Shrub Lands



Mature Forest

**Baseline Conditions:
Land Cover Classification**

Port Gamble Property
Kitsap County, Washington

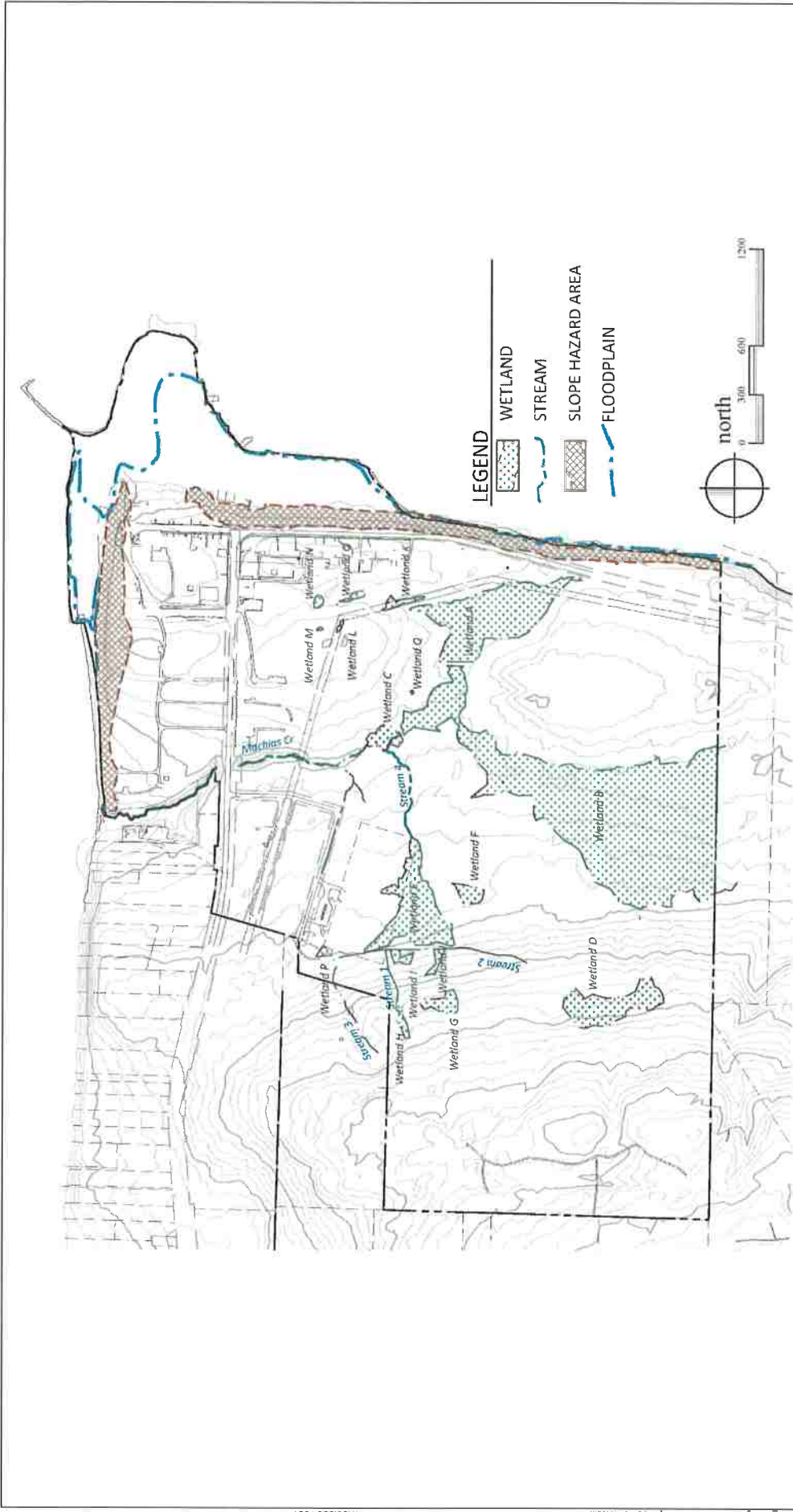


Figure 2

Data Source: aerial image from ESRI
Projection: NAD 1983 HARN StatePlane Washington North FIPS 4601 Feet

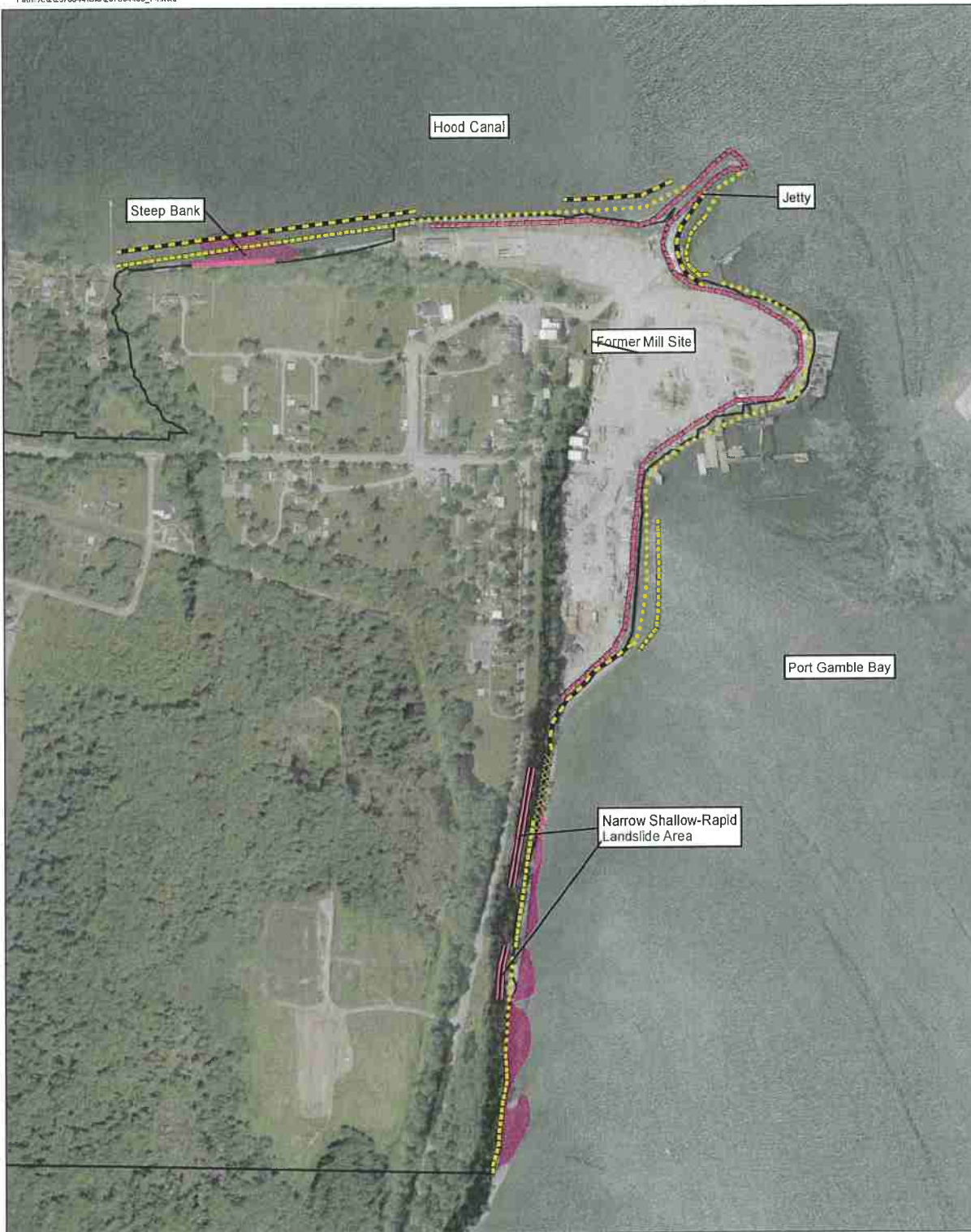
Notes:

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Wetlands and Streams
 Port Gamble Property
 Kitsap County, Washington
GEOENGINEERS 
Figure 3

Notes:
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 2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document.
 GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.
 References: PDF into raster image provided by EA Engineering, Science, and Technology, Inc.



Legend



Site

Substrate



Sand



Sand and fine gravel



Cobble

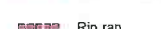


Boulders over sand

Bank Conditions



Mass wasting



Rip rap



Steep cohesive sands



Sandbar



Data Source: Washington Dept. of Ecology, ESRI, Puget Sound LIDAR Consortium

Projection: NAD 1983 HARN StatePlane Washington North FIPS 4601 Feet

Notes:

1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.

**Baseline Conditions:
Bank and Substrate Mapping**

Port Gamble Property
Kitsap County, Washington



Figure 4



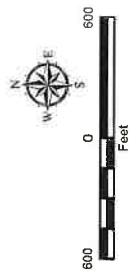
Legend

- Site
- Drift Cells**
- L to R
- R to L
- No Appreciable Drift (NAD)

Data Source: aerial image from ESRI.
 Projection: WAD 1983 HARN StatePlane Washington North FIPS 4601 Feet

Notes:

- The locations of all features shown are approximate.
- This map is for informational purposes. It is intended to assist in site characterization and is not a legal document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.



Baseline Conditions: Drift Cell Pathways
Port Gamble Property Kitsap County, Washington
GEOENGINEERS
Figure 5

APPENDIX A
Project Alternative Drawings

PORTIONS OF SECTIONS 5, 6, 7 AND 8, TWP 27 N, RGE 2 E, W.M.

PORT GAMBLE

BASIS OF BEARING

WASHINGTON NORTH ZONE 1040 151.91

DATUM

NAD 83

BENCHMARK

ABOUT CORNER POINT MARK ID 4009
 10' IN DIAMETER OF 1/2" IRON RODS ON WOODEN PIPE
 OF PROPOSED ROAD AT THE INTERSECTION OF NEW OLD AND GAMBLY AVE. W.E.
 ELEV. 58.87

LEGAL DESCRIPTION

SEE SHEET 018

SITE ZONING INFORMATION

EXISTING ZONING

LOT AND TRACT SUMMARY

LOT/TRACT	TYPE	1 & 2	ALTERNATIVE 1	ALTERNATIVE 2
LOTS 1-142	SINGLE FAMILY RESIDENTIAL	X	X	X
LOTS 300-515	NEW RESIDENTIAL	X	X	X
LOTS 530-533	NEW RESIDENTIAL	X	X	X
TRACTS 900-906	COMMON OPEN SPACE	X	X	X
TRACTS 907-914	COMMON OPEN SPACE	X	X	X
TRACTS 915-922	COMMON OPEN SPACE	X	X	X
TRACTS 923-928	COMMON OPEN SPACE	X	X	X
TRACTS 929-936	COMMON OPEN SPACE	X	X	X
TRACTS 937-944	COMMON OPEN SPACE	X	X	X
TRACTS 945-952	COMMON OPEN SPACE	X	X	X
TRACTS 953-960	COMMON OPEN SPACE	X	X	X
TRACTS 961-968	COMMON OPEN SPACE	X	X	X
TRACTS 969-976	COMMON OPEN SPACE	X	X	X
TRACTS 977-984	COMMON OPEN SPACE	X	X	X
TRACTS 985-992	COMMON OPEN SPACE	X	X	X
TRACTS 993-1000	COMMON OPEN SPACE	X	X	X
TRACTS 1001-1008	COMMON OPEN SPACE	X	X	X
TRACTS 1009-1016	COMMON OPEN SPACE	X	X	X
TRACTS 1017-1024	COMMON OPEN SPACE	X	X	X
TRACTS 1025-1032	COMMON OPEN SPACE	X	X	X
TRACTS 1033-1040	COMMON OPEN SPACE	X	X	X
TRACTS 1041-1048	COMMON OPEN SPACE	X	X	X
TRACTS 1049-1056	COMMON OPEN SPACE	X	X	X
TRACTS 1057-1064	COMMON OPEN SPACE	X	X	X
TRACTS 1065-1072	COMMON OPEN SPACE	X	X	X
TRACTS 1073-1080	COMMON OPEN SPACE	X	X	X
TRACTS 1081-1088	COMMON OPEN SPACE	X	X	X
TRACTS 1089-1096	COMMON OPEN SPACE	X	X	X
TRACTS 1097-1104	COMMON OPEN SPACE	X	X	X
TRACTS 1105-1112	COMMON OPEN SPACE	X	X	X
TRACTS 1113-1120	COMMON OPEN SPACE	X	X	X
TRACTS 1121-1128	COMMON OPEN SPACE	X	X	X
TRACTS 1129-1136	COMMON OPEN SPACE	X	X	X
TRACTS 1137-1144	COMMON OPEN SPACE	X	X	X
TRACTS 1145-1152	COMMON OPEN SPACE	X	X	X
TRACTS 1153-1160	COMMON OPEN SPACE	X	X	X
TRACTS 1161-1168	COMMON OPEN SPACE	X	X	X
TRACTS 1169-1176	COMMON OPEN SPACE	X	X	X
TRACTS 1177-1184	COMMON OPEN SPACE	X	X	X
TRACTS 1185-1192	COMMON OPEN SPACE	X	X	X
TRACTS 1193-1200	COMMON OPEN SPACE	X	X	X
TRACTS 1201-1208	COMMON OPEN SPACE	X	X	X
TRACTS 1209-1216	COMMON OPEN SPACE	X	X	X
TRACTS 1217-1224	COMMON OPEN SPACE	X	X	X
TRACTS 1225-1232	COMMON OPEN SPACE	X	X	X
TRACTS 1233-1240	COMMON OPEN SPACE	X	X	X
TRACTS 1241-1248	COMMON OPEN SPACE	X	X	X
TRACTS 1249-1256	COMMON OPEN SPACE	X	X	X
TRACTS 1257-1264	COMMON OPEN SPACE	X	X	X
TRACTS 1265-1272	COMMON OPEN SPACE	X	X	X
TRACTS 1273-1280	COMMON OPEN SPACE	X	X	X
TRACTS 1281-1288	COMMON OPEN SPACE	X	X	X
TRACTS 1289-1296	COMMON OPEN SPACE	X	X	X
TRACTS 1297-1304	COMMON OPEN SPACE	X	X	X
TRACTS 1305-1312	COMMON OPEN SPACE	X	X	X
TRACTS 1313-1320	COMMON OPEN SPACE	X	X	X
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TRACTS 1369-1376	COMMON OPEN SPACE	X	X	X
TRACTS 1377-1384	COMMON OPEN SPACE	X	X	X
TRACTS 1385-1392	COMMON OPEN SPACE	X	X	X
TRACTS 1393-1400	COMMON OPEN SPACE	X	X	X
TRACTS 1401-1408	COMMON OPEN SPACE	X	X	X
TRACTS 1409-1416	COMMON OPEN SPACE	X	X	X
TRACTS 1417-1424	COMMON OPEN SPACE	X	X	X
TRACTS 1425-1432	COMMON OPEN SPACE	X	X	X
TRACTS 1433-1440	COMMON OPEN SPACE	X	X	X
TRACTS 1441-1448	COMMON OPEN SPACE	X	X	X
TRACTS 1449-1456	COMMON OPEN SPACE	X	X	X
TRACTS 1457-1464	COMMON OPEN SPACE	X	X	X
TRACTS 1465-1472	COMMON OPEN SPACE	X	X	X
TRACTS 1473-1480	COMMON OPEN SPACE	X	X	X
TRACTS 1481-1488	COMMON OPEN SPACE	X	X	X
TRACTS 1489-1496	COMMON OPEN SPACE	X	X	X
TRACTS 1497-1504	COMMON OPEN SPACE	X	X	X
TRACTS 1505-1512	COMMON OPEN SPACE	X	X	X
TRACTS 1513-1520	COMMON OPEN SPACE	X	X	X
TRACTS 1521-1528	COMMON OPEN SPACE	X	X	X
TRACTS 1529-1536	COMMON OPEN SPACE	X	X	X
TRACTS 1537-1544	COMMON OPEN SPACE	X	X	X
TRACTS 1545-1552	COMMON OPEN SPACE	X	X	X
TRACTS 1553-1560	COMMON OPEN SPACE	X	X	X
TRACTS 1561-1568	COMMON OPEN SPACE	X	X	X
TRACTS 1569-1576	COMMON OPEN SPACE	X	X	X
TRACTS 1577-1584	COMMON OPEN SPACE	X	X	X
TRACTS 1585-1592	COMMON OPEN SPACE	X	X	X
TRACTS 1593-1600	COMMON OPEN SPACE	X	X	X
TRACTS 1601-1608	COMMON OPEN SPACE	X	X	X
TRACTS 1609-1616	COMMON OPEN SPACE	X	X	X
TRACTS 1617-1624	COMMON OPEN SPACE	X	X	X
TRACTS 1625-1632	COMMON OPEN SPACE	X	X	X
TRACTS 1633-1640	COMMON OPEN SPACE	X	X	X
TRACTS 1641-1648	COMMON OPEN SPACE	X	X	X
TRACTS 1649-1656	COMMON OPEN SPACE	X	X	X
TRACTS 1657-1664	COMMON OPEN SPACE	X	X	X
TRACTS 1665-1672	COMMON OPEN SPACE	X	X	X
TRACTS 1673-1680	COMMON OPEN SPACE	X	X	X
TRACTS 1681-1688	COMMON OPEN SPACE	X	X	X
TRACTS 1689-1696	COMMON OPEN SPACE	X	X	X
TRACTS 1697-1704	COMMON OPEN SPACE	X	X	X
TRACTS 1705-1712	COMMON OPEN SPACE	X	X	X
TRACTS 1713-1720	COMMON OPEN SPACE	X	X	X
TRACTS 1721-1728	COMMON OPEN SPACE	X	X	X
TRACTS 1729-1736	COMMON OPEN SPACE	X	X	X
TRACTS 1737-1744	COMMON OPEN SPACE	X	X	X
TRACTS 1745-1752	COMMON OPEN SPACE	X	X	X
TRACTS 1753-1760	COMMON OPEN SPACE	X	X	X
TRACTS 1761-1768	COMMON OPEN SPACE	X	X	X
TRACTS 1769-1776	COMMON OPEN SPACE	X	X	X
TRACTS 1777-1784	COMMON OPEN SPACE	X	X	X
TRACTS 1785-1792	COMMON OPEN SPACE	X	X	X
TRACTS 1793-1800	COMMON OPEN SPACE	X	X	X
TRACTS 1801-1808	COMMON OPEN SPACE	X	X	X
TRACTS 1809-1816	COMMON OPEN SPACE	X	X	X
TRACTS 1817-1824	COMMON OPEN SPACE	X	X	X
TRACTS 1825-1832	COMMON OPEN SPACE	X	X	X
TRACTS 1833-1840	COMMON OPEN SPACE	X	X	X
TRACTS 1841-1848	COMMON OPEN SPACE	X	X	X
TRACTS 1849-1856	COMMON OPEN SPACE	X	X	X
TRACTS 1857-1864	COMMON OPEN SPACE	X	X	X
TRACTS 1865-1872	COMMON OPEN SPACE	X	X	X
TRACTS 1873-1880	COMMON OPEN SPACE	X	X	X
TRACTS 1881-1888	COMMON OPEN SPACE	X	X	X
TRACTS 1889-1896	COMMON OPEN SPACE	X	X	X
TRACTS 1897-1904	COMMON OPEN SPACE	X	X	X
TRACTS 1905-1912	COMMON OPEN SPACE	X	X	X
TRACTS 1913-1920	COMMON OPEN SPACE	X	X	X
TRACTS 1921-1928	COMMON OPEN SPACE	X	X	X
TRACTS 1929-1936	COMMON OPEN SPACE	X	X	X
TRACTS 1937-1944	COMMON OPEN SPACE	X	X	X
TRACTS 1945-1952	COMMON OPEN SPACE	X	X	X
TRACTS 1953-1960	COMMON OPEN SPACE	X	X	X
TRACTS 1961-1968	COMMON OPEN SPACE	X	X	X
TRACTS 1969-1976	COMMON OPEN SPACE	X	X	X
TRACTS 1977-1984	COMMON OPEN SPACE	X	X	X
TRACTS 1985-1992	COMMON OPEN SPACE	X	X	X
TRACTS 1993-2000	COMMON OPEN SPACE	X	X	X

SITE AREA CALCULATIONS

PROPOSED DEVELOPMENT SITE GROSS AREA 13,862,302 SF/318,24 AC
 PROPOSED DEVELOPMENT SITE GROSS AREA 4,837,246 SF/111,39 AC
 PROPOSED DEVELOPMENT SITE GROSS AREA 2,971,077 SF/68,17 AC
 PROPOSED DEVELOPMENT SITE GROSS AREA 1,397,350 SF/31,39 AC
 PROPOSED DEVELOPMENT SITE GROSS AREA 8,630,887 SF/197,01 AC

APPLICANT / OWNER
 POPE RESOURCES INC. SUITE 200
 1000 W. WASHINGTON ST.
 POKOJAN, WA 98274
 (509) 697-4628
 E-MAIL: pope@popeinc.com

PROJECT ENGINEER/PLANNER/
 SURVEYOR/LANDSCAPE ARCH.
 THE THOMPSON GROUP INC.
 1000 W. WASHINGTON ST. #200
 POKOJAN, WA 98274
 (509) 697-4628
 E-MAIL: thompson@thompsongroup.com

TRAFFIC ENGINEER
 THE THOMPSON GROUP INC.
 1000 W. WASHINGTON ST. #200
 POKOJAN, WA 98274
 (509) 697-4628
 E-MAIL: thompson@thompsongroup.com

GEOTECHNICAL ENGINEER
 WETLAND CONSULTANT
 WETLAND CONSULTANT
 1000 W. WASHINGTON ST. #200
 POKOJAN, WA 98274
 (509) 697-4628
 E-MAIL: wetland@wetlandconsultant.com

DENSITY CALCULATIONS

ZONE	AREA	ALLOWED DV'S	PROPOSED DV'S	PROPOSED DV'S
RHTC	2,971,077	171	171	171
RHTC	1,397,350	34	34	34
RHTC	1,397,350	78	78	78
RHTC	8,630,887	10	10	10
TOTAL		294	294	294

OPEN SPACE CALCULATIONS

PROPOSED DEVELOPMENT SITE GROSS AREA 13,862,302 SF/318,24 AC
 PROPOSED DEVELOPMENT SITE GROSS AREA 4,837,246 SF/111,39 AC
 PROPOSED DEVELOPMENT SITE GROSS AREA 2,971,077 SF/68,17 AC
 PROPOSED DEVELOPMENT SITE GROSS AREA 1,397,350 SF/31,39 AC

OPEN SPACE REQUIRED (SIZES 1 AND 2)
 PROPOSED DEVELOPMENT SITE GROSS AREA 13,862,302 SF/318,24 AC
 PROPOSED DEVELOPMENT SITE GROSS AREA 4,837,246 SF/111,39 AC
 PROPOSED DEVELOPMENT SITE GROSS AREA 2,971,077 SF/68,17 AC
 PROPOSED DEVELOPMENT SITE GROSS AREA 1,397,350 SF/31,39 AC

BUILDING SETBACK INFORMATION

SETBACK ZONE	RHTC	RHTC	RHTC	RR	RW
FRONT	10'	10'	10'	10'	20'
REAR	5'	5'	5'	10'	20'
SIDES	5'	5'	5'	10'	20'
ALLEY	5'	5'	5'	10'	20'
DRIVEWAY	5'	5'	5'	10'	20'
TRUCK	5'	5'	5'	10'	20'
TRAILER	5'	5'	5'	10'	20'
TRUCK	5'	5'	5'	10'	20'
TRAILER	5'	5'	5'	10'	20'

UTILITY PURVEYORS

KITSAP PUBLIC UTILITY DISTRICT
 1000 W. WASHINGTON ST. #200
 POKOJAN, WA 98274
 (509) 697-4628
 E-MAIL: kitsap@kitsappu.com

LEGEND

PROPOSED FEATURES

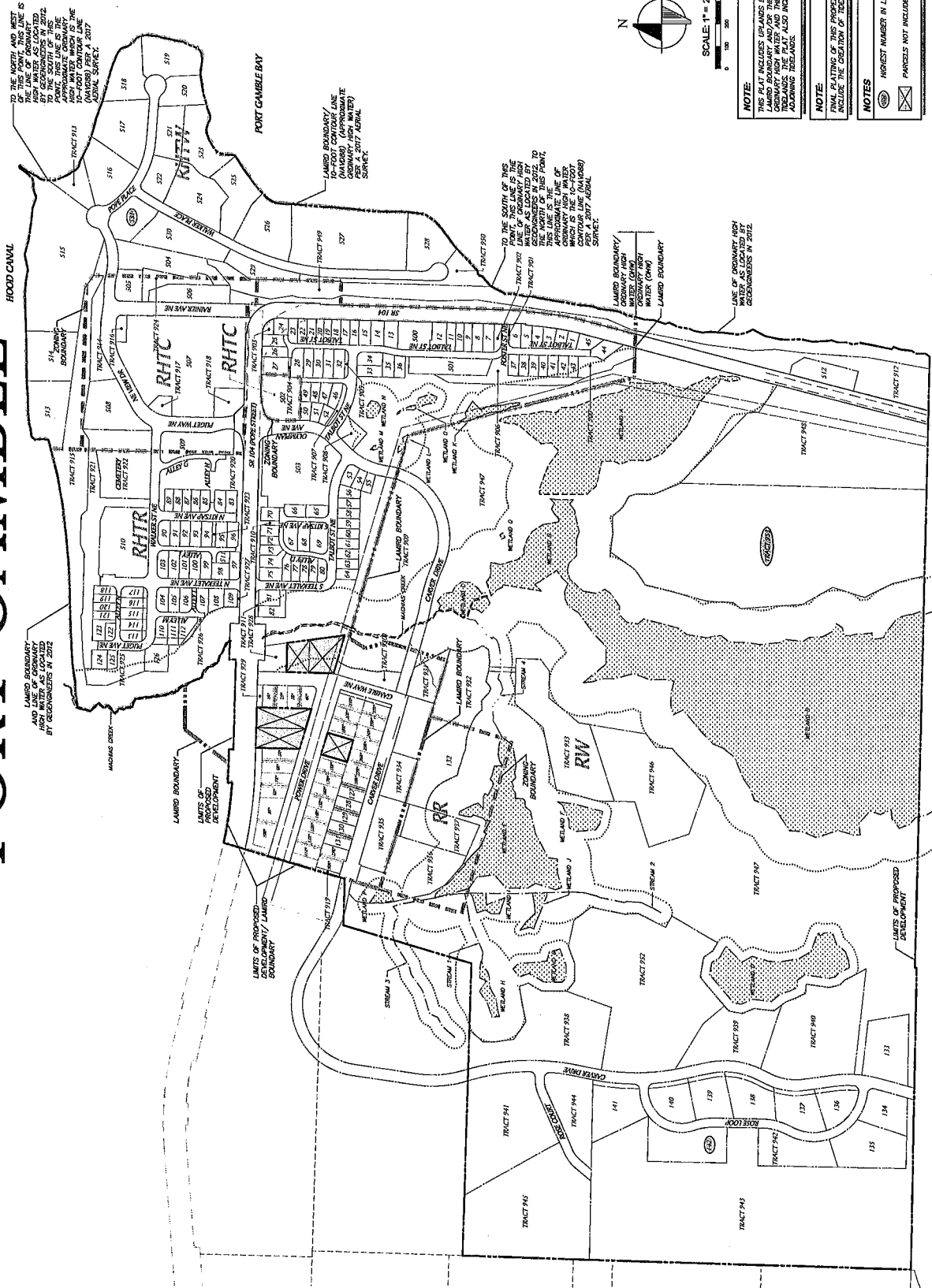
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EXISTING FEATURES

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PORTIONS OF SECTIONS 5, 6, 7 AND 8, TWP 27 N, RGE 2 E, W.M.

PORT GAMBLE



DAVID EVANS AND ASSOCIATES INC.
 1000 1st Avenue
 Woodville, Washington 98272
 Phone: 425/4633000

PORT GAMBLE
 PORT GAMBLE REDEVELOPMENT PLAN

PRELIMINARY PLAT/PBD
 COVER SHEET-ALTERNATIVE 1
 KITSAP COUNTY, WASHINGTON

REVIEWED BY: [Signature]
 DATE: [Date]
 PREPARED BY: [Signature]
 DATE: [Date]
 FIRST ORIGINAL DATE: JAN. 17, 2013
 SECOND ORIGINAL DATE: [Date]

STAMP WITH THIS SEAL
 AUGUST 31, 2018
 JOB NO. **08-029**
 SHEET NO. **CV4 of 53**

- NOTE:** THIS PLAN INCLUDES LOT LINES, SURVEYS, THE LAMIRD BOUNDARY AND THE LINE OF ORDINARY HIGH WATER AND THE ADJOINING ORDINARY HIGH WATER BOUNDARY. THIS PLAN ALSO INCLUDES THOSE ADJOINING THE LANDS.
- NOTE:** FINAL PLATTING OF THIS PROPERTY WILL INCLUDE THE CREATION OF TROLDAN TRACTS.
- NOTES:**
 (Symbol) HIGHEST NUMBER IN LOT SEQUENCE
 (Symbol) PARCELS NOT INCLUDED IN PLAT/PBD

PORTIONS OF SECTIONS 5, 6, 7 AND 8, TWP 27 N, RGE 2 E, W.M.

LOT AND TRACT AREA SUMMARY

NON SINGLE FAMILY RESIDENTIAL (SFR)-ALTERNATIVE 1 ONLY

LOT NUMBER	AREA (SQ. FT.)
516	43,727.71
517	58,902.82
518	31,724.87
519	41,850.30
520	21,802.65
521	28,040.60
522	22,240.12
523	41,123.91
524	58,640.59
525	41,958.64
526	52,867.54
527	128,577.80
528	41,728.51
529	21,078.69
530	46,333.27
531	27,080.88

NON SINGLE FAMILY RESIDENTIAL (SFR)-ALTERNATIVES 1 AND 2

LOT NUMBER	AREA (SQ. FT.)
500	18,954.77
501	27,306.55
502	33,786.81
503	99,458.17
504	46,816.30
505	16,942.27
506	28,165.87
507	20,674.45
508	45,196.34
509	39,574.97
510	36,226.09
511	67,151.58
512	25,374.73
513	46,921.02
514	48,658.13
515	177,705.40

TRACTS-ALTERNATIVES 1 AND 2

TRACT NUMBER	DESCRIPTION	AREA (SQ. FT.)
900	COMMON OPEN SPACE	17,948.97
901	COMMON OPEN SPACE	485.00
902	COMMON OPEN SPACE	3,854.29
903	COMMON OPEN SPACE	2,656.80
904	COMMON OPEN SPACE	881.74
905	COMMON OPEN SPACE	1,747.21
906	COMMON OPEN SPACE	28,659.28
907	COMMON OPEN SPACE	3,991.51
908	COMMON OPEN SPACE	10,741.09
909	MSPA	339,574.97
910	COMMON OPEN SPACE	12,454.02
911	COMMON OPEN SPACE	1,702.71
912	COMMON OPEN SPACE	156,002.29
913	COMMON OPEN SPACE	19,839.24
914	COMMON OPEN SPACE	28,245.33
915	COMMON OPEN SPACE	246,623.34
916	COMMON OPEN SPACE	5,643.60
917	COMMON OPEN SPACE	7,322.59
918	COMMON OPEN SPACE	15,583.69
919	COMMON OPEN SPACE	1,637.73
920	COMMON OPEN SPACE	61,713.76
921	COMMON OPEN SPACE	60,833.89
922	COMMON OPEN SPACE	48,535.48
923	COMMON OPEN SPACE	1,710.00
924	COMMON OPEN SPACE/UTILITY	18,176.59
925	COMMON OPEN SPACE/UTILITY	23,715.97
926	COMMON OPEN SPACE/UTILITY	2,304.57
927	COMMON OPEN SPACE	370.37
928	COMMON OPEN SPACE	18,448.71
929	COMMON OPEN SPACE	2,300.30
930	COMMON OPEN SPACE	17,997.58
931	RURAL USE/UTILITY	25,712.04
932	RURAL USE	66,777.81
933	RURAL USE	116,660.35
934	RURAL USE	21,899.91
935	RURAL USE	41,948.63
936	RURAL USE	90,797.97
937	RURAL USE	47,976.66
938	RURAL USE	143,246.58
939	RURAL USE	86,464.52
940	RURAL USE	154,545.15
941	RURAL USE	153,358.19
942	RURAL USE	45,188.07
943	RURAL USE/UTILITY	708,686.20
944	RURAL USE	56,689.41
945	RURAL USE	254,407.53
946	COMMON OPEN SPACE	156,000.00
947	MSPA	4,584,139.18
948	RURAL USE/UTILITY	345,787.89
949	MSPA	28,088.57
952	COMMON OPEN SPACE	103,169.74
953	COMMON OPEN SPACE/UTILITY	653,560.64

SINGLE FAMILY RESIDENTIAL (SFR) RESERVE LOTS-ALTERNATIVES 1 AND 2

LOT NUMBER	AREA (SQ. FT.)
1	3,975.44
2	4,500.00
3	4,500.00
4	4,500.00
5	4,500.00
6	4,500.00
7	4,500.00
8	4,500.00
9	4,500.00
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44	4,500.00
45	4,500.00
46	4,500.00
47	4,500.00
48	4,500.00
49	4,500.00
50	4,500.00
51	4,500.00
52	4,500.00
53	4,500.00
54	4,500.00
55	4,500.00
56	4,500.00

SINGLE FAMILY RESIDENTIAL (SFR) RESERVE LOTS-ALTERNATIVES 1 AND 2

LOT NUMBER	AREA (SQ. FT.)
114	5,900.00
115	5,900.00
116	5,900.00
117	5,900.00
118	5,900.00
119	5,900.00
120	5,900.00
121	5,900.00
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151	5,900.00
152	5,900.00
153	5,900.00
154	5,900.00
155	5,900.00
156	5,900.00
157	5,900.00
158	5,900.00
159	5,900.00
160	5,900.00

SINGLE FAMILY RESIDENTIAL (SFR) LOTS-ALTERNATIVES 1 AND 2

LOT NUMBER	AREA (SQ. FT.)
57	4,500.00
58	4,500.00
59	4,500.00
60	4,500.00
61	4,500.00
62	4,500.00
63	4,500.00
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104	4,500.00
105	4,500.00
106	4,500.00
107	4,500.00
108	4,500.00
109	4,500.00
110	4,500.00
111	4,500.00
112	4,500.00
113	4,500.00

TRACTS-ALTERNATIVE 1 ONLY

TRACT NUMBER	DESCRIPTION	AREA (SQ. FT.)
MSR	RURAL USE	JH-BURLINE

NON SINGLE FAMILY RESIDENTIAL (SFR)-ALTERNATIVE 2 ONLY

LOT NUMBER	AREA (SQ. FT.)
532	111,326.03
533	43,724.20

TRACTS-ALTERNATIVE 2 ONLY

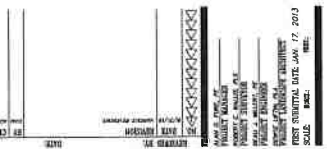
TRACT NUMBER	DESCRIPTION	AREA (SQ. FT.)
MSR	RURAL USE	683,370.80

NOTE:
 * TRACT IS PARTIAL OF TRACT RESERVED FOR POTENTIAL CONVERSION TO RECREATION USE. ALL OTHER PORTIONS WILL BE REMAINING MEASUREMENTS (SHA)

LEGEND
 TRACTS INCLUDED IN OPEN SPACE CALCULATIONS (SEE SHEET C15 FOR PLAN NEW)

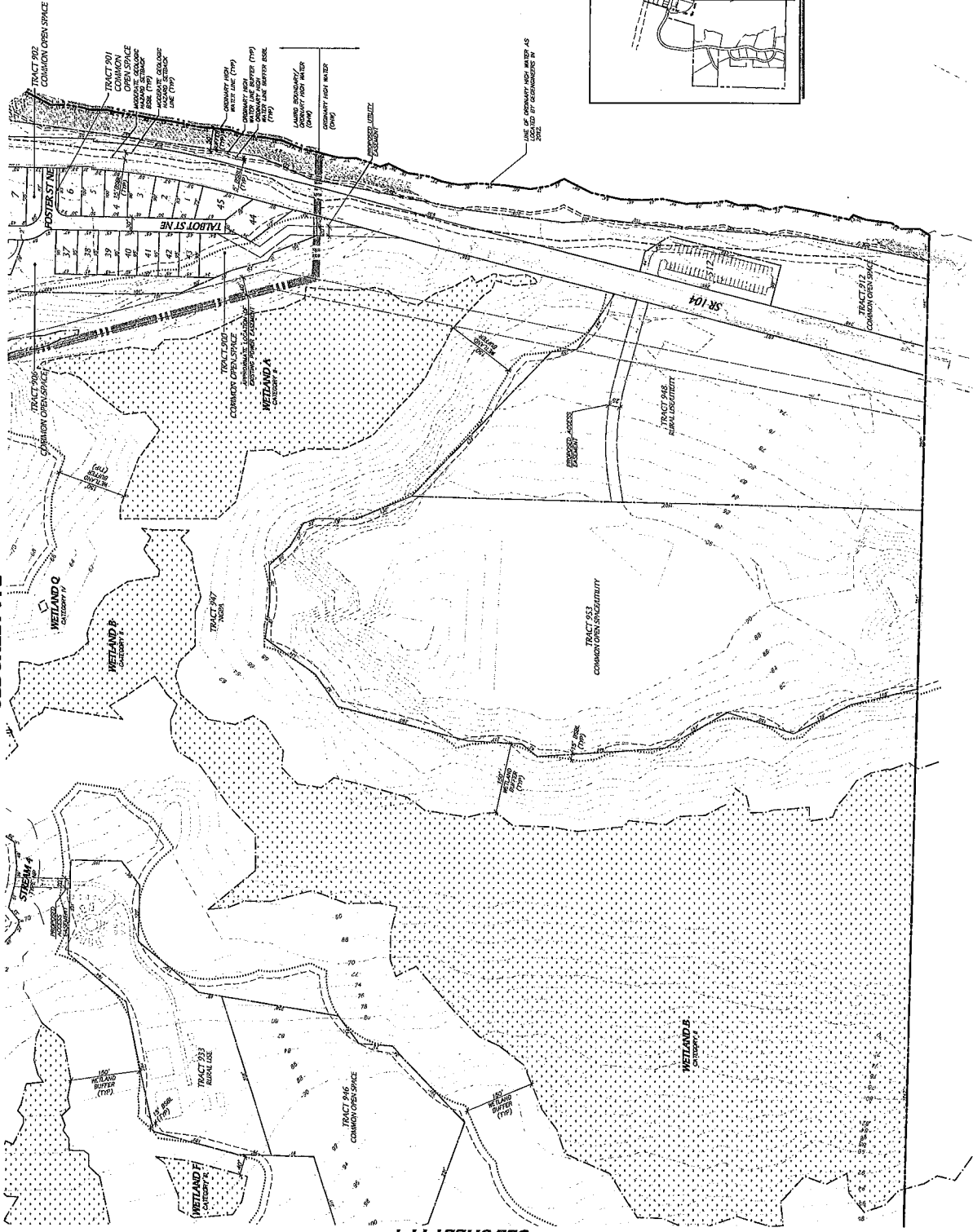


DAVID EVANS AND ASSOCIATES INC. 1000 WOODBINE WASHINGTON BOULEVARD WASHINGTON, WA 98006
 P&E ENGINEERING INC. 1000 WOODBINE WASHINGTON BOULEVARD WASHINGTON, WA 98006
 PORT GAMBLE REDEVELOPMENT PLAN
 LOT AND TRACT AREA SUMMARY
 PRELIMINARY PLAT/PBD
 KITSAP COUNTY

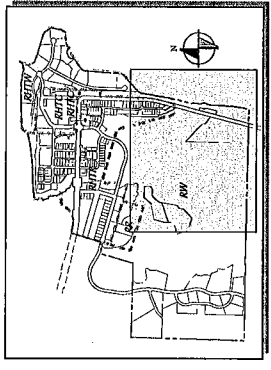


APR 25 2013
 JOB NO. 08-029
 SHEET NO. CV6-53
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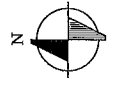
PORTIONS OF SECTIONS 5, 6, 7 AND 8, TWP 27 N, RGE 2 E, W.M.
SEE SHEET PP2



SEE SHEET PP4



KEY MAP
NOT TO SCALE



SCALE: 1" = 100'
0 50 100 200
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DAVID EVANS AND ASSOCIATES INC.
2000 Woodbine Boulevard NE
Farmingdale, MN 55325
Phone: 425-652-0000

DEK

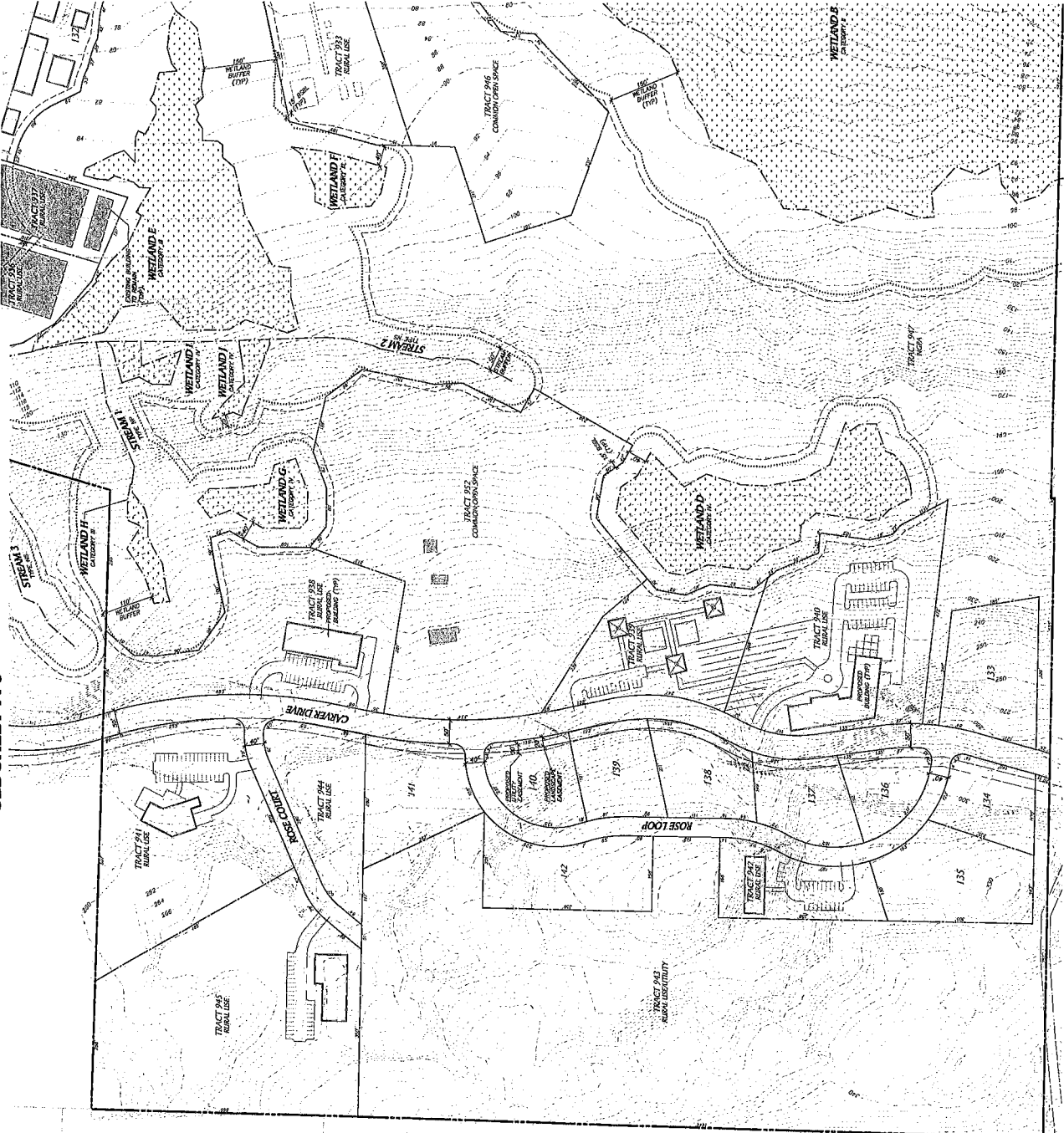
PORT GAMBLE REDEVELOPMENT PLAN
PRELIMINARY PLAT/PBD
KITSAP COUNTY, WASHINGTON

DATE: 08/29/08
PROJECT NO: 08-029
SHEET NO: PP1-53

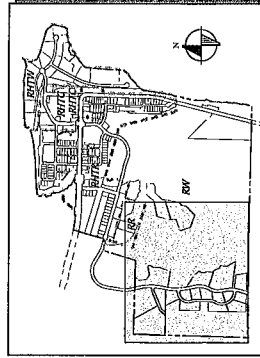
TRAD ASSOCIATES
2000 Woodbine Boulevard NE
Farmingdale, MN 55325
Phone: 425-652-0000

08-029
PP1-53

SEE SHEET PP3 PORTIONS OF SECTIONS 5, 6, 7 AND 8, TWP 27 N, RGE 2 E, W.M.



SEE SHEET PP1



KEY MAP
NOT TO SCALE



SCALE: 1" = 100'



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PORT GAMBLE REDEVELOPMENT PLAN
 PRELIMINARY PLAT/PBD
 WASHINGTON
 KITSAP COUNTY

DAVID EVANS AND ASSOCIATES, INC.
 1000 1st Avenue, S.W.
 Woodbridge, Washington 98072
 Phone: 425-652-0000

PORT GAMBLE
 COMMUNITY DEVELOPMENT
 AUTHORITY

REVISIONS BY: []
 DATE: []
 REVISIONS BY: []
 DATE: []
 REVISIONS BY: []
 DATE: []
 REVISIONS BY: []
 DATE: []
 REVISIONS BY: []
 DATE: []

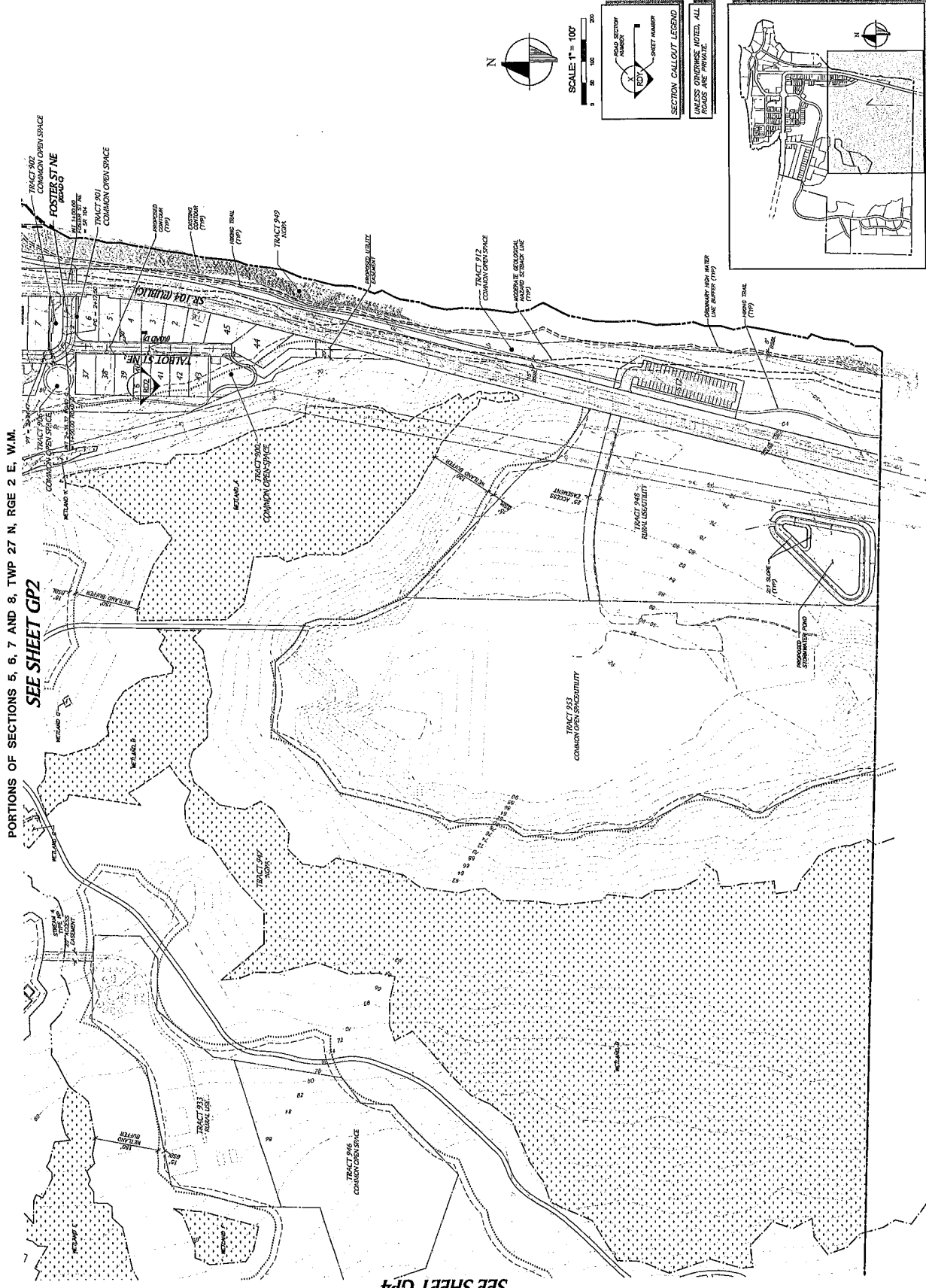
PROJECT NO. 08-029
 SHEET NO. PP4-53
 AUGUST 31, 2006

STAMP NOT VALID
 UNLESS SIGNED AND DATED

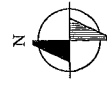


PROJECT NO. 08-029
 SHEET NO. PP4-53
 AUGUST 31, 2006

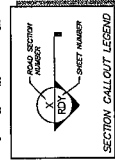
PORTIONS OF SECTIONS 5, 6, 7 AND 8, TWP 27 N, RGE 2 E, W.M.
SEE SHEET GP2



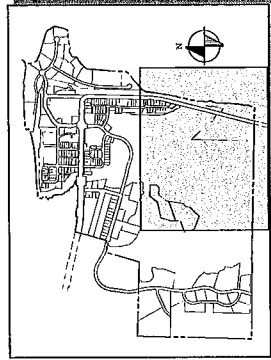
SEE SHEET GP4



SCALE: 1" = 100'



ALL DIMENSIONS SHOWN, UNLESS OTHERWISE NOTED, ARE IN FEET AND INCHES.



KEY MAP
NOT TO SCALE

PORT
AND ASSOCIATES INC.
 2000 Woodbine Boulevard NE
 Woodbine, Washington 98072
 Phone: 360-222-2222

PRELIMINARY GRADING PLAN
PORT GAMBLE REDEVELOPMENT PLAN
 WASHINGTON
 KITSAP COUNTY

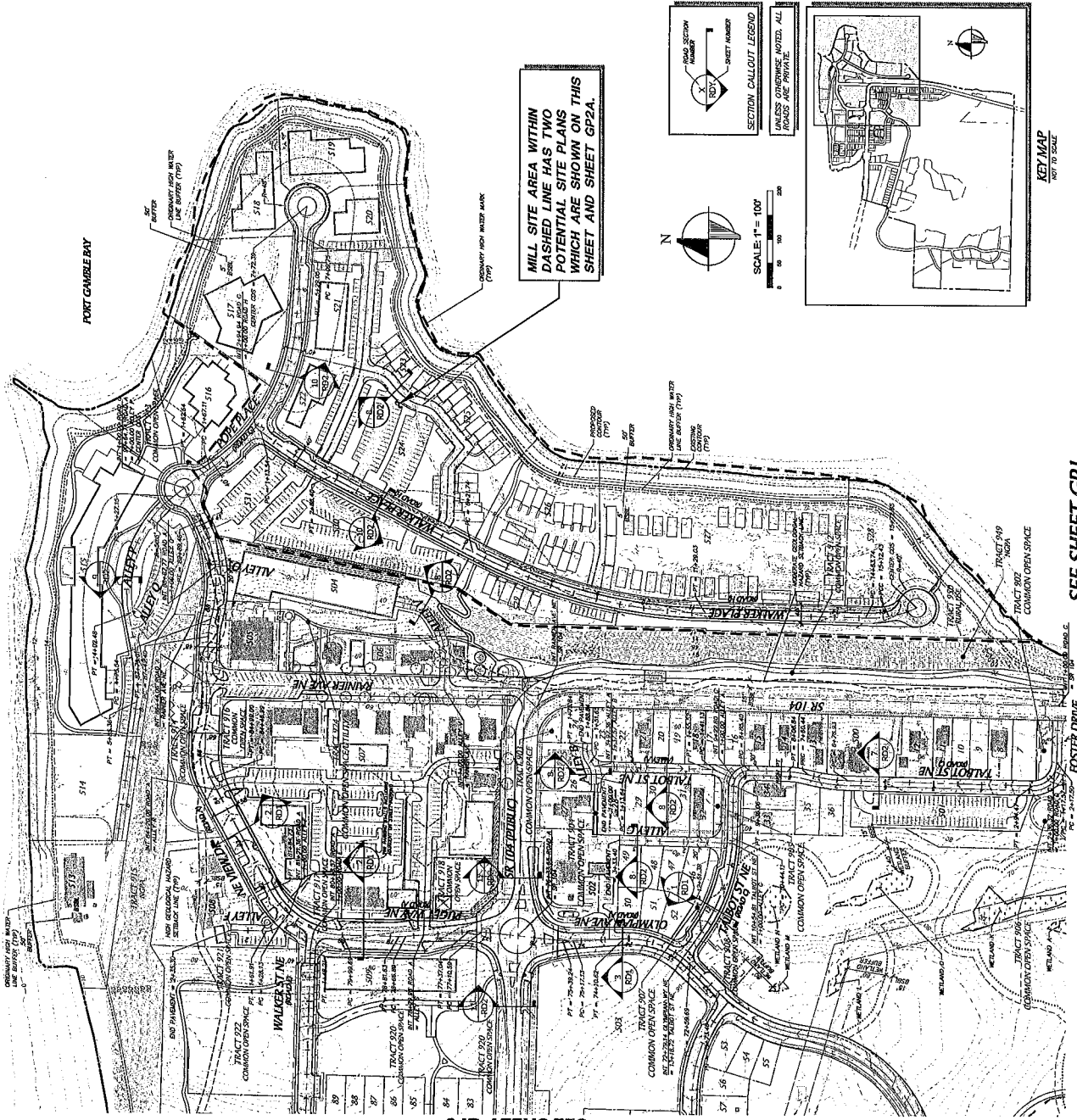
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 DRAWN BY: _____
 CHECKED BY: _____
 DATE: _____
 PROJECT NUMBER: _____
 SHEET NUMBER: _____
 SHEET TOTAL: _____
 SCALE: _____
 PROJECT START DATE: _____
 PROJECT END DATE: _____



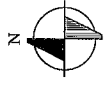
ENGINE: _____
 LICENSE NUMBER: _____
 DATE: _____
08-029
GP1 of 53

© 2008 TRINO ASSOCIATES

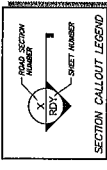
PORTIONS OF SECTIONS 5, 6, 7 AND 8, TWP 27 N, RGE 2 E, W.M.



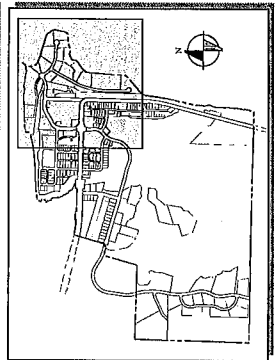
MILL SITE AREA WITHIN
DASHED LINE HAS TWO
POTENTIAL SITE PLANS
WHICH ARE SHOWN ON THIS
SHEET AND SHEET GP2A.



SCALE: 1" = 100'



ALL NOTES AND DIMENSIONS SHOWN ON THIS SHEET SHALL BE CONSIDERED AS PART OF THE CONTRACT DOCUMENTS. ALL DIMENSIONS ARE TO FACE UNLESS OTHERWISE NOTED.



KEY MAP
NOT TO SCALE

SEE SHEET GP1

SEE SHEET GP3

PORT GAMBLE REDEVELOPMENT PLAN
ALTERNATIVE 1
PRELIMINARY GRADING PLAN

DAVID EVANS AND ASSOCIATES INC.
1000 W. WASHINGTON
WASHINGTON, MO 64786
Phone: 417-436-0000

PORT GAMBLE REDEVELOPMENT PLAN
ALTERNATIVE 1
PRELIMINARY GRADING PLAN

WASHINGTON
KITSAP COUNTY

DATE: 08-02-09
SHEET NO.: GP2-53

STATE: WA
COUNTY: KING
PROJECT: PORT GAMBLE REDEVELOPMENT PLAN
SHEET: GP2-53

DATE: 08-02-09
SHEET NO.: GP2-53

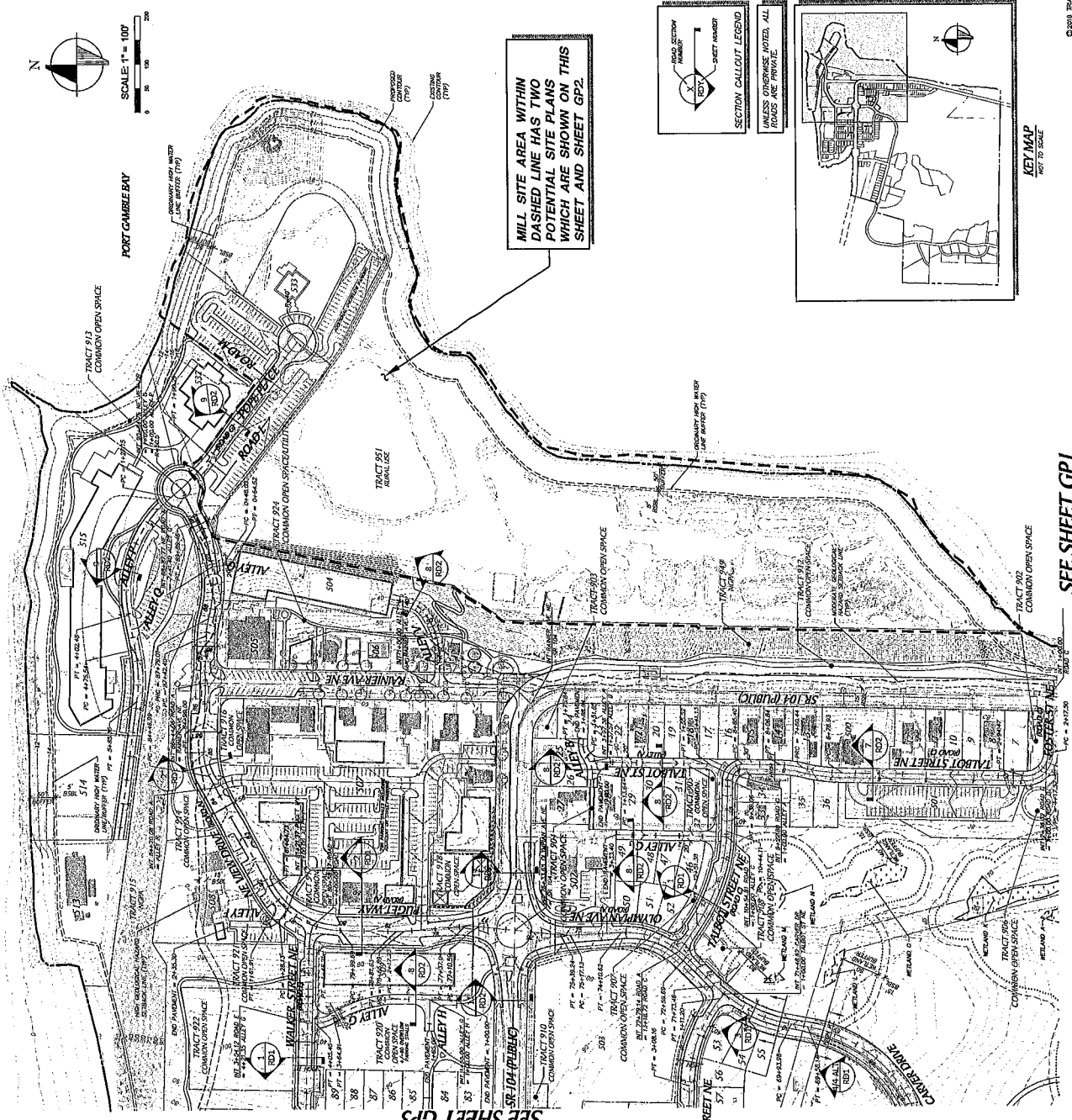
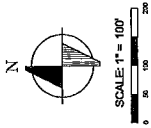
DATE: 08-02-09
SHEET NO.: GP2-53

DATE: 08-02-09
SHEET NO.: GP2-53

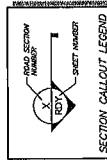
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SHEET NO.: GP2-53

DATE: 08-02-09
SHEET NO.: GP2-53

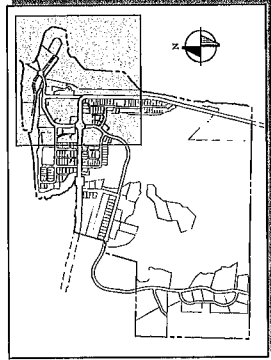
PORTIONS OF SECTIONS 5, 6, 7 AND 8, TWP 27 N, RGE 2 E, W.M.



MILL SITE AREA WITHIN
DASHED LINE HAS TWO
POTENTIAL SITE PLANS
WHICH ARE SHOWN ON THIS
SHEET AND SHEET GP2.



UNLESS OTHERWISE NOTED, ALL
ROADS ARE PRIVATE.



KEY MAP
NOT TO SCALE

SEE SHEET GP1

PRELIMINARY GRADING PLAN
ALTERNATIVE 2
PORT GAMBLE REDEVELOPMENT PLAN
KITSAP COUNTY, WASHINGTON

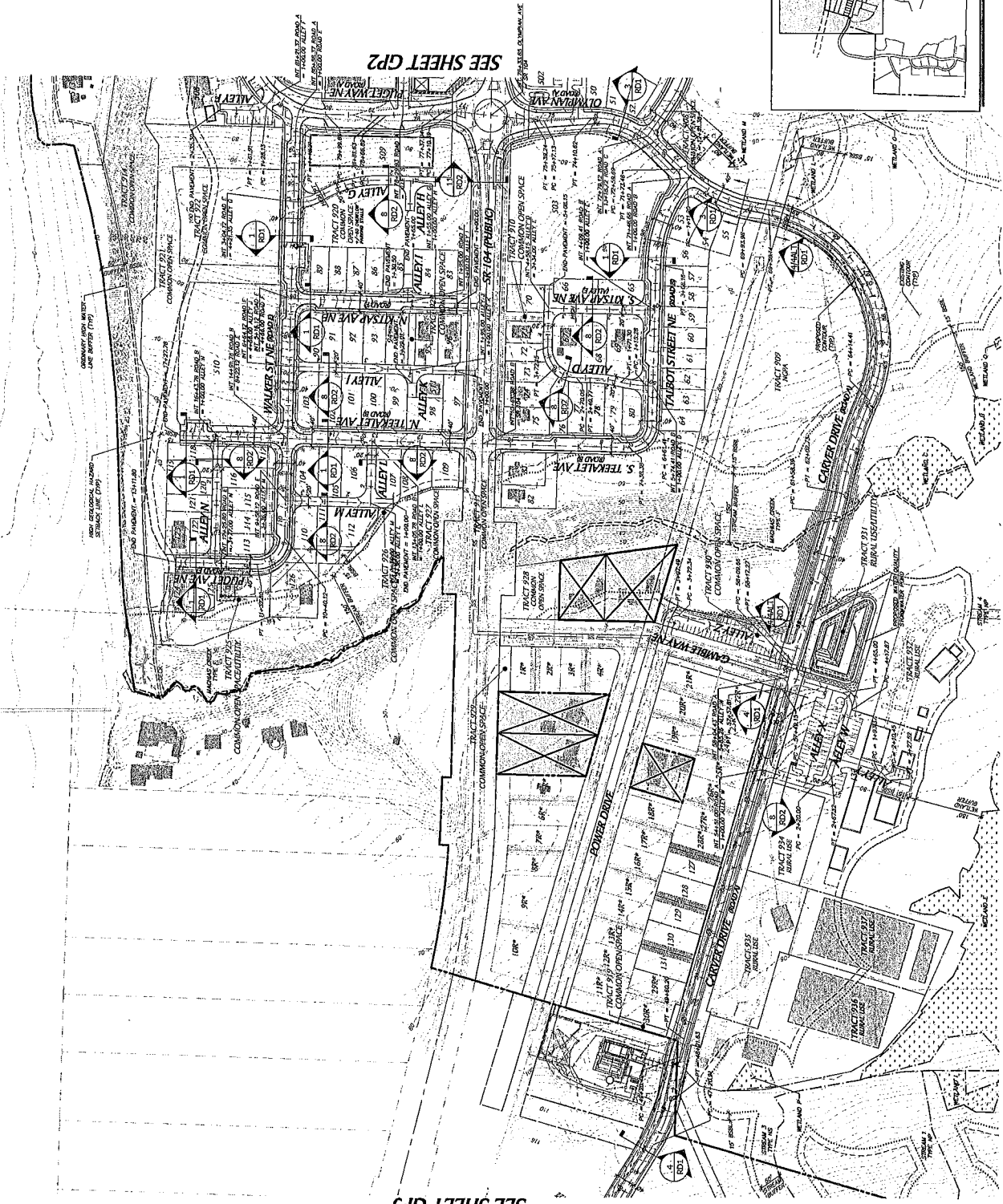
DAVID EVANS AND ASSOCIATES, INC.
2000 Northwest Riverway in NE
Washington, WA 98149
PHONE: 425-455-2000



DATE: 08-11-11
DRAWN BY: JLD
CHECKED BY: JLD
PROJECT NUMBER: 08-029
SHEET NO.: GP2A of 53

© 2011 DORT ASSOCIATES

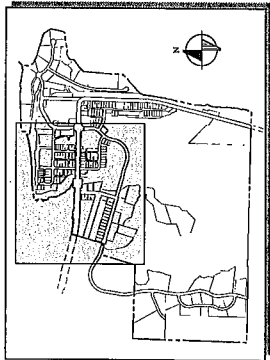
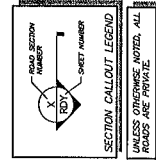
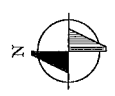
PORTIONS OF SECTIONS 5, 6, 7 AND 8, TWP 27 N, RGE 2 E, W.M.



SEE SHEET GP2

SEE SHEET GP5

SEE SHEET GP1



CORR. TRAD ASSOCIATES

PORT GAMBLE REDEVELOPMENT PLAN

PRELIMINARY GRADING PLAN

KITSAP COUNTY, WASHINGTON

DAVID EVANS AND ASSOCIATES INC.
2000 Woodside Boulevard SE
Tacoma, WA 98409
Phone: 252-6520000

DEKOR
DESIGN GROUP

DATE PREPARED: 08-02-09
DATE PLOTTED: 08-02-09
PROJECT NUMBER: 08-02-09
PROJECT TITLE: PORT GAMBLE REDEVELOPMENT PLAN
SHEET NUMBER: GP3-53
SHEET TOTALS: 104 SHEETS
SHEET TOTALS: 104 SHEETS

DESIGNED BY: [Redacted]
CHECKED BY: [Redacted]
APPROVED BY: [Redacted]

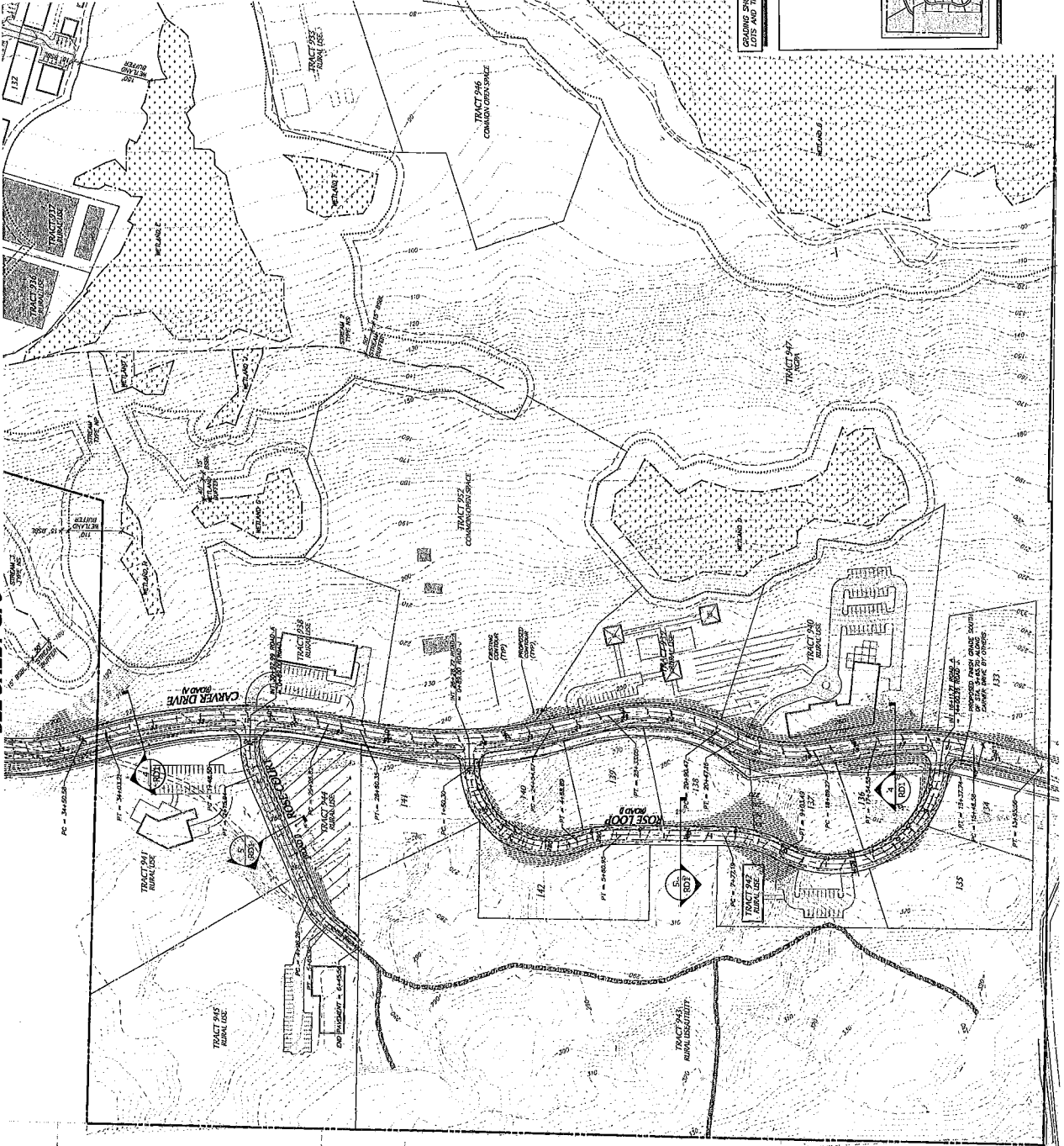
STAMP NOT VALID
THIS IS A PRELIMINARY PLAN
UNLESS OTHERWISE NOTED, ALL ROADS ARE PRIVATE.

08-02-09

GP3-53

STAMP NOT VALID
THIS IS A PRELIMINARY PLAN
UNLESS OTHERWISE NOTED, ALL ROADS ARE PRIVATE.

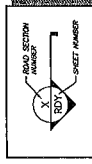
PORTIONS OF SECTIONS 5, 6, 7 AND 8, TWP 27 N, RGE 2 E, W.M.
SEE SHEET GP5



SEE SHEET GP1



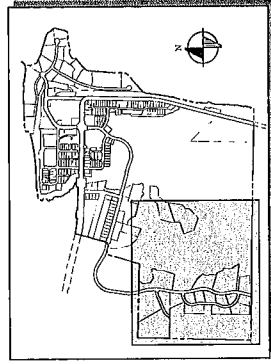
SCALE: 1" = 100'



SECTION CALLOUT LEGEND

UNLESS OTHERWISE NOTED, ALL ROADS ARE PRIVATE.

GRADING SHOWS PIPE ROAD IMPROVEMENTS ONLY. GRADING OF INDIVIDUAL LOTS IS TO BE PROVIDED BY THE PROPERTY OWNERS.



KEY MAP
NOT TO SCALE

PORT EVANS
PE ASSOCIATES INC.
 2000 Woodbine Suburban Trail SE
 Woodbine, Washington 98072
 Phone: 360-225-2024

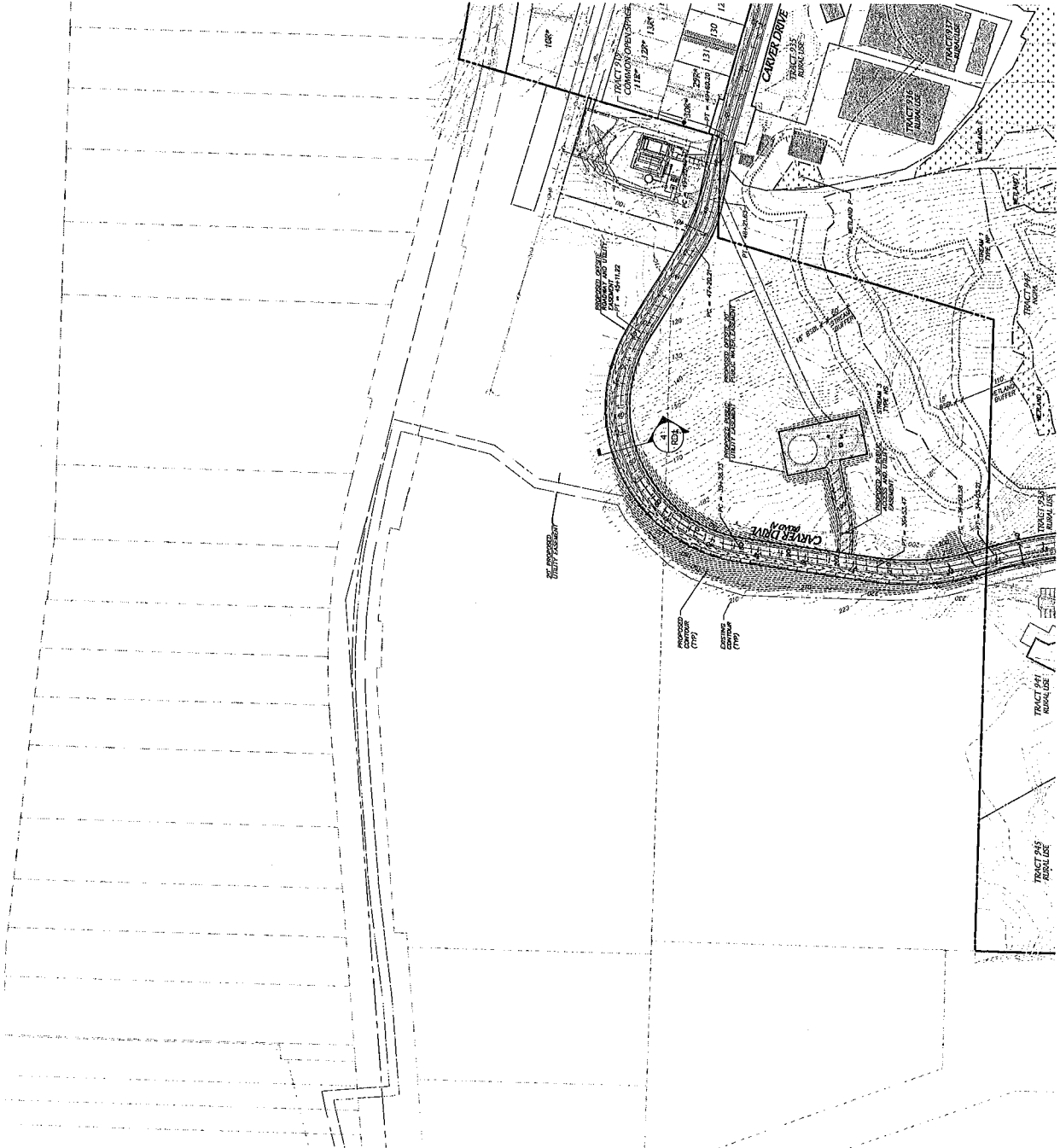
PORT GAMBLE REDEVELOPMENT PLAN
 WASHINGTON
 PRELIMINARY GRADING PLAN
 KITSAP COUNTY

DATE:	08/02/09
DESIGNED BY:	PE
CHECKED BY:	PE
IN CHARGE ENGINEER:	PE
PROJECT NUMBER:	2009-001
PROJECT LOCATION:	PORT GAMBLE, WA
PROJECT SURVEY DATE:	12/2003
SCALE:	1" = 100'

DAVID M. SMITH
 LICENSE NO. 10000
 STATE OF WASHINGTON
 CIVIL ENGINEER

DATE: 08-02-09
 SHEET NO. GP4 of 53

PORTIONS OF SECTIONS 5, 6, 7 AND 8, TWP 27 N, RGE 2 E, W.M.



SEE SHEET GP3

SEE SHEET GP4

PRELIMINARY GRADING PLAN

PORT GAMBLE REDEVELOPMENT PLAN

KITSAP COUNTY, WASHINGTON

DAVID EVANS
AND ASSOCIATES INC.
10000 NE 12TH AVE
BELLINGHAM WASHINGTON 98225
Phone: 360.835.2000



STAMP NOT VALID
UNLESS SIGNED AND DATED
JOB NO. **08-029**
SHEET NO. **GP5-53**

SECTION CUTOFF LEGEND

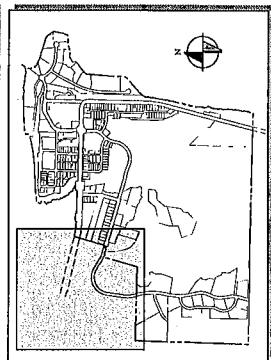
ROAD SECTION NUMBER

SHEET NUMBER

ALL DIMENSIONS SHOWN ARE IN FEET AND INCHES. ALL DIMENSIONS ARE TO FACE UNLESS OTHERWISE NOTED.



SCALE: 1" = 100'



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PORTIONS OF SECTIONS 5, 6, 7 AND 8, TWP 27 N, RGE 2 E, W.M.

DAVID EVANS AND ASSOCIATES INC.
2000 Washington Boulevard NE
Seattle, WA 98102
Phone: 425.452.3000

PORT GAMBLE REDEVELOPMENT PLAN

WASHINGTON
KITSAP COUNTY

ROAD PROFILES

DATE: _____

PROJECT: _____

PROJECT NUMBER: _____

PROJECT LOCATION: _____

SCALE: _____

DATE: _____

PROJECT: _____

PROJECT NUMBER: _____

PROJECT LOCATION: _____

SCALE: _____

SEAL OF KITSAP COUNTY, WASHINGTON

COUNTY ENGINEER

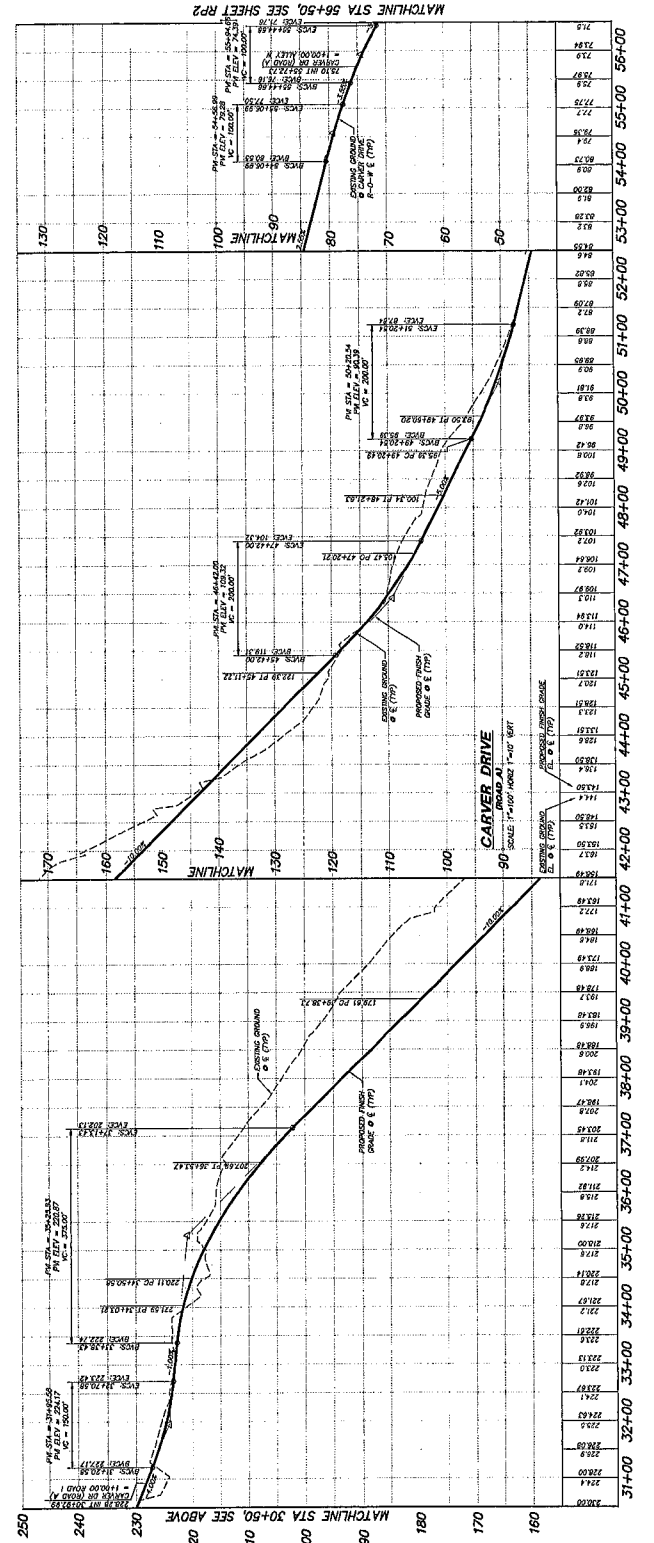
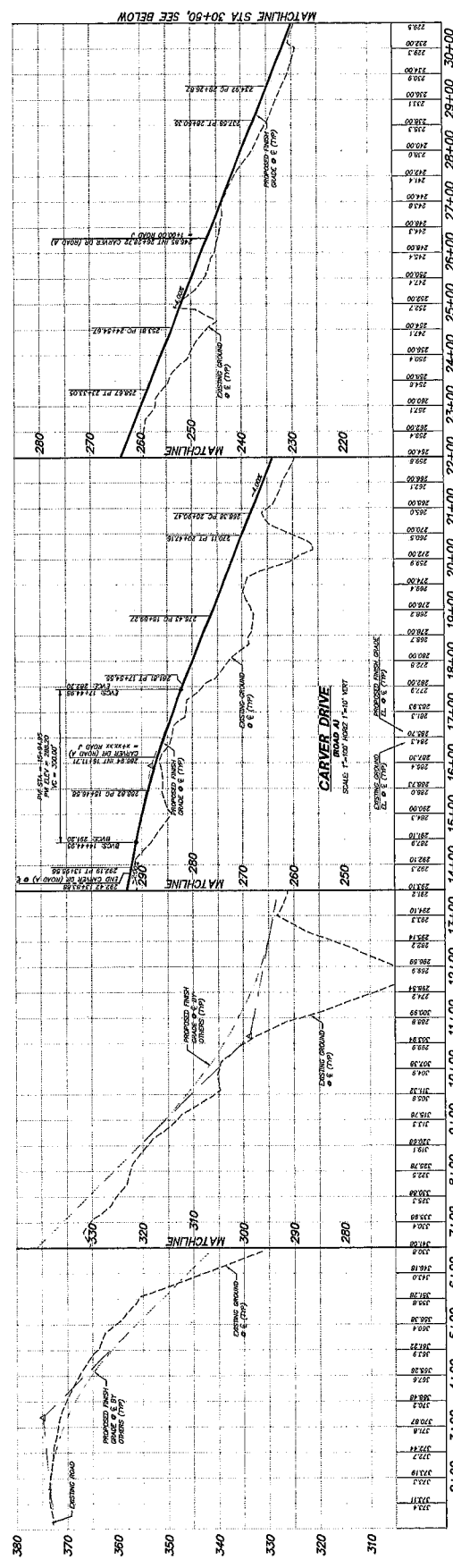
DATE: _____

PROJECT: _____

PROJECT NUMBER: _____

PROJECT LOCATION: _____

SCALE: _____



COURTESY: BIRD ASSOCIATES



DAVID EVANS AND ASSOCIATES, INC.
 1000 WEST 10TH AVENUE
 SUITE 1000
 SEASIDE, CALIFORNIA 92081
 PHONE (619) 441-0000

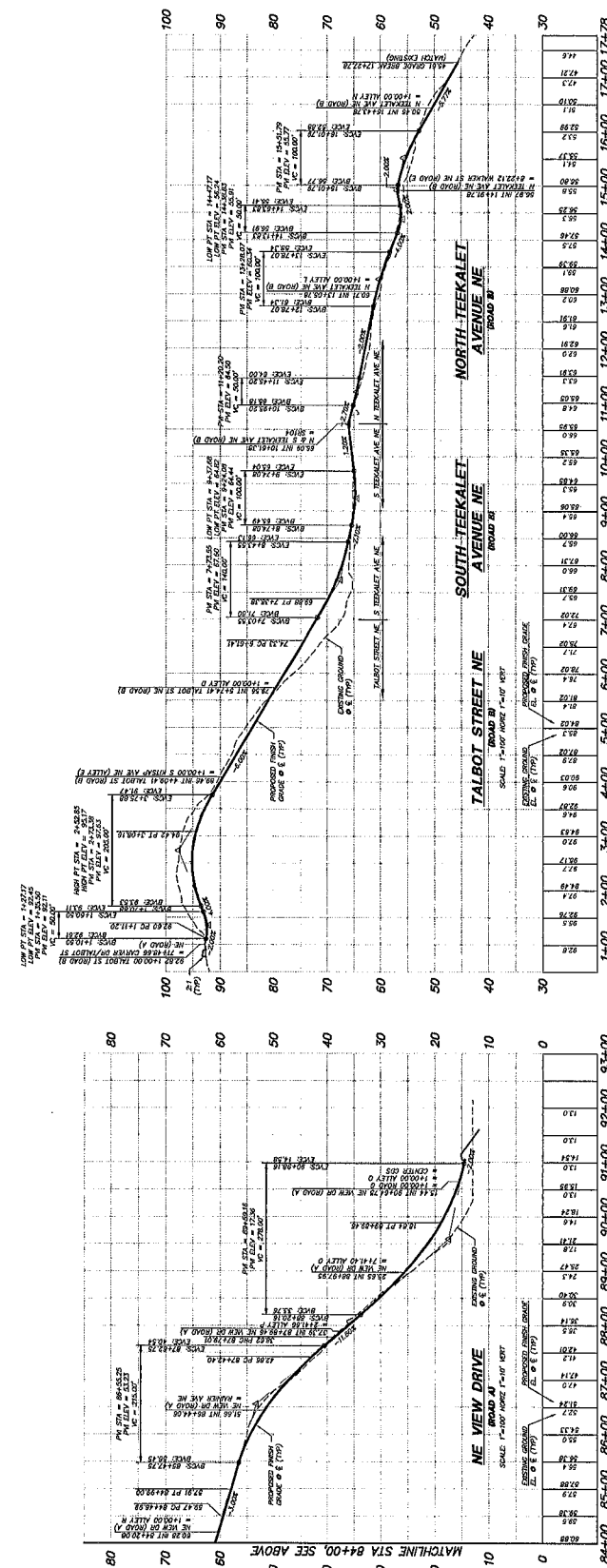
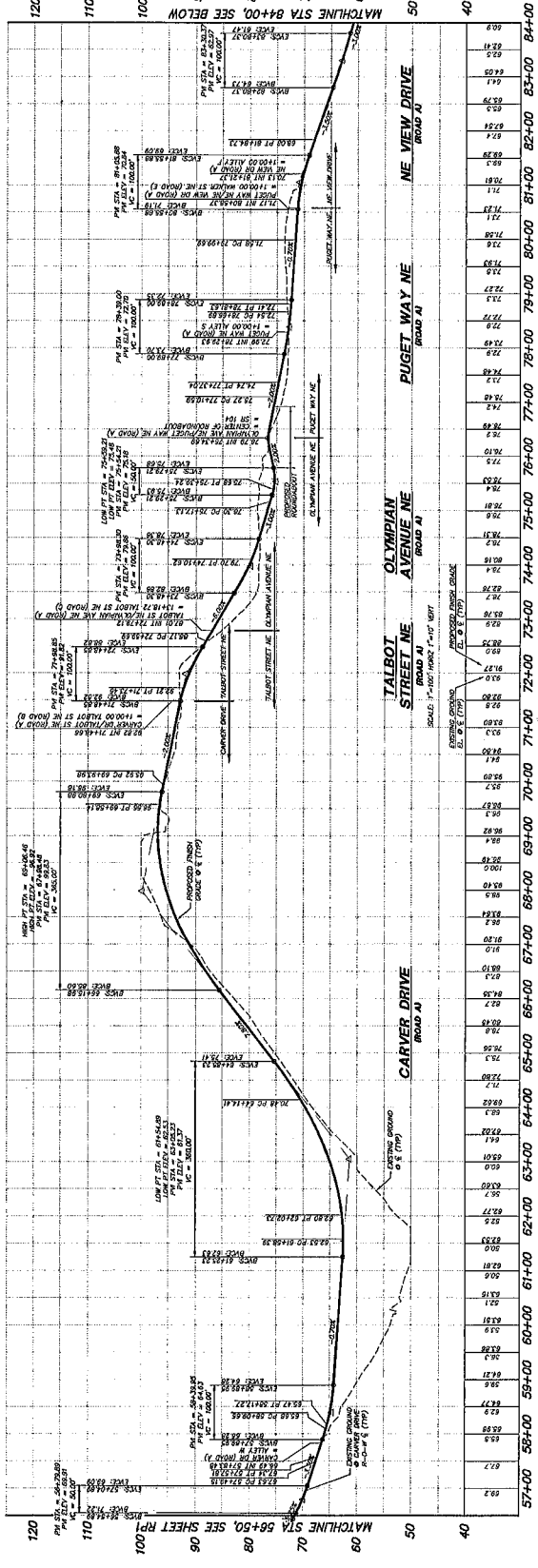
PORT GAMBLE REDEVELOPMENT PLAN

KITSAP COUNTY

WASHINGTON

ROAD PROFILES

PORTIONS OF SECTIONS 5, 6, 7 AND 8, TWP 27 N, RGE 2 E, W.M.



STATION	ELEVATION (FEET)
57+00	69.2
58+00	69.2
59+00	69.2
60+00	69.2
61+00	69.2
62+00	69.2
63+00	69.2
64+00	69.2
65+00	69.2
66+00	69.2
67+00	69.2
68+00	69.2
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168+00	69.2
169+00	69.2
170+00	69.2
171+00	69.2
172+00	69.2
173+00	69.2
174+00	69.2

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STAFF: BRYAN TAYLOR
 DESIGN: JAMES W. BROWN
 DATE: 08-02-09
 SHEET NO. RP2-53

REVISIONS BY: [Blank]
 DATE: [Blank]
 PROJECT: PORT GAMBLE REDEVELOPMENT PLAN
 SHEET: RP2-53 OF 53



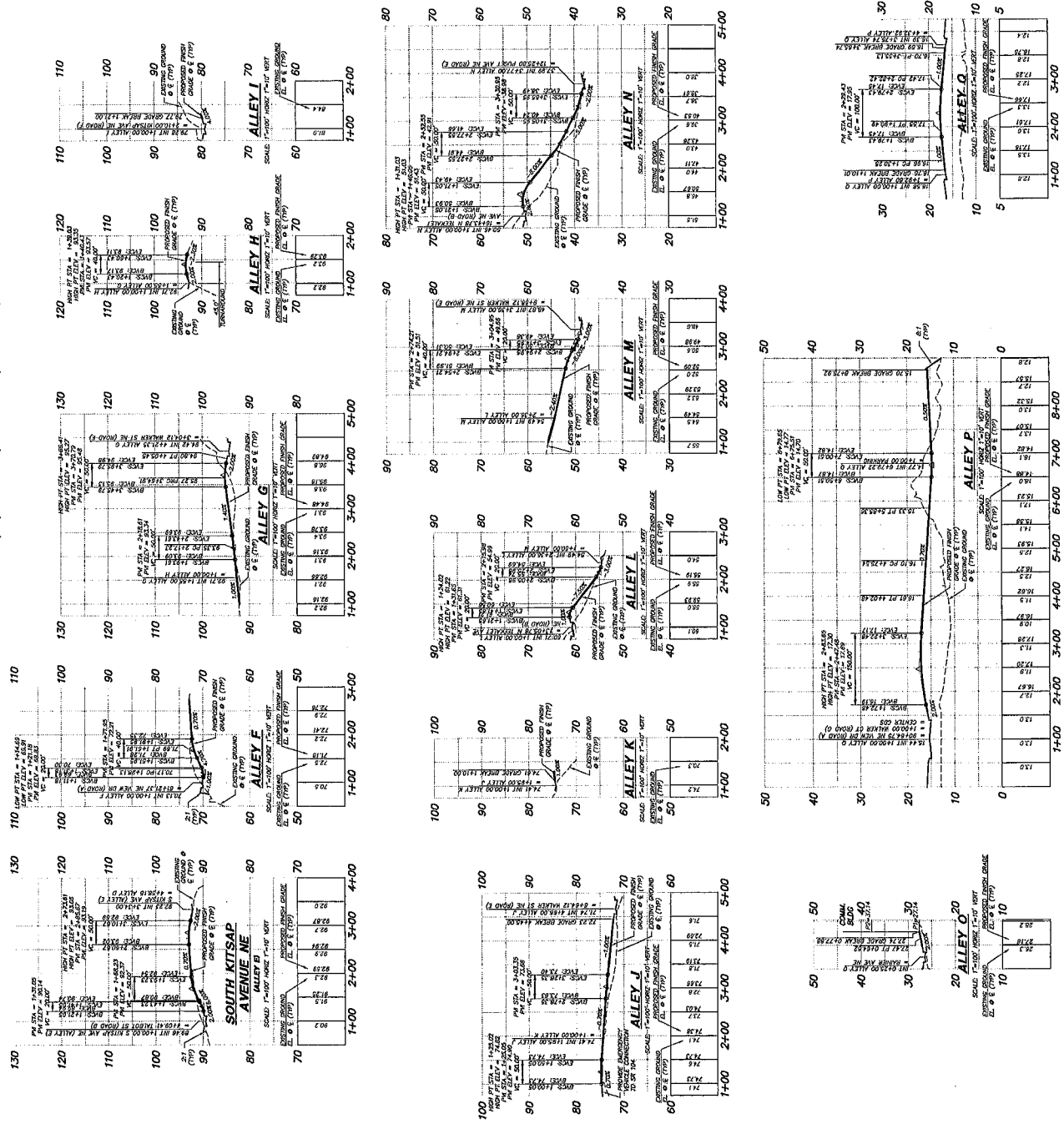
P&A ASSOCIATES, INC.
 2000 Woodbridge Boulevard, Suite 100
 Woodbridge, Washington 20097
 Phone: 410-222-0200

PORT GAMBLE REDEVELOPMENT PLAN

KITSAP COUNTY, WASHINGTON

ROAD PROFILES

PORTIONS OF SECTIONS 5, 6, 7 AND 8, TWP 27 N, RGE 2 E, W.M.



DATE: 08-02-09
 SHEET NO. RP5 OF 53

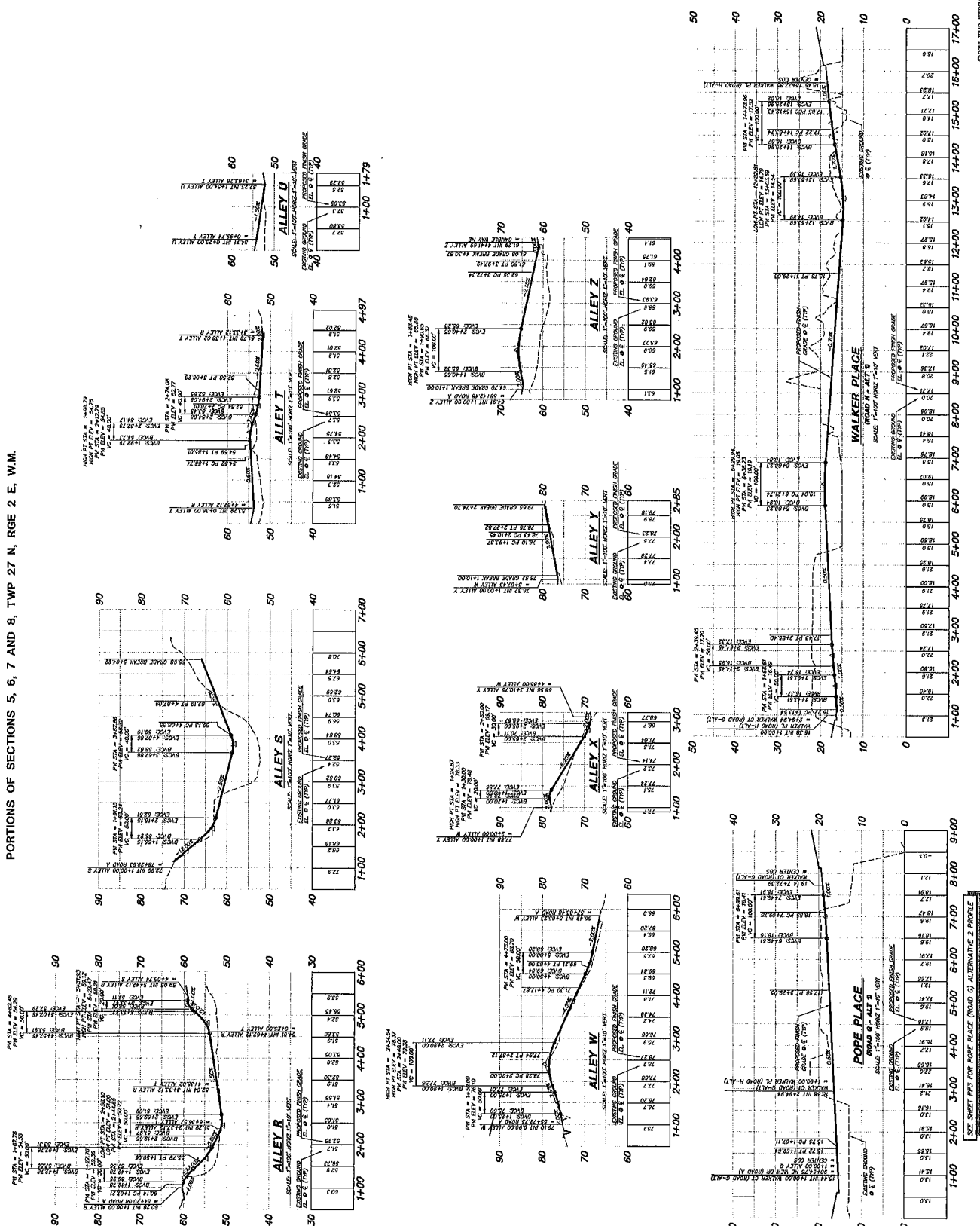
PORTIONS OF SECTIONS 5, 6, 7 AND 8, TWP 27 N, RGE 2 E, W.M.

DAVID EVANS AND ASSOCIATES INC.
 1000 W. WASHINGTON
 WOODBRIDGE, MICHIGAN 48097
 PHONE 482-65000

D&K ENGINEERING INC.
 1000 W. WASHINGTON
 WOODBRIDGE, MICHIGAN 48097
 PHONE 482-65000

PORT GAMBLE REDEVELOPMENT PLAN
 WASHINGTON
 KITSAP COUNTY

ROAD PROFILES

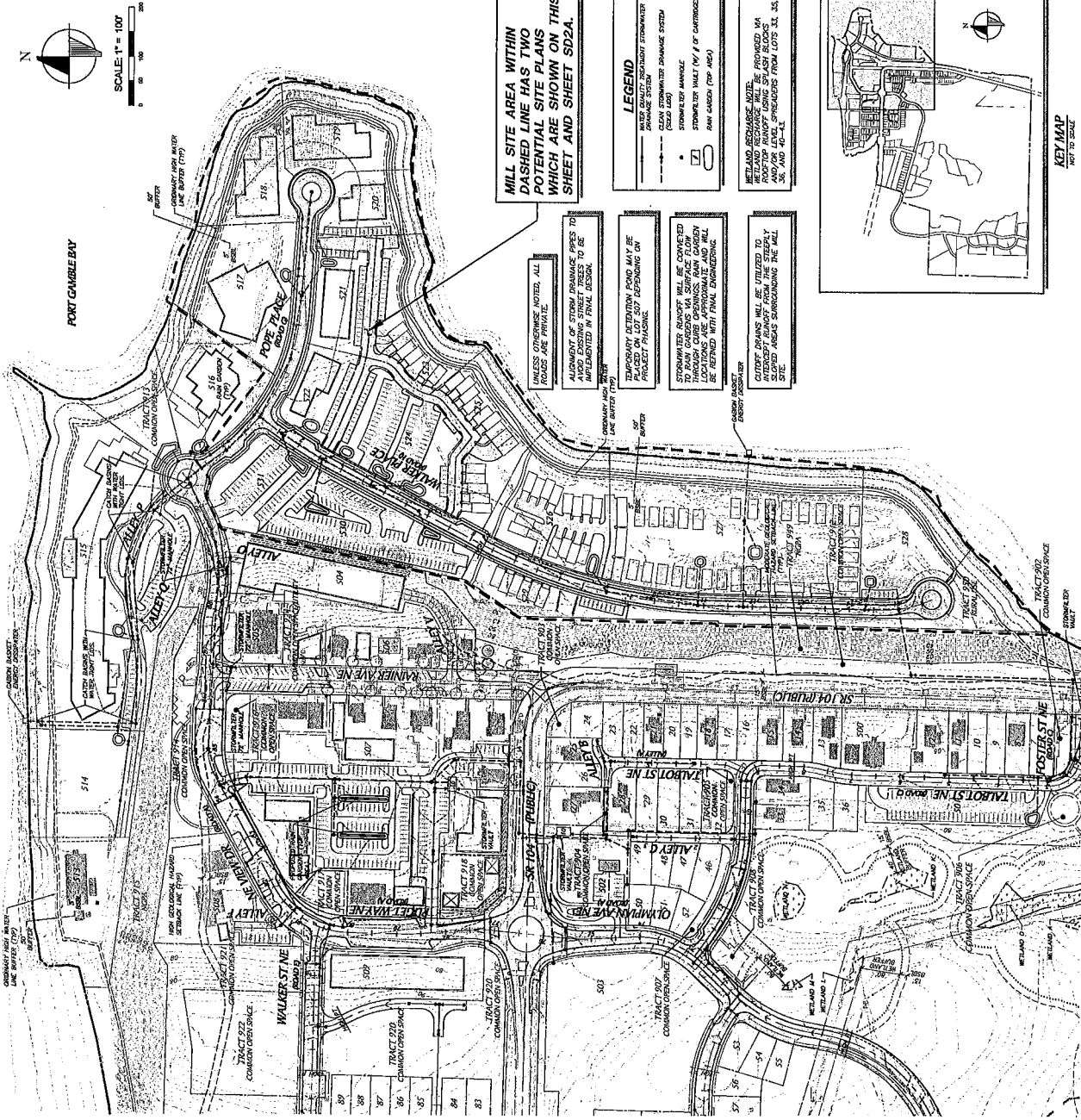


© 2008 ROAD ASSOCIATES

STATE OF MICHIGAN
 PROFESSIONAL ENGINEER
 DAVID EVANS AND ASSOCIATES INC.
 LICENSE NO. 98-029
 EXPIRES 12-31-10

DATE: 11/17/09
 DRAWN BY: J. HARRIS
 CHECKED BY: J. HARRIS
 PROJECT: PORT GAMBLE REDEVELOPMENT PLAN
 SHEET: 11 OF 107

PORTIONS OF SECTIONS 5, 6, 7 AND 8, TWP 27 N, RGE 2 E, W.M.



PORT GAMBLE BAY

SEE SHEET SD3

SEE SHEET SD1

SEE SHEET SD2

SEE SHEET SD4

SEE SHEET SD5

SEE SHEET SD6

SEE SHEET SD7

SEE SHEET SD8

SEE SHEET SD9

SEE SHEET SD10

SEE SHEET SD11

SEE SHEET SD12

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SEE SHEET SD45

SEE SHEET SD46

SEE SHEET SD47

SEE SHEET SD48

SEE SHEET SD49

SEE SHEET SD50

SEE SHEET SD51

SEE SHEET SD52

SEE SHEET SD53

UNLESS OTHERWISE NOTED, ALL
ALIGNMENT OF STORM DRAINAGE PIPES TO
ROADS ARE PRIVATE.

TEMPORARY DETENTION POND MAY BE
REQUIRED DEPENDING ON
PROJECT PHASING.

STORMWATER PIPING WILL BE INSTALLED
THROUGH CURB OPENINGS VIA SURFACE DRAIN
TO RAIN GARDENS VIA SIF FACE FLOOR
DRAINAGE. RAIN GARDENS WILL
BE REFERRED WITH FINAL ENGINEERING.

CUTDIP DRAINS WILL BE UTILIZED TO
INTERCEPT RUNOFF FROM THE STEEPLY
SLOPED AREAS SURROUNDING THE MILL
SITE.

LEGEND
WATER QUALITY TREATMENT STRUCTURE
CLEAN STORMWATER DRAINAGE SYSTEM
(SEE PLAN)
STORMWATER MANHOLE
STORMWATER TANK (W/ # OF ENTRANCES)
RAIN GARDEN (TOP VIEW)

WETLAND REPAIRAGE WILL BE PROVIDED VIA
POST-TOP RUNOFF USING SPASH BLOCKS
AND CURB OPENINGS FROM LOTS 331, 332,
333, AND 40-41.

KEY MAP
NOT TO SCALE

SEE SHEET SD1

SEE SHEET SD1

SEE SHEET SD9

SEE SHEET SD10

SEE SHEET SD11

SEE SHEET SD12

SEE SHEET SD13

SEE SHEET SD14

SEE SHEET SD15

SEE SHEET SD16

SEE SHEET SD17

SEE SHEET SD18

SEE SHEET SD19

SEE SHEET SD20

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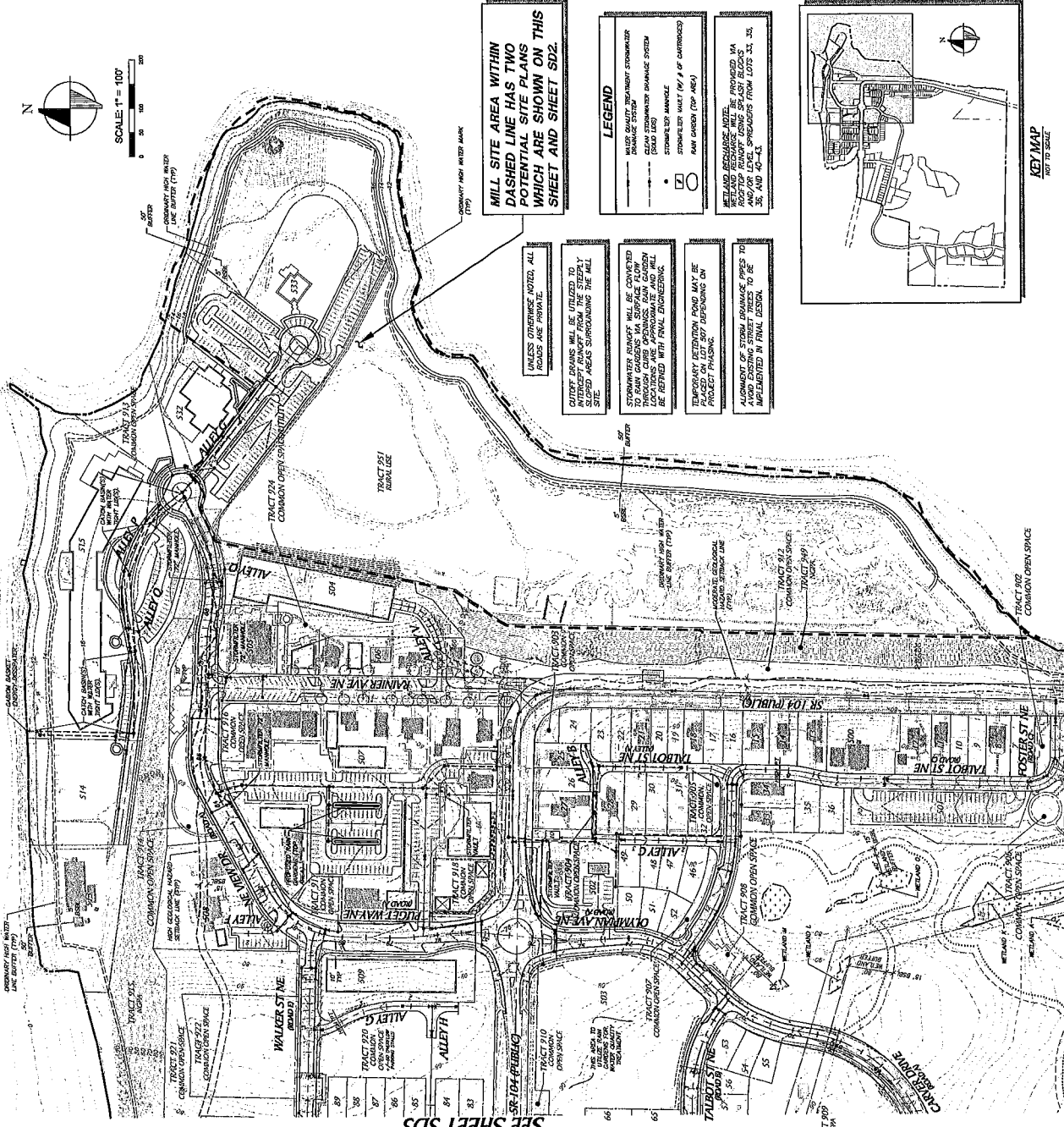
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SEE SHEET SD42

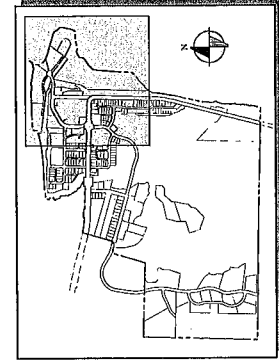
PORTIONS OF SECTIONS 5, 6, 7 AND 8, TWP 27 N, RGE 2 E, W.M.



WILL SITE AREA WITHIN DASHED LINE HAVE TWO POTENTIAL SITE PLANS WHICH ARE SHOWN ON THIS SHEET AND SHEET SD2.

- UNLESS OTHERWISE NOTED, ALL ROADS ARE PRIVATE.
- CUTOUT BRANS WILL BE ILLUSTRATED TO INTERCEPT RUNOFF FROM THE STEEPLY SLOPED AREAS SURROUNDING THE MILL SITE.
- TEMPORARY DETENTION POND MAY BE PLACED ON LOT 807 DEPENDING ON PROJECT PHASING.
- ALIGNMENT OF STORM DRAINAGE PIPES TO BE IMPLEMENTED IN FINAL DESIGN.

- LEGEND**
- WATER QUALITY TREATMENT STORMWATER DRAINAGE SYSTEM
 - CLEAR STORMWATER DRAINAGE SYSTEM
 - CONCRETE CURB
 - RAIL CROSSING (TOP AREA)



KEY MAP NOT TO SCALE

SEE SHEET SD1

DAVID EVANS AND ASSOCIATES INC.
 2000 Woodbridge Professional Park
 Woodbridge, VA 22192
 PHONE: 424-525000

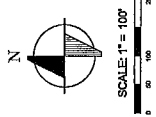
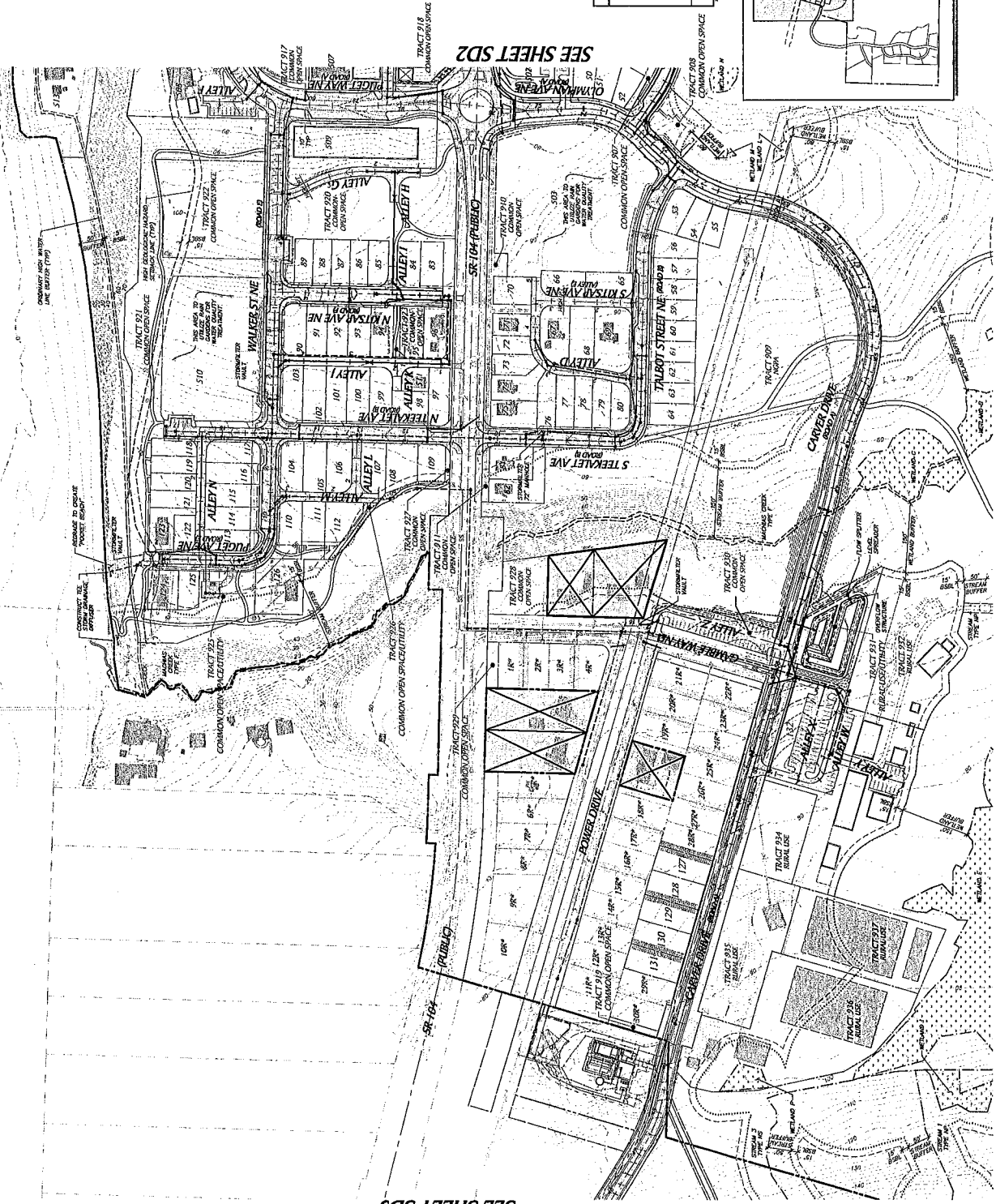
PORT GAMBLE REDEVELOPMENT PLAN
 ALTERNATIVE 2
 PRELIMINARY STORM DRAINAGE PLAN

KITSAP COUNTY, WASHINGTON

SEAL OF KITSAP COUNTY, WASHINGTON

DATE: 08-029
 SHEET NO: SD2A of 53

PORTIONS OF SECTIONS 5, 6, 7 AND 8, TWP 27 N. RGE 2 E. W.M.

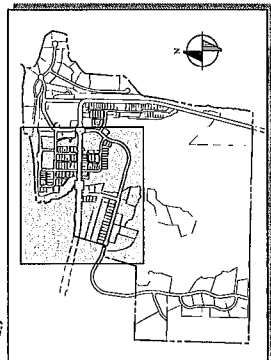


LEGEND

- STORM DRAIN
- MANHOLE
- BASEIN
- PROPOSED CULVERT
- SEE ROAD SECTIONS FOR PROPOSED ROADSIDE CONVEYANCE

NOTES:

- ALL LOTS OF THIS PLAN, ALL ROADS ARE PUBLIC.
- ASSIGNMENT OF STORM DRAINAGE FEES TO AVOID EXISTING STREET TREES TO BE IMPLEMENTED IN FINAL DESIGN.
- STORMWATER MANHOLE STORMWATER MANHOLE MAINT. # OF CATCHBASINS



DAVID EVANS AND ASSOCIATES
 ARCHITECTS & ENGINEERS
 1000 15th Avenue NW
 Washington, WA 98107
 Phone: 206.465.0000

PORT GAMBLE REDEVELOPMENT PLAN
PRELIMINARY STORM DRAINAGE PLAN

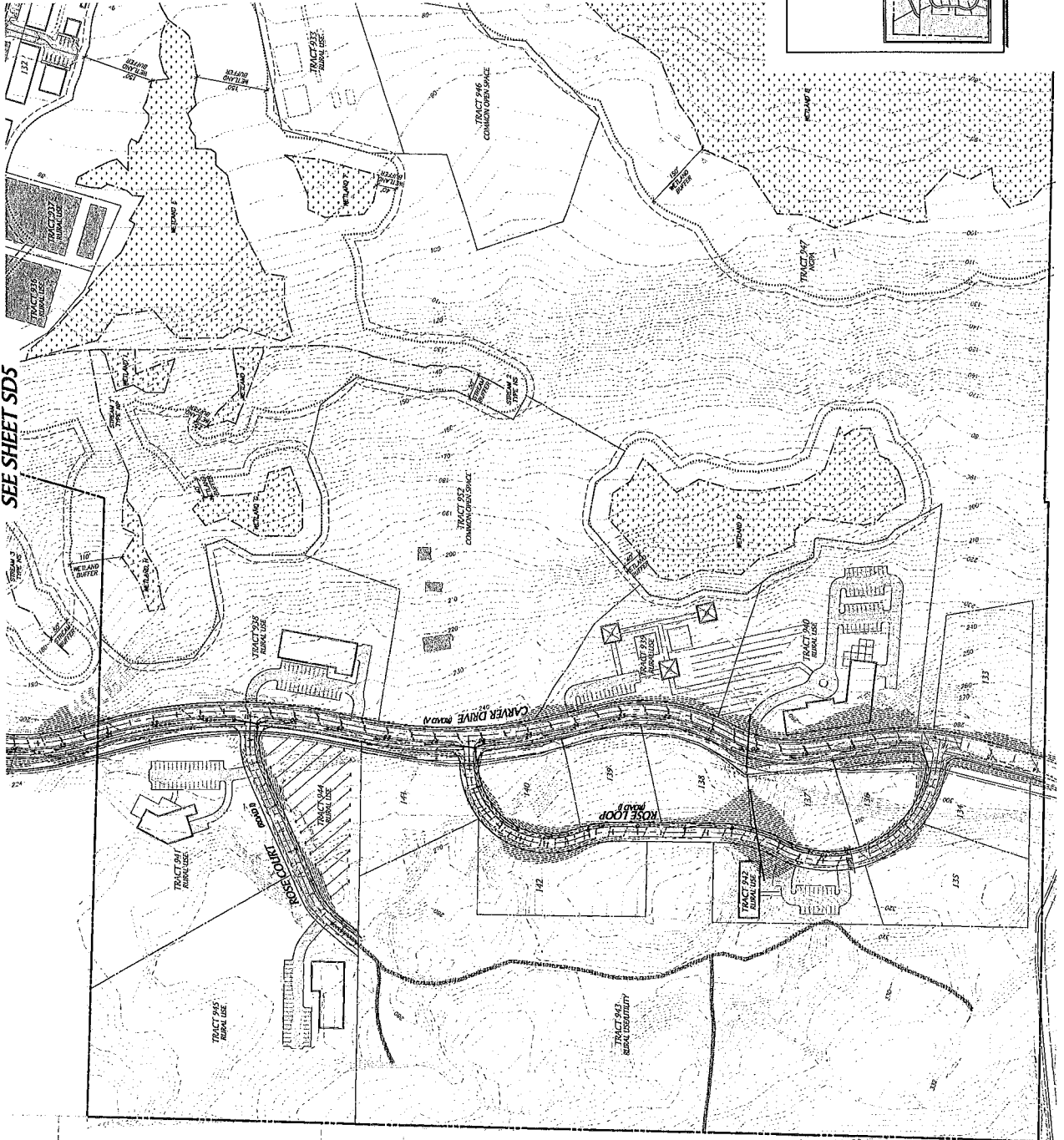
KITSAP COUNTY
 WASHINGTON



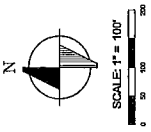
STAMP NOT VALID UNLESS SIGNED AND DATED
 JOB NO. **08-029**
 SHEET NO. **SD3-53**

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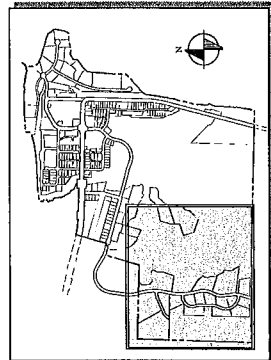
PORTIONS OF SECTIONS 5, 6, 7 AND 8, TWP 27 N, RGE 2 E, W.M.
 SEE SHEET SDS



SEE SHEET SD1



- ALL VALUES UNLESS NOTED, ALL ROADS ARE PRIVATE.
 - AREAS NOT ABLE TO DRAIN BY GRAVITY TO CARVER DRIVE SHALL HAVE INDEPENDENT ON-SITE SYSTEM.
 - ALIGNMENT OF STORM DRAINAGE PIPES SHALL BE DETERMINED BY THE ENGINEER AND SHALL BE IMPLEMENTED IN FINAL DESIGN.
 - TRACTS 946, 947 AND 948 AND LOTS 142 AND 143 TO UTILIZE ON-SITE STORMWATER MANAGEMENT PRACTICES.
- LEGEND**
- PROPOSED DRIVEWAY
 - SEE ROAD SECTIONS FOR PROPOSED ROADSIDE COMPLENCE



KEY MAP
 1/4" = 1 MILE

PORT ASSOCIATES
 PORT ASSOCIATES, INC.
 2000 Woodside Washington 98072
 Phone: 206-885-2820

DAVID IRVING AND ASSOCIATES INC.
 2000 Woodside Washington 98072
 Phone: 206-885-2820

PORT GAMBLE REDEVELOPMENT PLAN
 PRELIMINARY STORM DRAINAGE PLAN
 WASHINGTON
 KITSAP COUNTY

DATE: 11/11/11
 SHEET NO. 08-029
 SHEET TOTAL 53

PROJECT NO. 11-11-11-001
 PROJECT NAME: PORT GAMBLE REDEVELOPMENT PLAN
 PROJECT LOCATION: PORT GAMBLE, WASHINGTON
 PROJECT OWNER: PORT ASSOCIATES, INC.
 PROJECT ENGINEER: DAVID IRVING AND ASSOCIATES, INC.
 PROJECT DATE: 11/11/11

PORT ASSOCIATES
 PORT ASSOCIATES, INC.
 2000 Woodside Washington 98072
 Phone: 206-885-2820

DAVID IRVING AND ASSOCIATES INC.
 2000 Woodside Washington 98072
 Phone: 206-885-2820

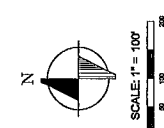
PORTIONS OF SECTIONS 5, 6, 7 AND 8, TWP 27 N. RGE 2 E, W.M.

DAVID EVANS & ASSOCIATES, INC.
 2000 10th Avenue
 Woodville, Washington 98072
 Phone: 425-825-2000

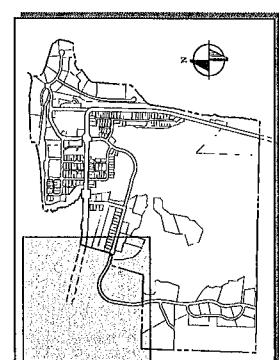
PRELIMINARY STORM DRAINAGE PLAN
 PORT GAMBLE REDEVELOPMENT PLAN
 WASHINGTON
 KITAP COUNTY

REVIEWED BY: [Signature]
 DATE: [Date]
 PROJECT: [Project Name]
 SHEET NO.: [Sheet Number]

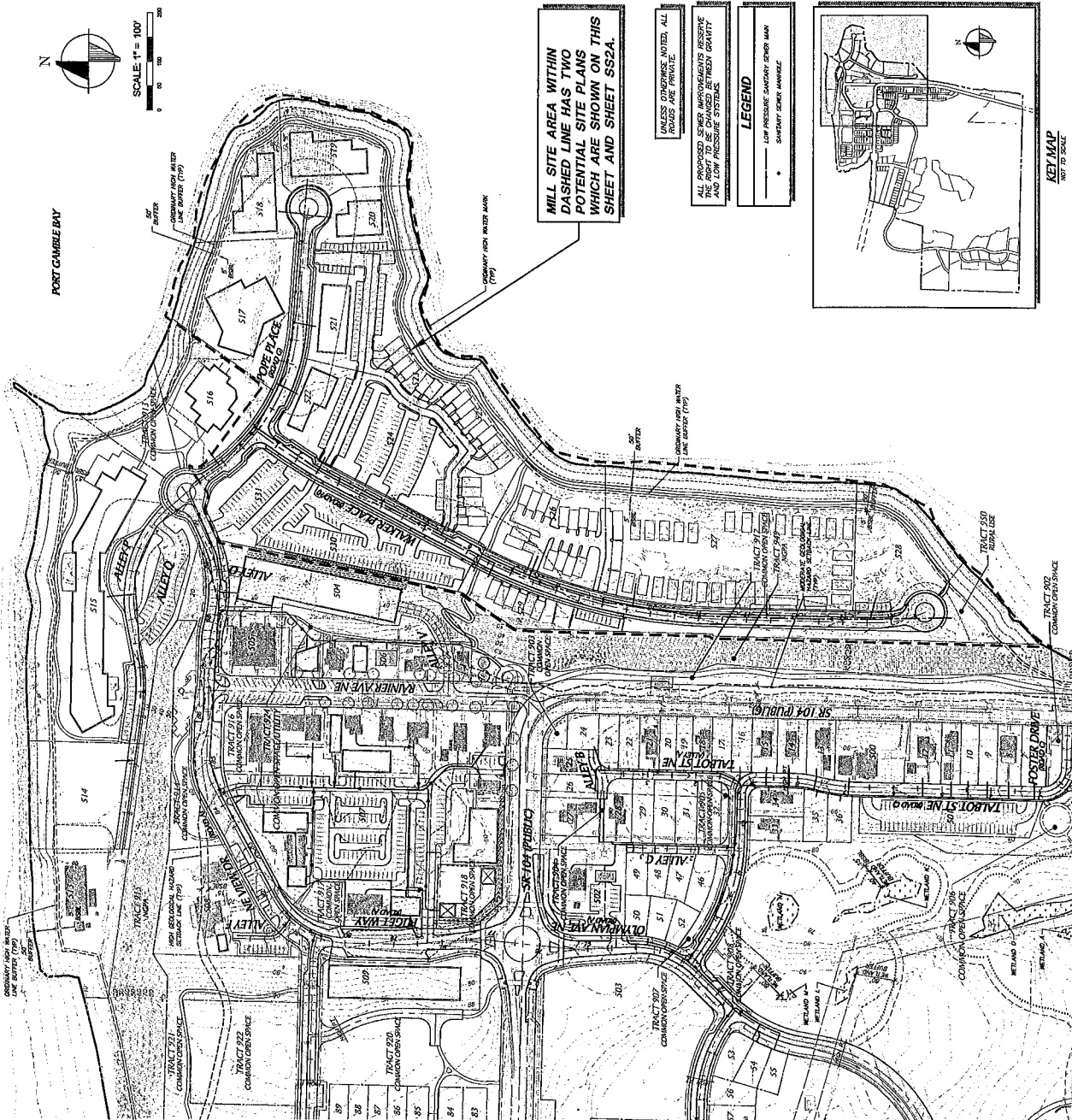
STAMP NOT VALID
 UNLESS SIGNED AND SEALED
 SHEET NO. 08-029
 SHEET NO. SD5-53



- UNLESS OTHERWISE NOTED, ALL ROADS ARE PRIVATE.
- ALL EXISTING STORM DRAINAGE TO BE IMPROVED IN FINAL DESIGN.
- LEGEND**
- PROPOSED COLLECTOR
 - SEE ROAD SECTIONS FOR PROPOSED ROADSIDE CONVEHANCE.

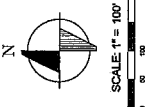


PORTIONS OF SECTIONS 5, 6, 7 AND 8, TWP 27 N, RGE 2 E, W.M.



SEE SHEET SS3

SEE SHEET SS1



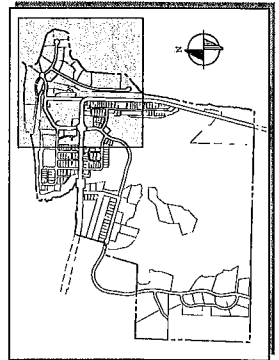
MILL SITE AREA WITHIN DASHED LINE HAS TWO POTENTIAL SITE PLANS WHICH ARE SHOWN ON THIS SHEET AND SHEET SS2A.

UNLESS OTHERWISE NOTED, ALL RIGHTS ARE PRIVATE.

ALL PROVISIONS OF THE PORT GAMBLE REDEVELOPMENT PLAN AND LOW PRESSURE SYSTEMS.

LEGEND

- LOW PRESSURE SANITARY SEWER MAIN
- SANITARY SEWER MANHOLE



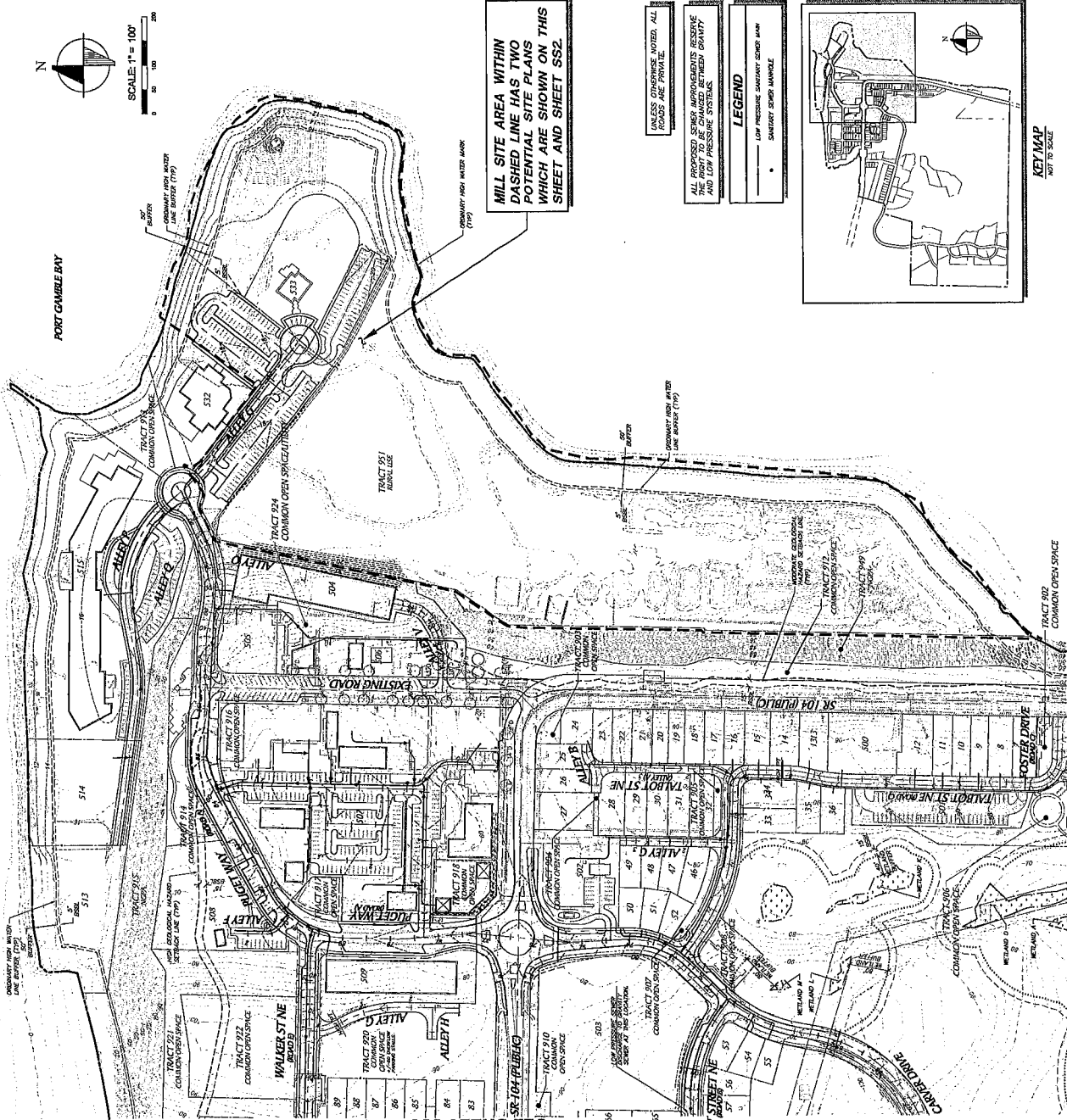
DEKOR
DAVID EVANS AND ASSOCIATES INC.
10000 W. WASHINGTON
MCKEANVILLE, MISSOURI 64572
Phone: 417-626-2000

PRELIMINARY SANITARY SEWER PLAN
ALTERNATIVE 1
PORT GAMBLE REDEVELOPMENT PLAN
KITSAP COUNTY, WASHINGTON

DATE: 08-02-09
DRAWN BY: [Name]
CHECKED BY: [Name]
APPROVED BY: [Name]

STATE NOT VALID
UNLESS SIGNED AND DATED
08-02-09
SS2-53
COURT ROAD ASSOCIATES

PORTIONS OF SECTIONS 5, 6, 7 AND 8, TWP 27 N, RGE 2 E, W.M.



SEE SHEET S33

SEE SHEET S31

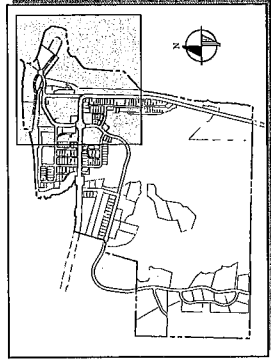
MILL SITE AREA WITHIN
DASHED LINE HAS TWO
POTENTIAL SITE PLANS
WHICH ARE SHOWN ON THIS
SHEET AND SHEET S32.

UNLESS OTHERWISE NOTED, ALL
ROADS ARE PRIVATE.

ALL PROPOSED SENIOR IMPROVEMENTS RESERVE
THE RIGHT TO BE CHANGED BETWEEN GRANTY
AND LOW PRESSURE SANITARY SYSTEMS.

LEGEND

- LOW PRESSURE SANITARY CENTER MAIN
- SEWER SERVICE MAIN
- SEWER SERVICE MANHOLE



KEY MAP
NOT TO SCALE

PORT COUNTY

DAVID EVANS AND ASSOCIATES INC.
2000 Washington Boulevard NE
Washington, MO 64792
Phone: 402-682-2000

WASHINGTON

PORT GAMBLE REDEVELOPMENT PLAN

ALTERNATIVE 2

PRELIMINARY SANITARY SEWER PLAN

KITSAP COUNTY,

DATE: 08-02-09

PROJECT NO: 08-02-09

PROJECT NAME: PORT GAMBLE REDEVELOPMENT PLAN

PROJECT LOCATION: PORT GAMBLE, WASHINGTON

PROJECT OWNER: PORT GAMBLE REDEVELOPMENT AUTHORITY

PROJECT ENGINEER: DAVID EVANS AND ASSOCIATES INC.

PROJECT DATE: JAN 17, 2013

SCALE: 1"=100'

PORT COUNTY

STAMP NOT VALID
UNLESS SIGNED AND DATED

08-02-09

08-02-09

SS2a of 53

PORTIONS OF SECTIONS 5, 6, 7 AND 8, TWP 27 N, RGE 2 E, W.M.
 SEE SHEET SSS



PORT GAMBLE REDEVELOPMENT PLAN

PRELIMINARY SANITARY SEWER PLAN

WASHINGTON

DAVID VALES AND ASSOCIATES, INC.
 2000 Woodloch Boulevard NE
 Woodville Washington 98072
 Phone: 425.835.0000

DATE: _____

REVISIONS BY: _____

REVISIONS: _____

PROJECT: _____

PROJECT LOCATION: _____

PROJECT NUMBER: _____

PROJECT DATE: _____

PROJECT DRAWN BY: _____

PROJECT CHECKED BY: _____

PROJECT APPROVED BY: _____

DATE: _____

REVISIONS BY: _____

REVISIONS: _____

PROJECT: _____

PROJECT LOCATION: _____


PROJECT NUMBER: _____

PROJECT DATE: _____

PROJECT DRAWN BY: _____

PROJECT CHECKED BY: _____

PROJECT APPROVED BY: _____



DATE: _____

REVISIONS BY: _____

REVISIONS: _____

PROJECT: _____

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PROJECT DATE: _____

PROJECT DRAWN BY: _____

PROJECT CHECKED BY: _____

PROJECT APPROVED BY: _____

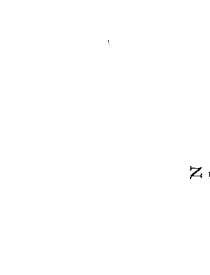
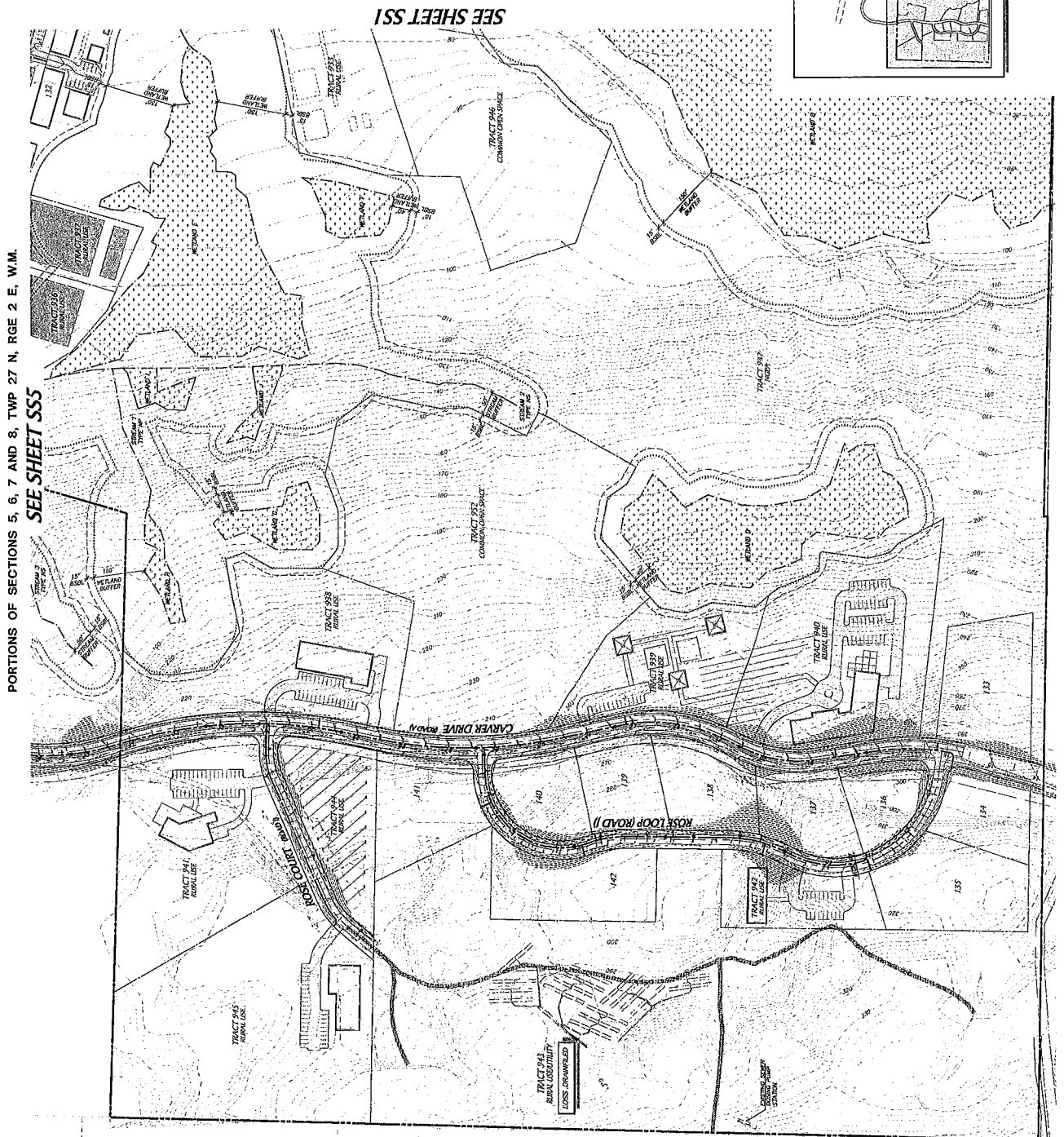
ALL PROPOSED SEWER IMPROVEMENTS RESERVE THE RIGHT TO BE CHANGED BETWEEN GRAVITY AND LOW PRESSURE SYSTEMS.

UNLESS OTHERWISE NOTED, ALL PROPOSED SEWER IMPROVEMENTS SHALL BE AS SHOWN ON THIS PLAN.

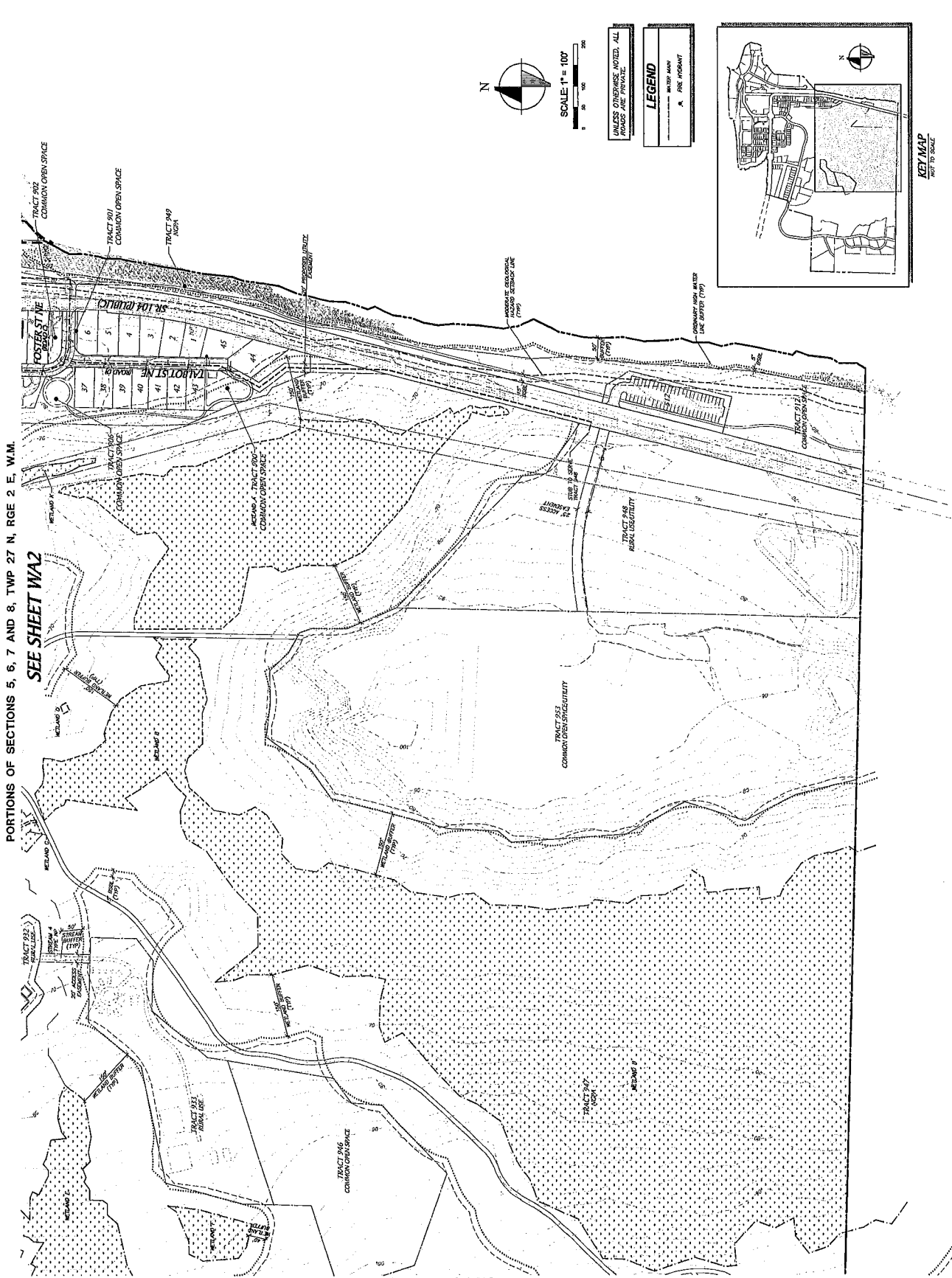
LEGEND

- LOW PRESSURE SANITARY SEWER MAIN
- SANITARY SEWER MANHOLE
- SANITARY SEWER MAIN
- SANITARY SEWER FORCE MAIN
- DC SANITARY SEWER FORCE MAIN

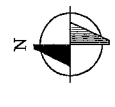
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SEE SHEET WA2



SEE SHEET WA4

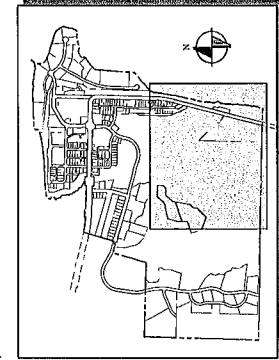


SCALE: 1" = 100'

UNLESS OTHERWISE NOTED, ALL DIMENSIONS ARE FEET AND INCHES

LEGEND

[Symbol]	WATER MAIN
[Symbol]	5" FIRE MAIN



PORT GAMBLE REDEVELOPMENT PLAN

PRELIMINARY WATER PLAN

DAVID EVANS AND ASSOCIATES, INC.
 2000 Woodside, Woodside, WA 98072
 Phone: 425-835-0001

WASHINGTON

KITAP COUNTY

DATE: 08-02-09

BY: [Signature]

PROJECT: PORT GAMBLE REDEVELOPMENT PLAN

SCALE: 1" = 100'

SEAL OF THE COUNTY OF KITAP, WASHINGTON

COUNTY CLERK

08-02-09

WA 1 of 53

© 2008 TENG ASSOCIATES

PORTIONS OF SECTIONS 5, 6, 7 AND 8, TWP 27 N, RGE 2 E, W.M.

DAVID EVANS AND ASSOCIATES INC.
 2000 Woodbine Boulevard, Suite 100
 Tacoma, WA 98409
 Phone: 252-652-2000

PORT GAMBLE REDEVELOPMENT PLAN

WASHINGTON
 KITSAP COUNTY

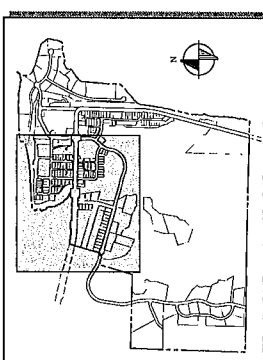
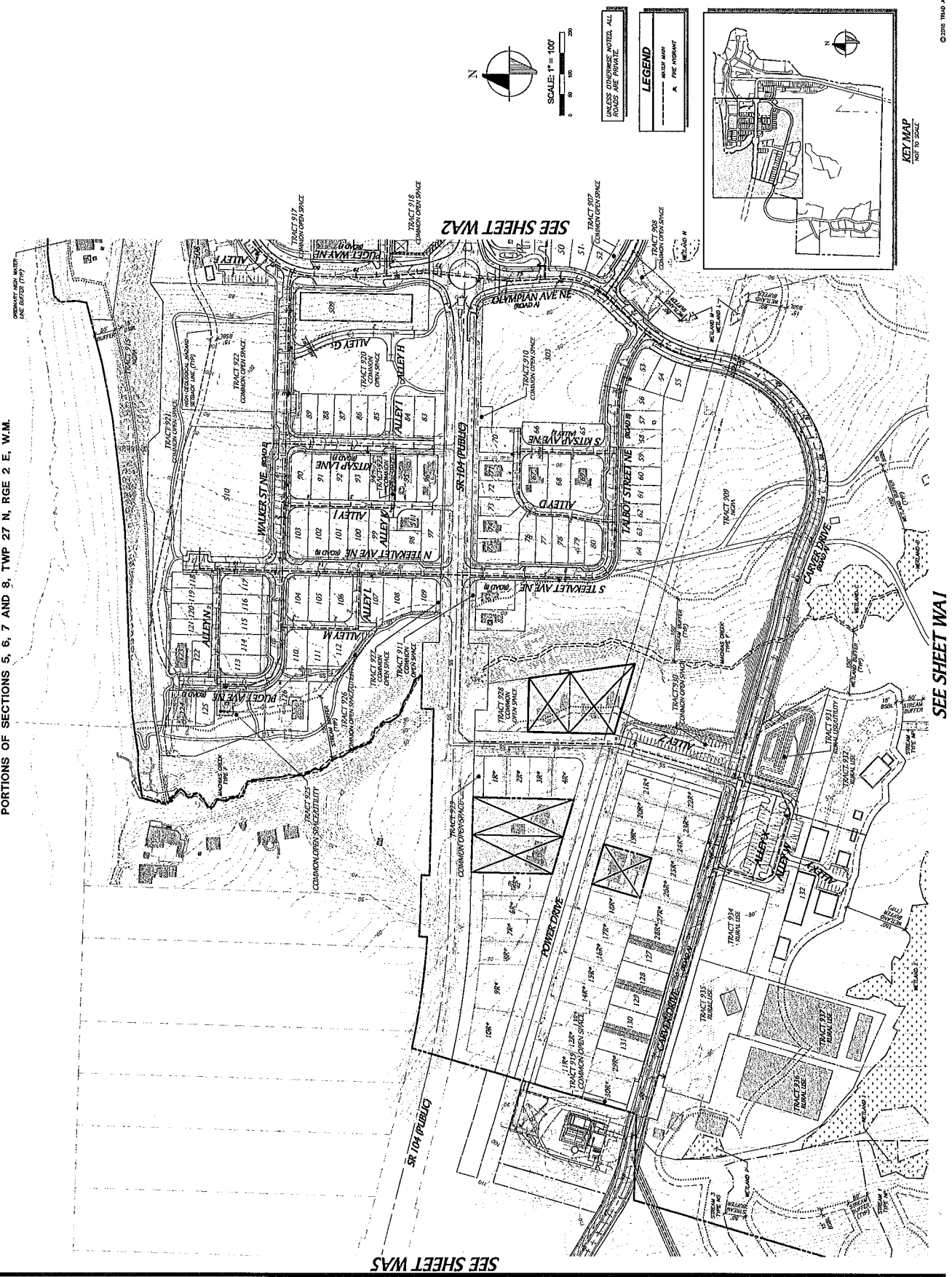
PRELIMINARY WATER PLAN
 PORT GAMBLE REDEVELOPMENT PLAN

DATE: 11/11/11
 DRAWN BY: [Name]
 CHECKED BY: [Name]
 APPROVED BY: [Name]

LEGEND
 UNLESS OTHERWISE NOTED, ALL DIMENSIONS ARE FEET
 UNLESS OTHERWISE NOTED, ALL DIMENSIONS ARE FEET
 UNLESS OTHERWISE NOTED, ALL DIMENSIONS ARE FEET



SCALE: 1" = 100'
 0 50 100 200
 SEE SHEET WAS
 SEE SHEET WA2
 SEE SHEET WA1



KEY MAP
 NOT TO SCALE

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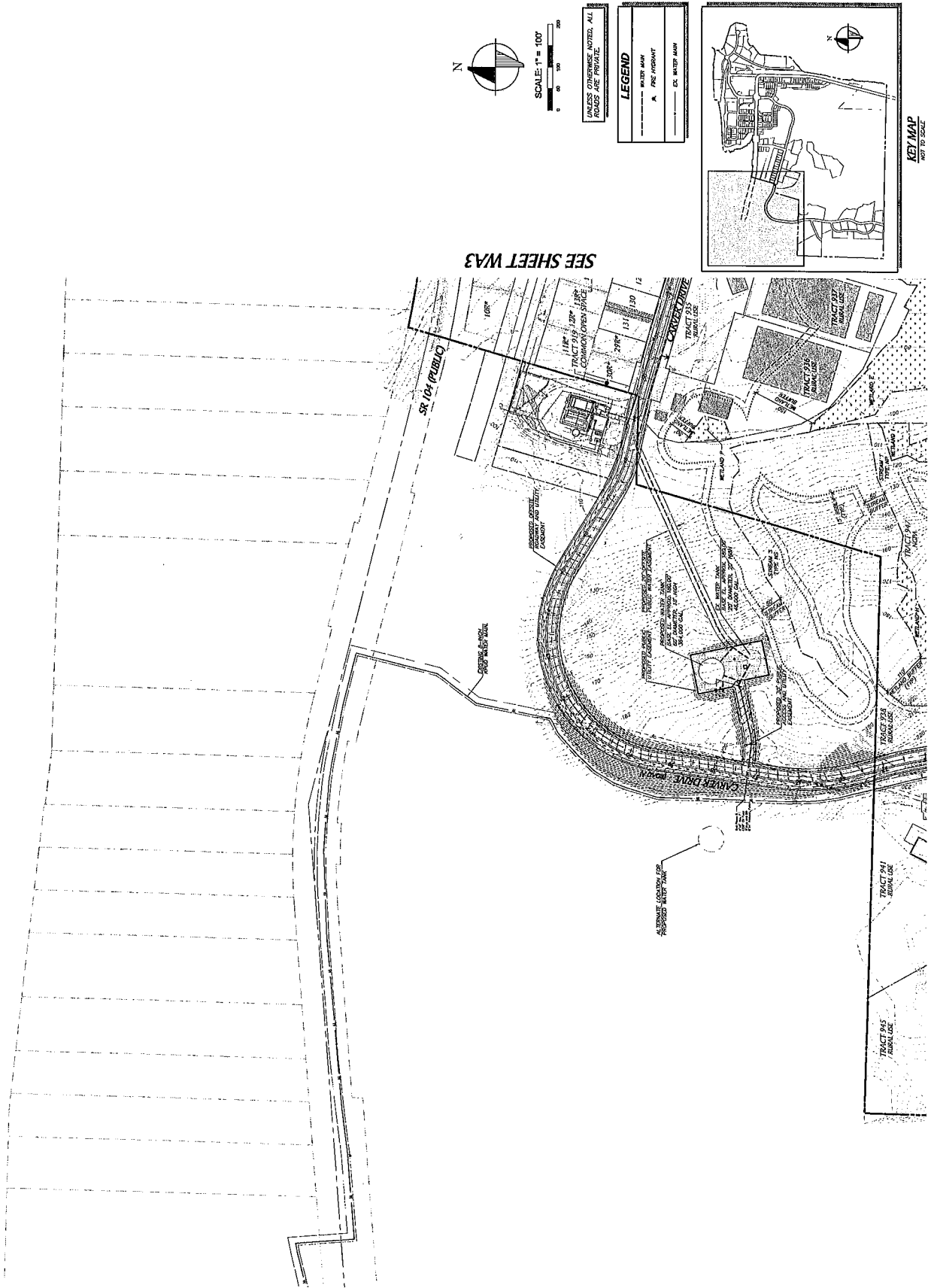
PORTIONS OF SECTIONS 5, 6, 7 AND 8, TWP 27 N, RGE 2 E, W.M.

DAVID EVANS
AND ASSOCIATES INC.
2000 Westside Boulevard Suite
1000
Portland, Oregon 97202
Phone: 503.452.2000

PRELIMINARY WATER PLAN
PORT GAMBLE REDEVELOPMENT PLAN
KITSAP COUNTY, WASHINGTON

DATE: 12/11/16
PROJECT NUMBER: 16-001
PROJECT NAME: PORT GAMBLE REDEVELOPMENT
PROJECT LOCATION: PORT GAMBLE, WASHINGTON
PROJECT OWNER: PORT GAMBLE REDEVELOPMENT AUTHORITY
PROJECT ENGINEER: DAVID EVANS AND ASSOCIATES INC.
PROJECT CHECKER: DAVID EVANS AND ASSOCIATES INC.
PROJECT DATE: 12/11/16
PROJECT SHEET: 08-029
PROJECT SHEET TOTAL: 08-029
PROJECT SHEET TOTAL: 08-029

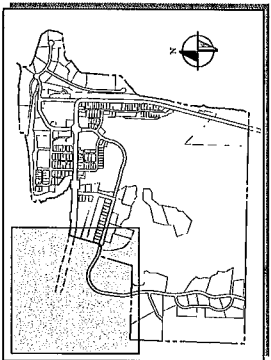
08-029
WA 5-53



SCALE: 1" = 100'

LEGEND

---	WATER MAIN
- - -	FIRE FIGHTING
---	ELECTRICITY FACILITY



SEE SHEET WA3

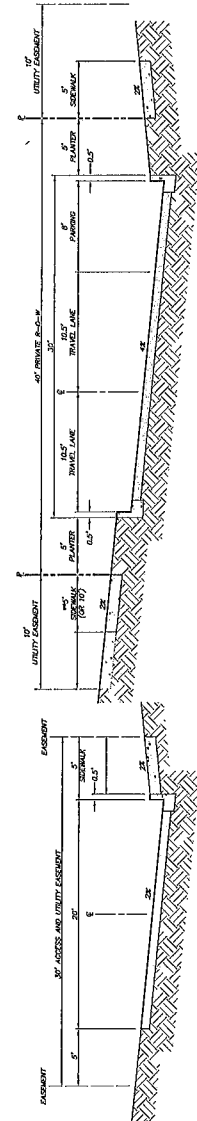
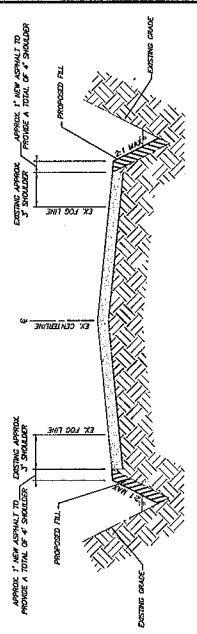
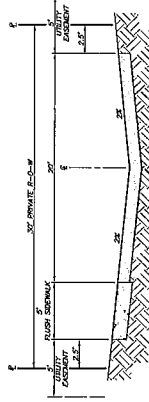
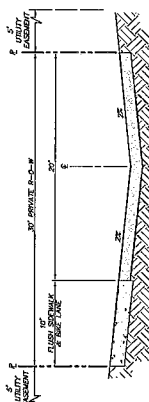
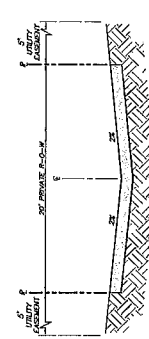
SEE SHEET WA4

PORTIONS OF SECTIONS 5, 6, 7 AND 8, TWP 27 N, RGE 2 E, W.M.



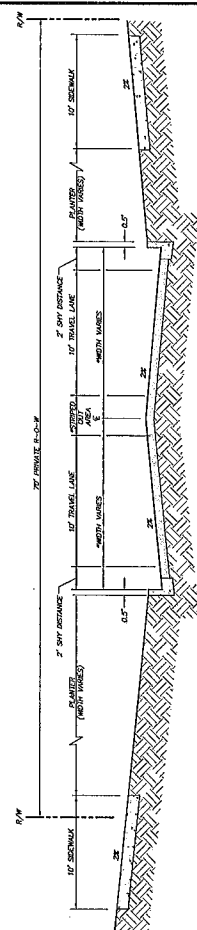
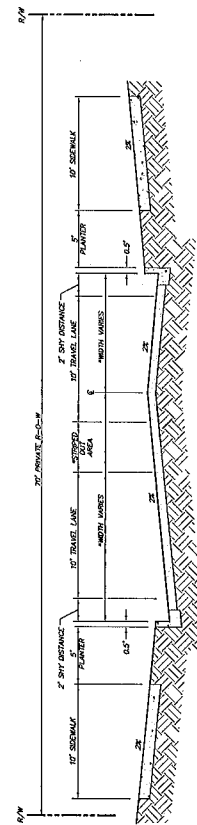
DAVID EVANS AND ASSOCIATES INC.
 10000 WOODBINE WOODBINE WASHINGTON 98072
 PHONE 425-852-0000

PORT GAMBLE REDEVELOPMENT PLAN
 WASHINGTON
 KITSAP COUNTY



WHERE (SEE PLAN) FOR ROADWAY ALIGNMENT

SR 104 SHOULDER WIDENING DETAIL



WHERE (SEE PLAN)

WHERE (SEE PLAN)



STAMP NOT VALID UNLESS SIGNED AND DATED
 08-029
 RD2-53

ALL MATERIALS AND TECHNIQUES TO MATCH WASH. COUNTY ROAD STANDARDS AT ALL APPLICABLE POINTS
 CIVIL ENGINEERING



**Port Gamble Heron Management Plan
Final**

Port Gamble Redevelopment Master Plan

Kitsap County, Washington



Prepared for:

Stoel Rives, LLP.

*760 SW Ninth Avenue, Suite 3000
Portland, OR 97205*

Prepared by:



*19803 North Creek Parkway
Bothell, WA 98011*

January 2018

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Cover photo Credit: USFWS National Image

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1.0 INTRODUCTION

The project is part of a proposed redevelopment master plan near the site of the Pope & Talbot lumber mill, which manufactured forest products from 1853 to 1995. A cleanup of the historic mill site was recently concluded. The cleanup of both the upland and in-water portion of the site, which began in 2003, was deemed complete in January 2017.

In early 2013, The Olympic Property Group (OPG) requested a Performance Based Development (PBD) and Preliminary Subdivision to allow redevelopment of the historic town of Port Gamble pursuant to Kitsap County Code (KCC) Title 17, including KCC 17.321 B.030 KCC, *Port Gamble Rural Historic Town* standards. The proposal included a concurrent request for review of additional applications including a Conditional Use Permit, Administrative Conditional Use Permit, Shoreline Substantial Development Permit, Site Development Activity Permit-Grading, and Technical Deviation to Kitsap County Road Standards. The Master Plan was deemed fully complete by Kitsap County, and vested under the Critical Area Ordinance in effect at that time; however, a determination of significance was issued and an Environmental Impact Statement (EIS) is being completed for the project.

2.0 PURPOSE OF THIS PLAN

In late March 2017, OPG staff were reviewing a staked road access alignment and noticed great blue herons bringing sticks to some trees nearby. Tetra Tech, Inc. (Tetra Tech) was hired to investigate the location where OPG staff first documented great blue herons to determine whether the birds were actively nesting and if so, to what extent.

Steve Negri, Tetra Tech, accompanied by Linda Berry-Maraist, Olympic Property Group, visited the site on April 27, 2017, to assess the potential nesting area. Information needed to assess the potential presence of a new nest or colony and to support development of a Habitat Management Plan, if required for the proposed project, was collected during this site visit. This included:

- Verifying the location of the nest or nests,
- Identifying other potentially suitable nesting stands in the immediate vicinity,
- Determining general foraging areas used during the breeding season,
- Documenting existing land use activities near the nesting area,
- Evaluating potential project-related impacts, and
- Estimating likely year-round and seasonal buffer areas for avoiding disturbance to herons associated with the proposed project.

During the site visit, an attempt was made to gather information including nesting activity, estimated number of nests, and number of trees containing nests (including tree species) without entering the actual stand containing nest trees to reduce potential disturbance. The site visit

focused on an area previously thought to contain heron nests, located in the NE quarter of Section 7, T27, R2E. The area reviewed in the field is within parcel # 072702.1.006.2008 and is approximately 20.5 acres in size.

Based on the initial site visit and findings, OPG staff requested review by Washington Department of Fish and Wildlife (WDFW). Steve Negri, accompanied by Linda Berry-Maraist and Stephanie Foster, OPG, met onsite with Bryan Murphie-WDFW District Biologist on May 16, 2017 to review the situation on the ground. During this visit, only one nest was viewable from a distance but appeared to be occupied with one adult incubating or brooding. Based on this site visit and additional discussions with Brittany Gordon-WDFW Habitat Biologist, a draft HMP was prepared and submitted to WDFW for review and comment in early January 2018. Comments received by WDFW staff were incorporated into this Final HMP version.

The intent of the recommendations in this HMP is to preserve the habitat benefits and ensure the long-term conservation of great blue herons, and other sensitive species, in the area. Part of this plan ensures that additional acreage builds onto existing conservation lands in northern Kitsap County through parks and other open space programs.

Glossary of Terms

The following terms have been defined for use in the HMP.

- Great Blue Heron Nesting Season: February 15 through September 1. (Note: restrictions based on the breeding season (February 15-September 1), will be waived if no breeding activity is confirmed by a qualified biologist by May 15 of each calendar year, or after all young have fledged.
- Great Blue Heron Management Core Zone: The area consisting of the great blue heron nesting colony and the year-round buffer.
- Great Blue Heron Management Area: Area consisting of a great blue heron nesting colony, the year-round buffer, and the seasonal buffer.
- Screening Tree: A tree that is within the direct line of sight between the structure(s) or development and the nesting area, and/or a tree that blocks the visibility of the nesting colony from the structure(s) or development during any part of the year, and within the great blue heron management area.
- Great Blue Heron Pre-nesting Area: An area typically less than 1 kilometer (0.6 mile) from a great blue heron nesting colony where male birds congregate prior to occupying the nests.

3.0 GREAT BLUE HERON REGULATORY STATUS

Great blue herons are not protected under the federal Endangered Species Act or state-listed; but are listed as a species of special concern elsewhere within their range. They are covered under the Migratory Bird Treaty Act (MBTA) and are a state monitor species. In Washington State, great blue herons are classified as protected wildlife under WAC 232-12-011. Eggs and

nests are protected from unlawful taking under RCW 77.15.130. Great blue heron breeding habitat is considered a Priority Habitat. The state of Washington has no legal provision for protecting heron habitat. Great Blue Heron habitat protection in Washington State takes place under local city and county wildlife habitat or critical area ordinances. Washington Department of Fish and Wildlife can advise local governments and developers how to best protect heron colonies by providing consultation and the Priority Habitats and Species Management Guidelines produced by the Washington Department of Fish and Wildlife.

WDFW updated their management recommendations for great blue heron in 2012 (Azerrad 2012) and are incorporated in this HMP. Counties within Washington State incorporate WDFW Priority Habitats and Species recommendations within their respective Critical Area Ordinances (CAO) and Kitsap County is currently in the process of revising their CAOs which will update their sensitive wildlife section to reference the updated PHS management guidelines for the great blue heron.

4.0 GREAT BLUE HERON BASELINE INFORMATION

The great blue heron is a relatively common species ranging throughout North America. The herons of the Salish Sea (Puget Sound Strait of Juan de Fuca, and Hood Canal) are a resident population and relies on a number of resources to meet their life requisites. Habitats include freshwater systems (e.g., wetlands, streams), marine shoreline, and intertidal (e.g., eelgrass beds), fallow fields and grassy margins to provide prey. Nesting in coastal Washington largely occurs in areas with deciduous trees such as red alder (*Alnus rubra*), bigleaf maple (*Acer macrophyllum*), and cottonwood (*Populus balsamifera*), and near high quality foraging habitat.

Great blue herons are colonial nesting birds and usually nest in groups from six nests to over 100 nests. Few large colonies are known to occur in Washington State. Available numerical heron data for this portion of northern Kitsap County is deficient and historical data is limited; however, PHS data do indicate previous colonies dating back to at least 2003. An unoccupied nesting colony of consisting of 10+ nests (likely from the previous year) was documented in a stand of mature alders adjacent to a wetland complex during the initial site visit (see Findings and Discussion section).

Hérons typically choose trees situated in relatively undisturbed forests and buffered by human activity, and generally thrive in areas adjacent to relatively undisturbed marine shoreline, intertidal pools, wetlands and uplands. The new great blue heron nests (estimated to be 6-8 nests) appear to be in 4 to 5 bigleaf maple trees and surrounded by a mature Douglas-fir (*Pseudotsuga menziesii*), western red cedar (*Thuja plicata*), grand fir (*Abies grandis*), and red alder along the transmission ROW edges. Figure 1 displays the location of the heron nesting area in relation to the proposed redevelopment plan. Figure 2 provides a more detailed view of the location.

Since the May 16, 2017 site visit with WDFW, little activity has been documented in the vicinity of the newly established colony. Opportunistic surveys along the shoreline have not documented herons flying to or from the newly established nesting area in June. Viewing from the foot trail in

late-June has not documented any movement from the nests viewable with binoculars nor have vocalizations been documented.

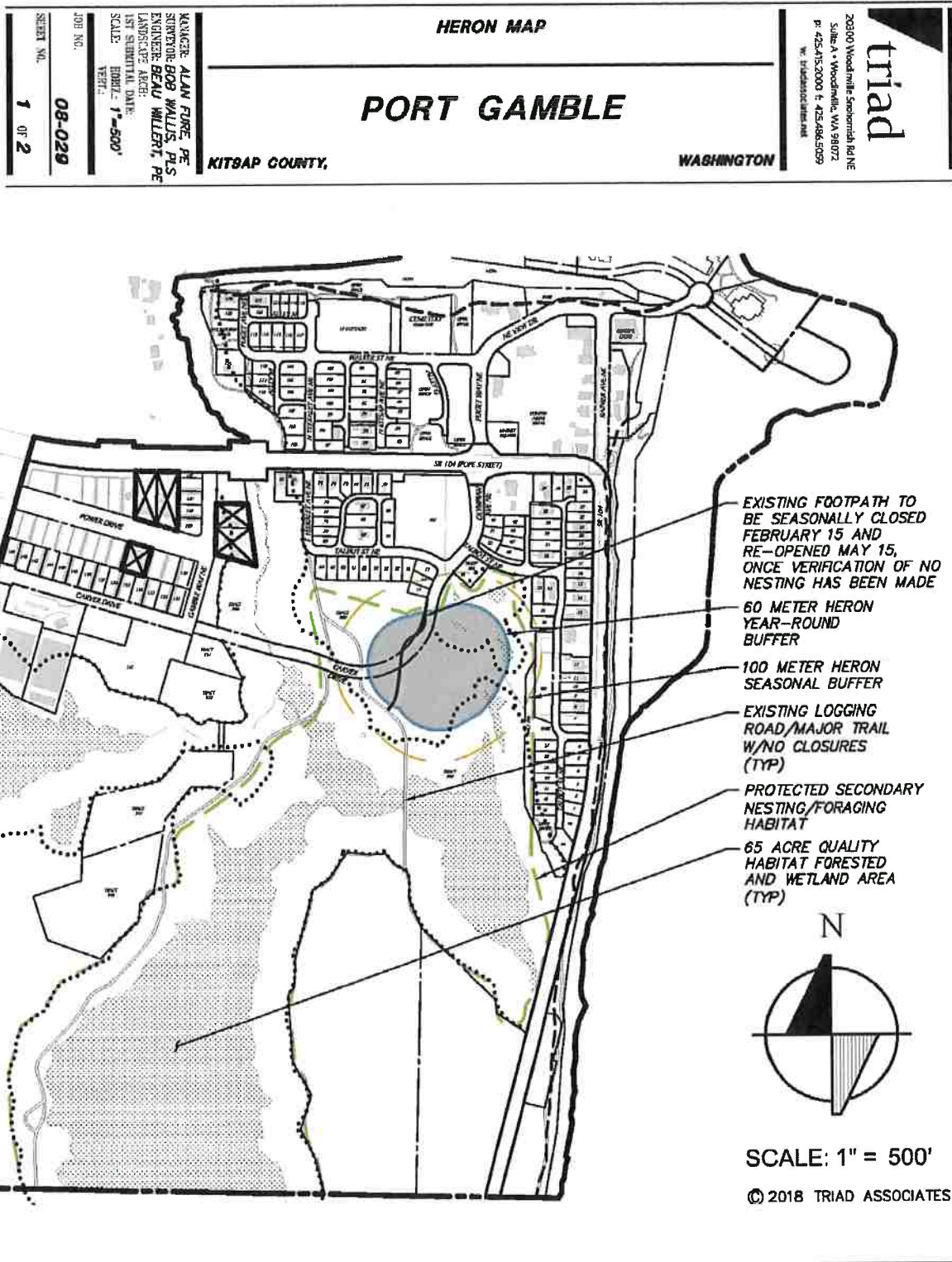


Figure 1: Overview of Port Gamble Redevelopment Plan and New Heron Nesting Area

SHEET NO. 2 OF 2	JOB NO. 08-028	HERON MAP PORT GAMBLE KITSAP COUNTY, WASHINGTON	20900 Woodinville, Snohomish, WA 98272 Steve A. Woodinville, WA 98072 P: 425.452.0200 F: 425.466.5299 W: triadassociates.com
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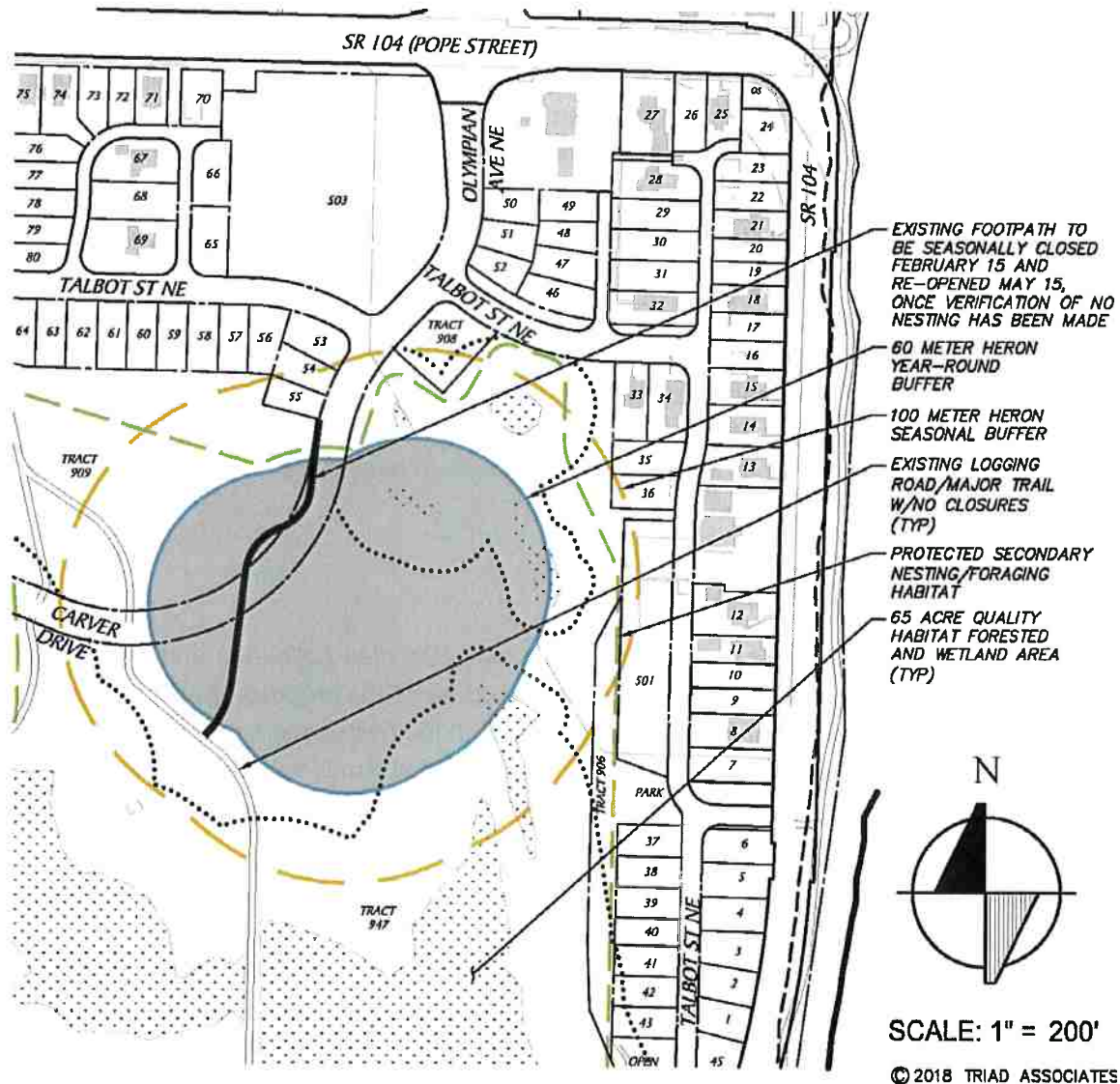


Figure 2: Close up view of Port Gamble Redevelopment Plan and New Heron Nesting Area

Using late April as a date where incubation or possibly brooding hatchlings appeared to be occurring, fledging of any young would likely occur the last week in July or the first week in August. Based on the lack of activity documented during opportunistic surveys along the shoreline where herons are typically found foraging or visual surveys of nests with binoculars, indicated that nesting area may have been abandoned or predation occurred.

Additional information is provided in Section 5 below.

Identified Limiting Factors

Azerrad (2012) discusses the primary activities that directly affect great blue herons. These include forest removal and urban and industrial development which are the primary cause of habitat loss. Increased human disturbance at breeding and foraging areas may increase predation, lower breeding success or nest failure, and limit adequate foraging. Although herons can nest in disturbed urban areas, disturbance can lead birds to terminate breeding attempts, especially when a disturbance occurs early in the nesting period or when the disturbance is large.

Avian predators also kill herons and compete for habitat. Bald Eagles (*Haliaeetus leucocephalus*) are the heron's primary predator and have continued to increase throughout Washington State since it was de-listed in June 2007. The PHS database identifies four long established bald eagle territories (Salsbury Point #1626, Port Gamble #967, Teekalet Bluff #214, and Gamble Bay South #1069) present within approximately 1.5 miles of the new heron colony, although it is unknown whether they are all active. In addition, this new heron colony area is adjacent to an active osprey nest (Table 1). This location may afford some protection from bald eagles due to the fact that ospreys tend to heavily defend their nesting territory and could benefit the herons over time by limiting the number of eagle attacks on the colony.

5.0 FINDINGS AND DISCUSSION

During the late April 2017 site visit, an active Osprey nest (*Pandion haliaetus*) and active and inactive great blue heron nests were documented in the vicinity of the proposed project. Table 1 indicates the global positioning system (GPS) locations of these nests recorded using a Garmin 550 handheld GPS unit. Figure 3 displays the location of the new small heron colony in relation to the surrounding habitat and the existing town of Port Gamble, transmission line rights-of-way, and State Route 104.

As noted, great blue herons are not a state-listed species in Washington; however, they are listed as a state monitor species and are listed as a species of special concern elsewhere within their range. Habitat requirements for great blue herons include foraging, breeding, and pre-nesting areas, which are generally within 2 miles of one other. The vast majority of suitable nesting habitat in the vicinity of the project is already protected by various land acquisitions preserving open space. Pre-nesting and foraging habitats in the vicinity are relatively protected through shoreline protection and existing or proposed conservation areas; therefore, mapping these habitat types is not necessary. Foraging areas include the shoreline areas near Port



Figure 3: Location of new heron colony nest trees with a 60-meter year-around core zone and 40-meter seasonal buffer applied.

Gamble which include both sides of Port Gamble Bay and along Hood Canal. During the reclamation of the mill site, small groups of herons were noted nearby in March 2017; however, this may have been the result of the sediment tailing piles providing a food source rather than a regular pre-nesting congregation.

Table 1: Recorded nest locations by species during an April 27, 2017 site visit near Port Gamble, WA

ID	Latitude	Longitude	UTM y_proj	UTM x_proj
Active Osprey Nest	47.85219200	-122.58781600	5575642.47580048	-1258296.91463744
Center Point of Inactive Heron Colony	47.85059400	-122.58916800	5575499.39746941	-1258453.62276100
Partial Canopy Cover Tree	47.85201600	-122.58686000	315691.55206005	1209929.62369647
Partial Canopy Cover Tree	47.85199500	-122.58685900	315683.88827841	1209929.69462527
Partial Canopy Cover Tree	47.85190500	-122.58643900	315648.71830099	1210032.03898946
Nest Tree 1	47.85196100	-122.58713600	315673.03935900	1209861.25048200
Nest Tree 2	47.85175300	-122.58672900	315594.90959578	1209959.59301806
Nest Tree 3	47.85183100	-122.58652100	315622.19090774	1210011.29654851
Nest Tree 4	47.85192800	-122.58643400	315657.07787794	1210033.45738341
Nest Tree 5	47.85198100	-122.58654000	315676.99851827	1210007.87924664
Nest Tree 6	47.85205300	-122.58639800	315702.46100389	1210043.33245448
Nest Tree 7	47.85208400	-122.58638700	315713.70443251	1210046.29005270
Nest Tree 8	47.85207700	-122.58632800	315710.82175596	1210060.71386506
Nest Tree 9	47.85210700	-122.58634100	315721.83472510	1210057.77217481

Note: State Plane WA North; NAD 83

The findings were discussed with WDFW staff and another site visit occurred on May 16, 2017 with WDFW. Viewing from a distance was impaired due to more leafout; however, at least one nest showed activity with an adult in prone position either incubating or brooding hatchlings. No auditory calls were noted.

Linda Berry-Maraist-Project Manager for Olympic Property Group, conducted opportunistic surveys along the shoreline in June and did not document herons flying to or from the newly established nesting area. Viewing from the foot trail in early July not document any movement from the nests viewable with binoculars nor were vocalizations documented.

This information was provided to Tetra Tech's wildlife biologist in late June and early July. A follow up site visit was conducted in the early evening of July 9, 2017. The purpose of the visit was to confirm whether the colony may have abandoned the site or if any of the nests were still active, either from initial nesting or a re-nesting attempt. No auditory or visual cues indicated use of the area by great blue herons.

Mr. Negri took this time to flag and geo-reference each of the trees containing nests as well as any adjacent trees providing partial canopy cover over a nest. Once the trees were flagged, a 5-meter long transect was established in each cardinal direction extending from the base of each

nest tree. Each transect was surveyed in an effort to locate, eggs, eggshells, heron remains, or feathers that may indicate predation. Results of this effort confirmed abandonment of the newly established nesting area due to predation. Remains found during the transect surveys included egg shell fragments under seven of the nine nest trees and prey remains from three adult herons under nest trees three, four, and five indicating avian predation by bald eagles. This likely occurred during early incubation based on the number of egg fragments and lack of evidence of hatchling remains below the trees containing nests. Entry into the nest stand by one or more bald eagles was the primary cause of abandonment.

In 2012, the Washington Department of Fish and Wildlife (WDFW) published updated management recommendations for the Great Blue Heron (Azerrad 2012). Currently, Kitsap County's Critical Areas Ordinance (CAO) recommends that Habitat Management Plans (HMPs) use the updated management recommendations as a guide (Kitsap County Department of Community Development Draft CAO Update-Best Available Science Review, dated 2/22/17).

Per the WDFW management guidelines, a 60-meter (197-foot) year-round buffer was applied to a delineated core zone which included all trees containing nests and those that provide at least some partial canopy closure of documented nest trees (Figures 1 and 2). Should herons continue to use the newly established nesting area, a seasonal buffer will be applied where no vegetation clearing, construction, or use of the existing trail will occur during the critical breeding season (February 15-September 1). Given that the herons located the colony next to an existing transmission line ROW, and in proximity to SR 104 and the town of Port Gamble, it appears that they are somewhat tolerant to human disturbance. Efforts to avoid and minimize potential impacts to herons are described in detail in the following section.

6.0 HERON MANAGEMENT PLAN AND RECOMMENDATIONS

Long-term habitat protection for great blue herons that allow them to nest and successfully raise young is the primary goal of this HMP. Despite the fact that great blue herons may have a difficult time successfully fledging young in the area due to bald eagle densities in the vicinity, this plan does provide habitat protection which is a key component in ensuring the perpetuation of the species within a given geographic location over time. Identifying and protecting the colony core zone (trees containing nests and including overlapping canopy of other nearby trees), seasonal buffers, and foraging habitat are addressed below.

The proposed redevelopment master plan was initiated in 2013, prior to the establishment of this heron colony, and included access roads that best tied the redevelopment to the existing town of Port Gamble. After discovery of the new heron nests in March 2017 near the current road design layout, OPG attempted to redesign the road to fall outside of the 60-meter buffer. Based on further review, the currently surveyed road design was deemed the best location by removing the fewest mature trees. Because avoidance of the current road alignment entering the newly established heron buffer was not economically feasible, OPG has taken the following steps to minimize and mitigate this impact by closing the existing foot trail bisecting the nesting area during any active

breeding season, and the establishment of a 65-acre conservation area that will provide secondary nesting habitat for herons and other sensitive wildlife species.

Colony Core Zone Boundary Methodology

Because the new nesting area was found during active nesting, the number of nests and number of trees in which the nests were in were estimated to avoid disturbance. However, we believed the westernmost nest was located off an existing trail and the northern and eastern boundaries were likely defined by the existing transmission line ROW. The above assumptions were also confirmed through aerial photo interpretation, and during the July site visit where abandonment was confirmed. The colony core boundary was subsequently mapped as part of the July site visit. The mapping of the colony core zone was previously scheduled to occur during the fall 2017 after fledging.

All trees containing nests and any adjacent trees offering canopy closure to the nest trees were marked to establish the core nesting zone.

- All nest trees were identified to species and a diameter at breast height (dbh) was taken.
- All nests were counted and identified by tree (i.e., tree 1 contains 7 nests)
- Estimated height above ground for each nest using a clinometer or other method.
- Documented nesting tree health using the following scale (0-Dead Tree, 1-barely alive, 2-major branch damage, 3-some evidence of branch damage, 4-no evidence of branch damage).

The area that contains the new colony core and other suitable habitat would be protected. Figure 1 shows that approximately 65 additional acres would be protected long-term and contains secondary nesting, including an inactive nesting colony of 10+ nests documented during the late April 2017 site visit.

6.1 Within the Great Blue Heron 60-meter Year-round Management Buffer:

- No vegetation clearing or grading for the proposed access road shall occur within the 60-meter (197-foot) year-round buffer, as depicted on redevelopment plans, during the breeding season (February 15-September 1), or until all young have fledged. This condition will be waived if no breeding activity is confirmed by a qualified biologist by May 15 of each calendar year.
- Clearing for the proposed road will minimize removal of large diameter hardwoods and retain trees serving as visual screening between the road surface and nesting boundary.
- The existing trail adjacent to the nesting stand of trees shall be closed to all pedestrian use from February 15 through September 1, or until all young have fledged. Rope or chain will be used to cordon off the trailheads and signage will be placed at each entry point. This condition will be waived if no breeding activity is confirmed by a qualified biologist by May 15 of each calendar year.

- If the great blue heron nesting colony is abandoned, the heron management core zone for this colony shall remain protected from further encroachment by the redevelopment project through the establishment of a 65-acre conservation area that will remain in open space, and continue to provide optimal recreational activities including birding, trail hiking, and wildlife viewing opportunities. (Note: The recommended 10-year period is not referenced since this area is proposed as open space with no further development except for occasional construction and maintenance of trails and wildlife viewing facilities).

6.2 Within the Great Blue Heron 100-meter Seasonal Buffer Area:

This colony was established adjacent to the current town's boundary including existing pedestrian trails, private and public buildings, existing powerline corridor, and State Route 104; all of which fall within the recommended 200-meter (656-foot) seasonal buffer for this colony. Given that the herons appear to be tolerant to existing levels of human activities and most of the currently suitable nesting and screening habitat is closer to the defined core nesting zone, this plan reduced the overall seasonal buffer area to 100 meters (330 feet). The seasonal buffer around the core nesting area extends to the edge of the tree line north and east (Figures 1 and 2).

- Within the 100-meter seasonal buffer, any clearing, grading, outside construction or other activity that causes loud noise (>92 decibels if measured from the core zone boundary) shall be done outside of any active nesting season or from September 1 through February 14. Ambient noise is specific to the location of the nesting colony site and can include noises such as sirens and leaf blowers. Noises that are not considered ambient noise includes but is not limited to outdoor construction and the use of dump trucks, front-end loaders, bulldozers, chainsaws, pile drivers and blasting equipment.
- Portions of Lots 35, 36, 53, 54, 55 and Tracts 501 and 908 fall within the 100-meter seasonal buffer as depicted on the redevelopment plans. No clearing or construction activities will be conducted between March 15 and May 15.
- If the colony is determined to be active, construction activities on Lots 35, 36, 53, 54, 55, and Tracts 501 and 908, within the 100-meter seasonal buffer may occur after May 15. No blasting or pile driving is anticipated and therefore no construction-related activities that generate noise levels above 92 decibels as measured from the designated Core Zone boundary would occur (US Department of Transportation, Federal Highway Administration. 2006). The nearest proposed lot or tract boundary would be approximately 30 meters (100 feet) from outer edge of the delineated Core Zone boundary.
- All trees 6-inch diameter breast height (dbh) or larger will be retained along the lot or tract boundary closest to the colony of Lots 35, 36, 53, 54, 55, and Tracts 501 and 908, to the extent feasible. If the removal of those trees decreases the effectiveness of the trees screening of new and existing development from the colony, replanting of native trees and shrubs to serve as long-term screening will occur along the lot boundary closest to the colony.

- Clearing for the access road right-of-way (ROW) within the 100-meter seasonal buffer shall minimize removal and impacts to roots of trees ≥ 15 inches dbh outside of ROW. Centerline and cutline will be clearly marked and clearing will occur during the non-breeding season for herons as well as raptors and other migratory birds.

6.3 Secondary Nesting Habitat and Foraging Habitat

- A total of 65 upland acres identified in the redevelopment plans (Figure 1) will be protected and remain in open space. This area contains the new colony core zone and other suitable nesting habitat including an inactive heron colony of 10+ nests. Additional open space along the shoreline has been proposed (in one alternative, up to 16 acres) which will also provide foraging opportunities in addition to other shoreline habitat protected under the Shoreline Management Act.

6.4 Monitoring

Monitoring is required prior to planned activity within year-round or seasonal buffers. If no activity is planned, no monitoring will be required. Monitoring is not needed to use the existing logging road. Prior to each nest season, document any locations where small number of herons congregate which may indicate the beginning of the nesting season. If found, document the number of herons and flight direction. The colony should be checked for breeding activity by a qualified biologist. Because nest initiation may occur over several weeks in a colony, entry into a colony should be delayed until several nests are at least 3 weeks through incubation (estimated late May for this area); however, determining whether the colony is active in any given year can be assessed without entering the colony. An early season survey to determine breeding activity can be conducted from late March to early May.

Efforts to get a total colony count during any year breeding activity is documented will be useful information and should be performed for a minimum of 3 active breeding seasons given this is a new colony location. This count is best performed immediately after nesting season (August or early September).

7.0 REFERENCES

The following documents and references were used in the preparation of this management plan.

Azerrad, J.M. 2012. Management recommendations for Washington's priority species: Great Blue Heron. Washington Department of Fish and Wildlife, Olympia, Washington.

US Department of Transportation, Federal Highway Administration. 2006. FHWA Highway Construction Noise Handbook, Section 9.0, DOT-VNTSC-FHWA-06-02. Prepared by U.S. Department of Transportation Research and Innovative Technology Administration. August 2006. Available online at: https://www.fhwa.dot.gov/Environment/noise/construction_noise/handbook/handbook09.cfm.

Henny, C. J. 1978. Great Blue Herons respond to nesting habitat loss. *Wildlife Society Bulletin* 6:35-37.

Kitsap County Department of Community Development. 2017. Adopted Critical Areas Ordinance. Adopted July 3, 2017, Effective October 2, 2017.

Vennesland, R.G. and R.W. Butler. 2011. Great Blue Heron (*Ardea herodias*). Number 25 in A. Poole, Editor. *The Birds of North America*. Available at <http://bna.birds.cornell.edu/bna/> (accessed 17 February 2012). Cornell Lab of Ornithology, Ithaca, New York.

WDFW. 2017. Priority Habitat and Species on the Web. Accessed April 29, 2017. <http://apps.wdfw.wa.gov/phsontheweb/>

To: Linda Berry-Maraist
From: Jennifer L. Dadisman, PWS and Joseph O. Callaghan, PWS *joc*
Date: August 30, 2019
File: 2378-044-07
Subject: Shade Analysis of the Hotel

INTRODUCTION

Olympic Property Group, LLC (OPG) is proposing a planned redevelopment of the Port Gamble town site, including the Old Mill Site located along the shoreline of Hood Canal and Port Gamble Bay. As part of the development, a 35-foot-tall hotel building will be constructed in the northeastern portion of the shoreline and will be located approximately 55 feet from the ordinary high water line (OHWL) of Hood Canal and Port Gamble Bay. OPG is in the process of obtaining permits for development and we understand that Kitsap County is requesting a shade analysis be completed to identify potential impacts to fish species and nearshore habitat from the proposed hotel. Therefore, the purpose of this memorandum is to provide a cursory review of potential impacts related to shading from the proposed 35-foot-tall hotel building.

EXISTING HABITAT AND SPECIES USE

A review was conducted of digital data for mapped streams and fish use for the area. The review revealed no streams at the project site; however, there are fish-bearing streams adjacent to the site (WDFW 2019a). Machias Creek is approximately 2,000 feet west of the proposed hotel building, there is an unnamed stream across Port Gamble Bay, approximately 2,500 feet to the east of the hotel building and Port Gamble Creek is approximately 3,000 feet to the south (WDFW 2019a). Based on documented fish use in these streams, the following salmonids are most likely to be present along the shoreline adjacent to the proposed hotel (WDFW 2019a): chum (*Oncorhynchus keta*), resident coastal cutthroat (*Oncorhynchus clarki*) and coho (*Oncorhynchus kisutch*).

Pacific herring (*Clupea pallasii*) spawning is mapped in front of the proposed hotel, Pacific sand lance (*Ammodytes hexapterus*) spawning has been documented approximately 700 feet to the west and surf smelt (*Hypomesus pretiosus*) spawning has been mapped down the Port Gamble shore approximately 3,000 feet to the south (WDFW 2019b). Forage fish that have the potential to be within the project area include Pacific herring, surf smelt and Pacific sand lance. Although Herring spawning is mapped along the shoreline in front of the proposed hotel, there is no habitat for herring spawning because there is no significant vegetation in the subtidal and intertidal zones within the shadow of the proposed hotel. Both Pacific sand lance and surf smelt spawn in the upper zones of gravel and sand beaches (WDFW 2016). Therefore, because the upper zones in the extent of the proposed hotel shadow consist of the riprap revetment, there is no Pacific sand lance or surf smelt habitat in the portion of shoreline affected by the proposed hotel shadow.

GeoEngineers' biologist visited the site on May 3, 2019 to document existing habitat conditions along the shoreline in front of the proposed hotel building. We identified substrate and vegetation above and below OHWL. The shoreline is currently protected by a riprap/concrete rubble revetment that extends from above

OHWL to approximately -1 mean lower low water (MLLW). The remaining part of the intertidal zone from -1 MLLW to -4 MLLW is littered with debris including bricks, concrete rubble and riprap that has migrated down the intertidal area from the existing revetment. Subtidal areas are mixed sand, cobbles and debris with some sea lettuce (*Ulva*). There is currently no other vegetation below OWHL along the shoreline. Above OHWL, vegetation is limited to manicured turf grasses with no shrub or tree species. Appendix A, Site Photographs contains site photographs of the shoreline area in front of the hotel.

On July 18, 2019, OPG placed stakes 50 feet and 100 feet measured from the top of bank, in five transects. See Appendix B (Olympic Property Group Eelgrass Findings) for more information on methods and observations). GeoEngineers also visited the site on July 14, 2019 to verify there was no eelgrass within 110 feet (the distance the proposed shadow is expected to extend [See Shading Impacts]) below the OHWL. There was no eelgrass identified within the expected shadow of the hotel building footprint.

SHADING IMPACTS

As part of this analysis we reviewed shadow exhibits (Appendix C, Shade Figures) prepared by David Evans and Associates, Inc. (DEA), that show the hotel placement along the shoreline and the potential shadow at winter and summer solstice events. The building shadow will not reach the shoreline during the summer solstice and will only extend approximately 110 feet into the water during the winter solstice. Based on these figures, the shadow will extend into the water approximately 45 percent of the year, mainly in the fall and winter seasons; the shadow will not extend into the water for approximately 55 percent of the year. Most of the intertidal zone that will be affected by the shadow cast by the Hotel is dominated by the riprap revetment that currently protects the shoreline. During winter months the shadow will extend into the upper subtidal area (to approximately -5 MLLW). The habitat in this area is minimal and shading impacts will occur outside of the eelgrass and macroalgae growing season (June 1 to September 30). Therefore, shading is not expected to impact primary production in the intertidal or upper subtidal zones.

Impacts to forage fish and other fish species that may utilize this area for migration or foraging are not anticipated. Although Pacific herring spawning has been mapped at the shoreline in front of the hotel, forage fish spawning has not been documented within the area that will be affected by the shadow. The shadow will only extend into upper subtidal and lower intertidal areas during winter months reducing potential impacts to fish during in and outmigration along the shoreline. In addition, eelgrass has not been observed within the area of the proposed shadow.

CONCLUSION

The existing habitat conditions at the proposed Hotel site is limited. Upland areas above OHWL are dominated by manicured turf grasses with no riparian vegetation. Intertidal areas are dominated by a riprap revetment that extends along the entire shoreline in front of the proposed hotel. There is no eelgrass within 165 feet of the proposed hotel footprint. Macroalgae is mostly absent, except for some sea lettuce (*Ulva*) that is intermixed with riprap, concrete rubble and cobbles below the revetment in the upper subtidal zone. It is expected that because there is no vegetation or other fish habitat along the shoreline and because the shadow will only extend 110 feet into the water, 45 percent of the year, there will be no significant impacts to fish or nearshore habitat as a result of the hotel's shadow,

REFERENCES

- Washington State Department of Fish and Wildlife (WDFW). 2019a. Priority Habitat and Species (PHS) Mapping Application. Available at: <http://wdfw.wa.gov/mapping/phs/>.
- Washington State Department of Fish and Wildlife (WDFW). 2019b. Forage Fish Spawning Map – Washington State. Available at: <https://www.arcgis.com/home/webmap/viewer.html?webmap=19b8f74e2d41470cbd80b1af8dedd6b3>.
- Washington State Department of Fish and Wildlife (WDFW). 2016. Forage Fishes and Their Critical Habitat in the Nearshore Zone of Puget Sound. Available at: <https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=3&ved=2ahUKewjmgUSSzYniAhVNj54KHWQ5CGwQFjACegQIBxAC&url=https%3A%2F%2Fwsg.washington.edu%2Fwacoast%2Fmeetings%2FJune-2016%2FHandout-Forage%2520Fish%2520and%2520Their%2520Critical%2520Habitat.pdf&usg=AOvVaw36SPMozZgBzgSywWDUuhAs>.

Attachments:

- Appendix A. Site Photographs
- Appendix B. Olympic Property Group Eelgrass Findings
- Appendix C. Shade Figures

Disclaimer: Any electronic form, facsimile or hard copy of the original document (email, text, table, and/or figure), if provided, and any attachments are only a copy of the original document. The original document is stored by GeoEngineers, Inc. and will serve as the official document of record.

APPENDIX A
Site Photographs



Photograph 1. At the Ordinary High Water Line looking west.




Photograph 2. At the Ordinary High Water Line looking east



Photograph 3. Sea lettuce at the base of the riprap revetment.



Photograph 4. Looking towards the east at the shoreline area at the base of the riprap revetment.

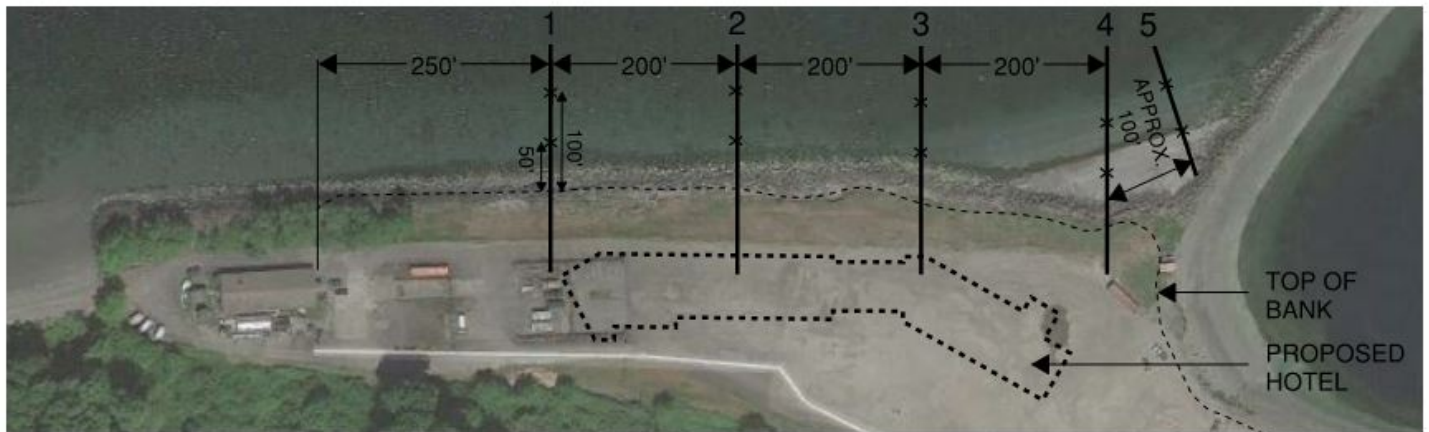
Site Photographs	
Shade Analysis Kitsap County, Washington	
	Figure A-1

APPENDIX B
Olympic Property Group Eelgrass Findings

July 19, 2019

On July 18th OPG did a site visit during low tide (-1.38') to Port Gamble for the purpose of measuring out and placing stakes 50' and 100' water ward from the top of bank, and assessing the amount of eelgrass in that area. We took measurements at 50' and 100' feet, in five different locations on the northern shoreline of Port Gamble. We worked from west to east starting from 250' west of the Port Gamble laboratory, placing stakes at the top of bank every 200' LF for locations 1-4. Stakes placed at location 5 followed a different angle due to the configuration of the jetty. We then measured and placed stakes 50' and 100' waterward of each stake location. Photographs were taken of all locations and no eelgrass clusters were observed growing in any of the locations.

Eelgrass was observed approximately 450' west of stake #1, with density increasing westward.



Location # 1 (Westernmost location 250' east of the existing lab)



Figure 1- Shows landmark references for location #1



Figure 2 - Shows environment of 50' & 100' markers at location #1



Figure 3- Close up of environment of 100' marker at location #1

Location #2 (~450' east of existing Lab)



Figure 4 - Shows landmark references for location #2



Figure 5- Shows environment of 50' and 100' markers at location #2



Figure 6 – Close up of environment at 100' marker, location #2

Location #3 (~650' east of existing Lab)



Figure 7 - Shows landmark references for location #3



Figure 8- Shows environment of 50' and 100' markers at location #3



Figure 9 - Close up of environment at 100' marker, location #3

Location #4 (850' east of existing Lab)



Figure 10 - Shows landmark references for location #4

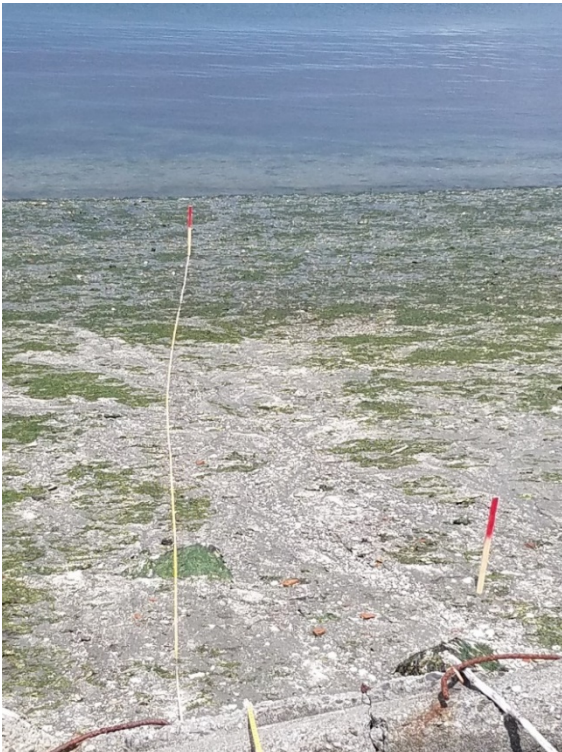


Figure 11 - Shows environment of 50' and 100' markers at location #4

Location #5 (Jetty)



Figure 12 - Shows landmark references for location #5



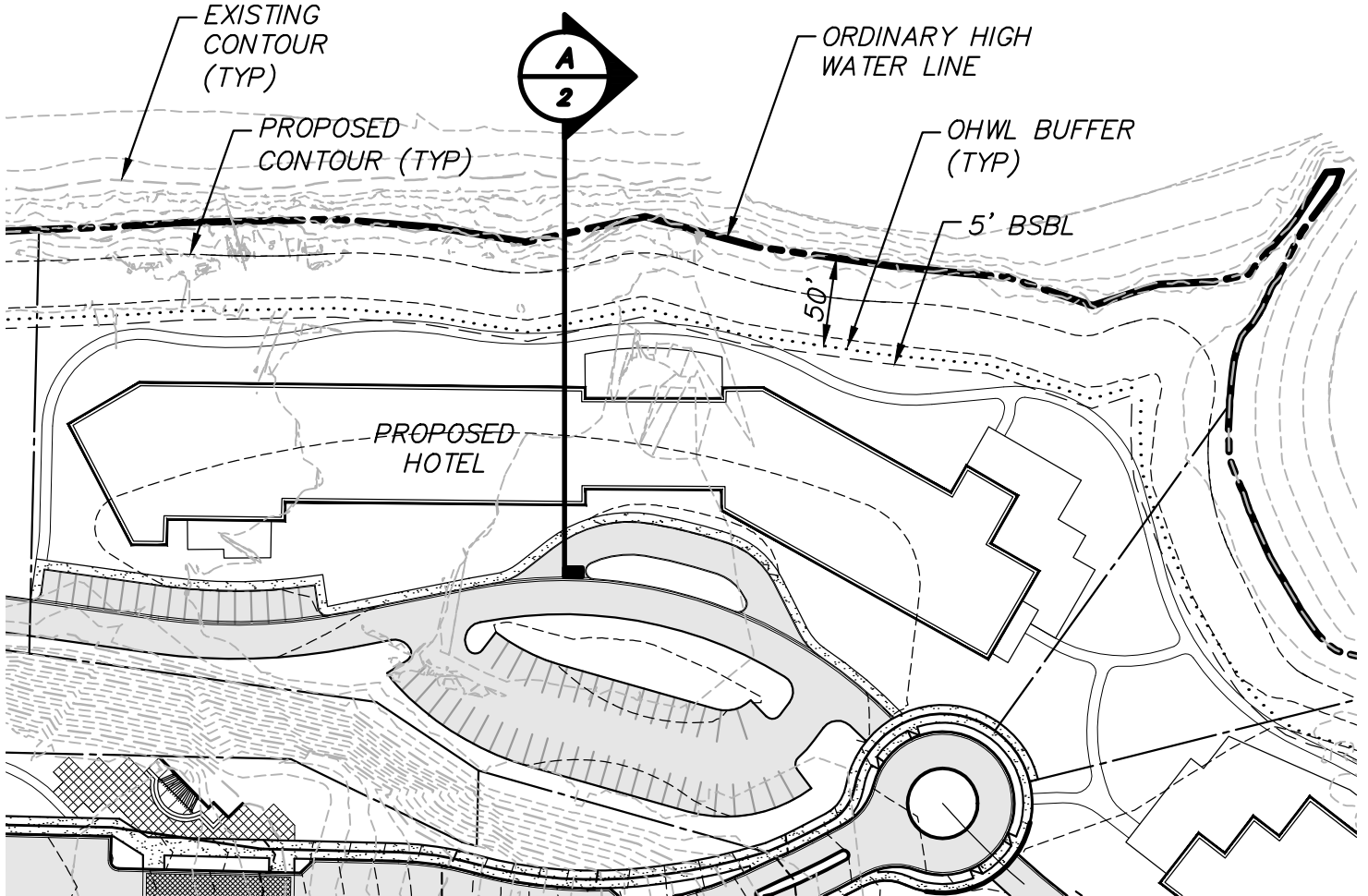
Figure 13 - Shows environment of 50' and 100' markers at location #5

APPENDIX C

Shade Figures



NORTH



SHORELINE SHADOW EXHIBIT
PLAN VIEW

PORT GAMBLE REDEVELOPMENT PLAN

KITSAP COUNTY

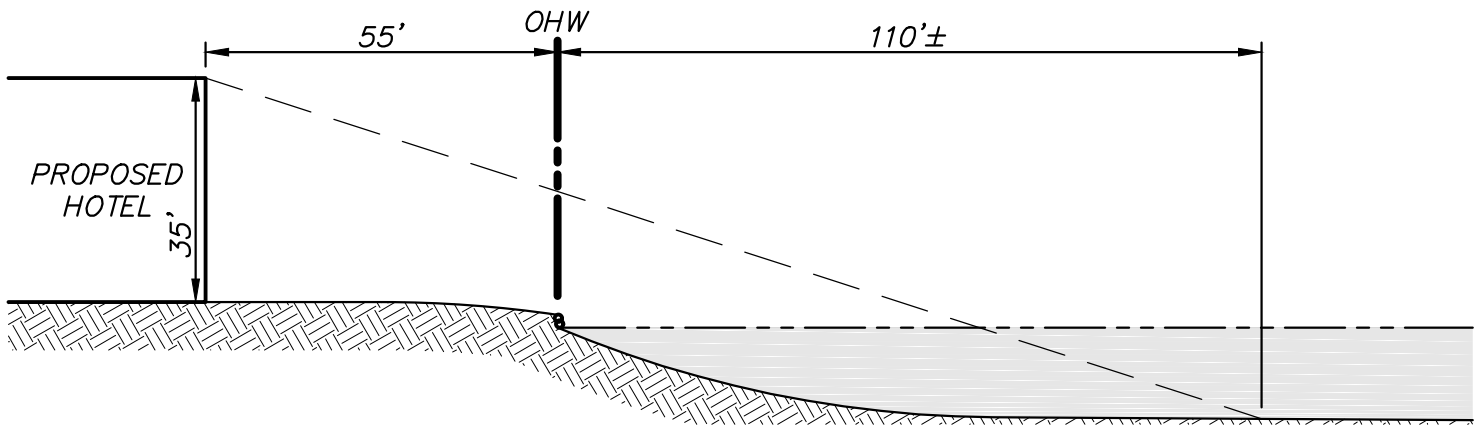
WASHINGTON

FIRST SUBMITTAL DATE:
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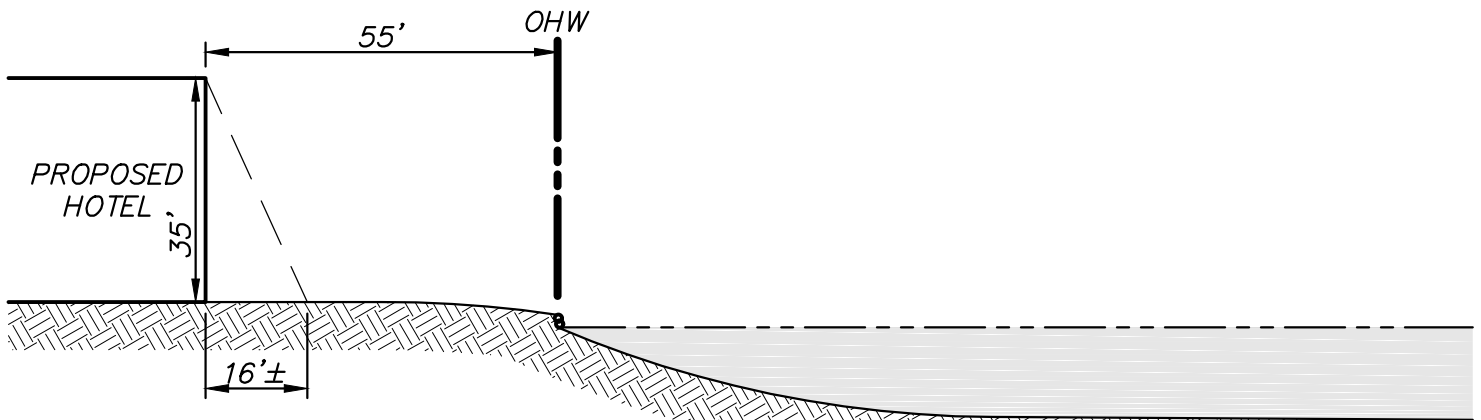
PROJECT NO.
 08-029

SHEET NO.
 1
 OF 2

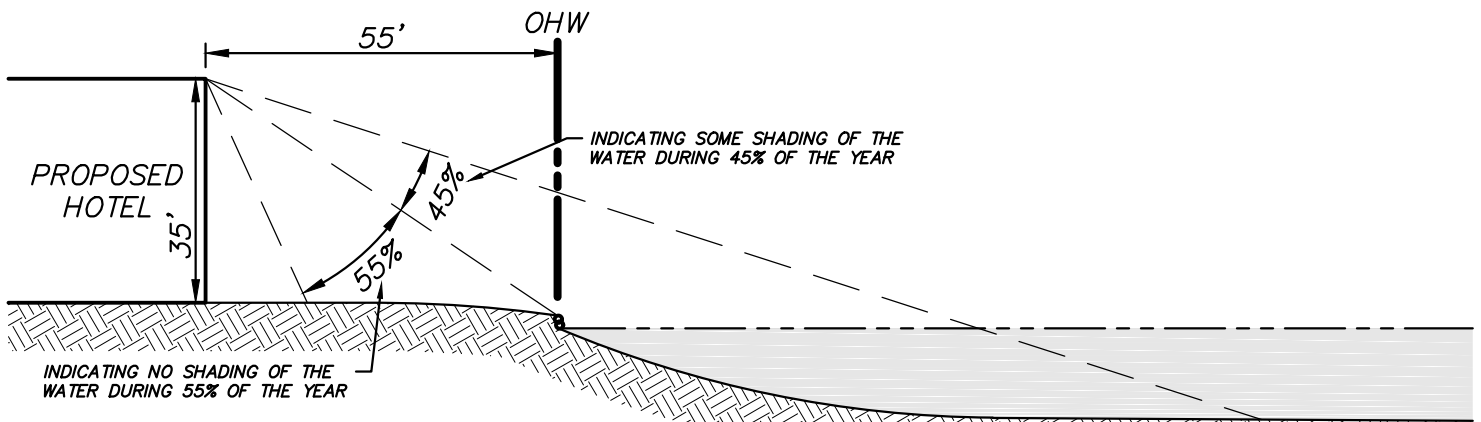
DAVID EVANS AND ASSOCIATES INC.
 20800 Woodville Sheltonish Rd NE
 Woodville Washington 98072
 Phone: 425.418.2000



SHADOW AT NOON ON WINTER SOLSTICE



SHADOW AT 1:00PM (DST) ON SUMMER SOLSTICE



PERCENTAGE OF YEAR WITH ANY SHADOW

NOTE: AT PORT GAMBLE LATITUDE, THE SUN ANGLE AT NOON DURING THE WINTER SOLSTICE IS 18.8°. AT THE SUMMER SOLSTICE IT IS AT 65.6°

**DAVID EVANS
AND ASSOCIATES INC.**
20800 Woodville Sheltonish Rd NE
Woodville Washington 98072
Phone: 425.418.2000

**SHORELINE SHADOW EXHIBIT
SECTION AT PROPOSED HOTEL**

PORT GAMBLE REDEVELOPMENT PLAN

KITSAP COUNTY

WASHINGTON

FIRST SUBMITTAL DATE:	
SCALE: HORIZ.: N/A VERT.: N/A	
PROJECT NO.	08-029
SHEET NO.	2