

# CRITICAL AREAS SUMMARY REPORT For Rosario Resort and Spa Redevelopment 2015 Orcas Island, Washington

Tax Parcel Number 160621001000 (main resort complex),  
TPN 173134005000 (parcel adjacent to main complex), and  
TPN 173043001000 (Hilltop employee housing parcel)



*Figurehead from the Clippership 'America' 1874 - on the Resort's waterfront lawn area*

Prepared for  
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Strandberg Construction

June 17, 2015

Prepared by



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For Rosario Resort and Spa Redevelopment 2015  
Orcas Island, Washington**

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## APPENDIX 1: HABITAT ASSESSMENT ROSARIO RESORT (*Aqua-Terr Systems, Inc., 2015*)



## EXECUTIVE SUMMARY

Rozewood Environmental Services, Inc. (Rozewood) has prepared this critical areas summary report for the redevelopment of the Rosario Resort & Spa on Orcas Island, Washington. The Resort Core area is already intensively developed, but new upgrades, building replacements, redesigned parking and landscaping will take place to redevelop and modernize the built area. Rozewood conducted wetland reconnaissance and delineation on the employee-housing parcel (referred to as the Hilltop parcel), and also investigated other portions of the resort properties slated for redevelopment or other improvements. As a part of this summary, existing studies and documents were reviewed, including the concurrently conducted shoreline habitat assessment, to address critical areas concerns for redevelopment in San Juan County. Five figures generated by GCH Planning & Landscape Architecture are attached to the back of this summary report that illustrates the main resort shoreline properties and the hilltop parcel.

### Geologic Hazards Overview

Geologic hazards include landslide areas, topography with steep slopes, unstable shoreline bluffs, areas with erodible soils, structurally unstable bedrock or regolith, springs or groundwater seepages, mine hazards, and seismic hazards. County geologic hazard maps of the Rosario Resort core area and on the Hilltop Employee housing parcel only illustrate erodible soils, and in some locations steep slopes, as limiting geologic factors. Soil maps for the same areas identify slope, depth to bedrock, and depth to saturated zones as limitations, with the possibility of inclusions of soils with low strength and shrink-swell clays. A geotechnical analysis of proposed development or redevelopment areas would quantify geologic limitations and offer recommendations for design, engineering, and construction.

Under San Juan County Code SJCC 18.35.025(A) [Applicability to Uses and Structures within the Shoreline of the State], use, structures, development and redevelopment within the Rosario Resort core (shoreline) area may continue as conforming uses, providing that the proposed redevelopment or modification will result in no net loss of shoreline ecological functions. The nearshore is already affected by historic development and ongoing activities, including an active marina, fuel dock, and floatplane docking facility. For new or redevelopment components, construction best management practices (BMPs) would minimize or avoid construction impacts near the shoreline. Currently, the existing buildings, roofs, roads and parking lots have no stormwater treatment. Implementation of a comprehensive stormwater management plan will ensure water quality is maintained and no net loss of shoreline functions will occur. The implementation of a comprehensive stormwater plan should result in an improvement in water quality runoff for those redeveloped regions.

Expansion on the Hilltop parcel borders areas with steep slopes and erodible soils. SJCC 18.35.030(B) allows for maintenance, replacement, and development provided there is no further intrusion into geologically hazardous areas, frequently flooded areas, wetlands, or fish and wildlife habitat conservation areas or their buffers; soil erosion is controlled; disturbed areas are promptly stabilized; and the actions do not have an additional adverse effect on the functions and values of the critical areas. Future expansion that implements a stormwater management plan should have no additional adverse impacts to this general area.

### Frequently Flooded Areas Overview

The Rosario Resort complex abutting Cascade Bay contains a special flood hazard zone, as identified by the Federal Insurance Administration on its Flood Insurance Rate Maps (FIRMSs). A habitat assessment for fisheries concerns was conducted by Aqua-Terr System, Inc., which concluded

that impacts to listed species and species habitat from redevelopment within the 100-year (coastal) floodplain will be insignificant. This report is included in Appendix 1 of this summary report. New development in areas of special flood hazard must meet requirements of the San Juan County Code.

### **Aquifer Recharge Overview**

San Juan County identifies all terrestrial lands as critical aquifer recharge areas within the County. Development and redevelopment, and their customary operational activities must be conducted to prevent contamination of ground or surface waters. In situations where redevelopment could utilize solvents, petroleum products, or other potentially hazardous chemicals, the county may request a list of the quantities and types of chemicals that will be used, proposed spill containment plans, and a plan for disposal of waste materials.

### **Wetlands Overview**

Wetlands occur on the employee housing property (Rosario Hilltop parcel...TPN 173043001000). This 39-acre property contains an existing dormitory-style building, gravel parking lot, an unimproved driveway, and an actively managed clearing around the building and driveway. Areas within 300 feet of the proposed employee housing improvements were investigated for wetlands, and three wetlands were identified and delineated. A Category III forested and emergent wetland occurs west of the driveway, and its 150-foot buffer extends up to the existing driveway in one location. The driveway, clearing, outdoor storage/work areas, dormitory, a decommissioned septic drainfield, and utility corridor would meet the criteria of being the “development area” for this parcel. Newly expanded buffer widths would not extend into development areas legally established prior to updates of the Critical Areas Ordinance, providing that adverse impacts are not increased to the wetland.

In the far southeastern corner of the parcel, two small, herbaceous (emergent) Category IV wetlands occur and are considered part of a single wetland mosaic. This wetland mosaic requires a 50-foot buffer. Other small sloped wetlands occur on the parcel, but these wetlands vary from 315 to over 950 feet away from the proposed housing improvements project area, and they would rate as Category III and IV wetlands; these outlying wetlands were not formally delineated and their buffers would not extend into the proposed improvement area.

Wetlands were not encountered in other areas where resort improvements and expansion are planned. The County’s Possible Wetlands Map shows a wetland polygon immediately north of the existing marina in the area corresponding to a maintained lawn and its neighboring ornamental concrete Figure-8-shaped pond. This area did not qualify as jurisdictional wetland, although the historic concrete pond does have scattered patches of aquatic (wetland) plants growing inside the artificial basin. Two ephemeral seepage areas were observed upslope of the pond, and another near the western edge of the shuffleboard court, but these localized spots (ranging from 100 to 200 square feet in size) did not satisfy the hydric (wetland) soil indicator parameters. The spots may be the result of runoff from Rosario Road. Soils along this sloping lawn appear disturbed and modified. Soils in the flat lying area of lawn south of the concrete pond are well drained, with some locations containing shell fragments. There is shell-rich deposit, possibly a midden, west of the Boatel building.

### **Fish and Wildlife Habitat Conservation Areas (FWHCA) Overview**

The Rosario Resort complex abutting Cascade Bay, and immediately surrounding areas have been developed and consist of numerous resort buildings, restaurants, marina, homes, condominiums,

apartments, parking lots, open cleared areas, and small residual treed and shrub areas. The built environment lacks terrestrial fish and wildlife habitat conservation areas (FWHCAs).

Two aquatic types of FWHCAs occur within the resort development area: a seasonal stream (Bowman's Creek) and nearshore marine waters. Under Section SJCC 18.35.025(A), any use or structure legally located within the shoreline (including the bordering area 200 feet upgradient from the shoreline's ordinary high water mark), that were established or vested on or before the effective updates of the County's development regulations to protect critical areas, may continue as a conforming use and may be redeveloped or modified, providing the redevelopment is consistent with the county's shoreline master program, and there will be no net loss of shoreline ecological functions. New proposed cottages and condominiums, both west of Bowman's Creek and in the approximate location of the current swimming pool and shuffleboard court, new hotel buildings, the replacement of the Boatel building, and expansion of parking would fall under this subsection 18.35.025(A) Applicability. Strict adherence to Best Management Practices to avoid and minimize erosion and sedimentation during construction, and the implementation of an approved stormwater management plan will assist in maintaining current ecological functions of offshore marine habitat and within the lowest reach of Bowman's Creek.

The Hilltop parcel contains an existing development area that includes a dormitory, driveway, parking lot, clearing, outdoor work area, camping platforms, a decommissioned septic drainfield, and utility corridor. Two aquatic FWHCAs consisting of a two non-fishbearing seasonal streams occur within 200 feet of the development area (see attached figure). Both streams would qualify for a 100-foot water quality buffer in natural, undisturbed portions of the property. The larger of the two streams occurs further west of the parcel's primary driveway; most segments of this stream are located greater than 200 feet from the driveway, and this stream's 100-foot water quality buffer extends through onsite coniferous forest.

The second, smaller seasonal stream occurs northwest of the Hilltop parcel's development area. As this stream enters the development site, it had been historically ditched to route water easterly around and through the development area, some lengths passing through buried tightlines. This second stream would contain a water quality buffer when adjoining natural areas, but once it is ditched and bisects through the development area, buffers are not applicable. Two sections within the County code apply to existing structures and uses being allowed (exempted) or recognized as conforming. Section SJCC 18.35.030(B) and SJCC 18.35.045 may both apply in the existing development area, allowing for operation, maintenance, repair, remodel, replacement, or expansion of existing structures, facilities, infrastructure system, development areas and uses, providing permits are obtained and the magnitude of the adverse impacts to water quality or functions and values of critical areas are not increased. An efficiently designed and maintained onsite stormwater management system should minimize adverse impacts and maintain a similar magnitude of effects.

## 1.0 Introduction

Rozewood Environmental Services, Inc. (Rozewood) has been retained by Strandberg Construction to prepare this critical areas summary report for the redevelopment of the Rosario Resort & Spa located on Orcas Island, Washington. Rozewood initially conducted wetland reconnaissance and delineation on the Hilltop employee-housing parcel, but expanded its investigations to other portions of the resort properties slated for redevelopment or other improvements. Rozewood reviewed existing studies and documents, including the concurrently conducted shoreline habitat assessment, to address critical areas concerns for redevelopment in San Juan County. Five figures generated by GCH Planning & Landscape Architecture are attached to the

back of this summary report that illustrates the main resort shoreline properties and the hilltop parcel. The applicant provided the following project description.

## **1.1 Project Description**

The project that is the subject of this critical areas evaluation is the phase 1 redevelopment of Rosario Resort on the shores of Cascade Bay on Orcas Island in San Juan County. The area of the resort to be redeveloped under the phase 1 plan includes the area described as the Resort Core in the county approved Rosario Resort Master Plan, as well as Hilltop Employee housing area.

### **Resort Core**

The Resort Core area covers approximately 15 acres along the shore of Cascade Bay. Existing development covers nearly the entire 15-acre area and includes the historic Moran Mansion, 44 hotel units in five separate buildings, two outdoor swimming pools, a conference center building, a historic structure called the “Boatel”, a separate bar and grill restaurant building, a man-made concrete water feature call Bow Tie Lagoon, and driveways, paths, maintained lawns, landscaping and grounds typical of a waterfront vacation resort. The Bow Tie Lagoon is also referred to as the Figure 8 pond in other various studies and documents, and in certain subsections of this summary report.

The redevelopment plan for the Resort Core area includes the removal of three of the five hotel buildings containing a total of 42 units, removal of the conference center building, the boatel and the bar and grill building. The entire Resort Core will be redeveloped with new hotel and vacation units, a new two-story cabana building at approximately the same location previously occupied by the Boatel structure, new and renovated roadways, parking areas and pedestrian paths and new landscaping and will include approximately 6.6 acres of community open space. The Resort Core area is shown in Figure 1 “Existing Area Plan” (GCH Sheet 65).

### **The Hilltop**

The Hilltop Employee housing area site covers approximately 39 acres. The site abuts and has access off of Olga Road. Existing development covers approximately 1.07 acres of the 39-acre site and includes an employee housing structure consisting of 20 dormitory style housing units accommodating two persons each for a total of 40 persons. Other existing improvements include an outdoor recreation area, driveway and parking.

The redevelopment plan for the Employee housing area is to add 40 units of employee housing, an employee dining and recreation building, maintenance, laundry and storage space to support the Resort operation, parking areas to serve the employees and additional parking to provide overflow parking for the resort. The proposed expanded development area will cover approximately 3.7 acres. The Hilltop Area is shown in Figure 5 “Hilltop Development Plan” (GCH Sheet 44).

## **2.0 Geologic Hazards**

### **2.1 Geologic Hazards Data Review and Onsite Conditions**

The County Geologic Hazards Critical Areas Map illustrates that a majority of the waterfront Rosario Resort core area is on or overlies bedrock, indicating structurally stable material. The Bowman’s Creek Cottages parcel is mapped as soils with an erodibility subclass, indicating onsite soils would be subject to erosion during construction or other forms of disturbance. On the Hilltop parcel (TPN 173043001000), the northern two-thirds of the proposed improvement area is mapped as

soils with an erodibility subclass. The southern one-third of the project area is mapped as an area underlain by bedrock. The County maps do not specifically identify unstable shoreline bluffs along the waterfront at the Rosario Resort core area.

The *Soil Survey of San Juan County, Washington*, updated in 2007, identified several newer soil series and mapping units within improvement areas of the resort (Web Soil Survey, online). Near the Rosario core close to the waterfront, two mapping units comprise the area: Deadmanbay-Morancreek complex, 2 to 15 percent slopes, and Turtleback-Cady-Rock Outcrop complex, 25 to 75 percent slopes. These soils are identified as having limitations based on depth to seasonal saturated zones, slope, depth to bedrock, the presence of large stones, and possible localized areas with shrink-swell clays within subsoils (Web Soil Survey, online). Deadmanbay-Morancreek complex is identified as having moderate erosion hazard, while Turtleback-Cady-Rock Outcrop complex potentially has severe erosion hazard (largely associated with steeper terrain).

On the Hilltop parcel, the proposed development expansion area straddles two different soil types highlighted on the Soil Survey. The southern 40 percent of the development area lies within the Deadmanbay-Morancreek complex, 2 to 15 percent slopes. This mapping unit has moderate erosion hazard, and has limitations based on depth to seasonal saturated zones. In locations, this map unit can have localized soils with shrink-swell clays in their subsoils. The northern 60 percent of the development area lies within the Doebay-Morancreek complex, 5 to 25 percent slopes. This mapping unit has limitations due to slope, shallow depths to bedrock, and local areas with shallow depths to seasonally saturated zones. Both soil map units contain small inclusions of soil types with low strength; such soil parameters can be further quantified through a geotechnical analysis.

The Final Environmental Impact Statement (FEIS) identifies no active faults in the immediate area, although it does reference the South Whidbey fault and the larger offshore Cascadia subduction zone, both of which are capable of large-scale crustal motion. The FEIS states that even on steep slopes, the long-term susceptibility of roads and structures to the geologic hazards of mass wasting is very low if these development features are keyed into the bedrock. Erosion potential of bedrock due to weakness from freeze-thaw cycles, chemical weathering, foliation, or planar orientation is very limited.

#### **Hilltop Employee Housing Parcel**

The Hilltop parcel (TPN 173043001000) is partially developed with a large clearing, dormitory, driveway, parking lot, lawn, and utility corridor. Cut slopes and a large terrace was originally excavated and graded as part of the dormitory construction. Steeper bedrock terrain lies north of the dormitory building. No apparent geologic hazards are obvious within the general proposed development area, however, the soil maps indicate that slope, depth to bedrock, and depth to seasonal saturated zones may be limiting factors, and subsoils with low strength and potentially with shrink-swell clays may occur in the area. Given the possible limitations, a geotechnical analysis would provide further examination and quantification of limitations within the desired improvement areas and provide data useful during engineering and design of the vicinity.

#### **Resort Core Waterfront Parcel**

Along the resort's waterfront immediately north of the marina (on Parcel No. 160621001000), the proposed marina view residential units, expanded parking, and other new developments or replacement structures occur on gentle to moderate slopes, none of which are identified as geologically unstable. The updated soils maps for the general area indicate that slope, depth to bedrock, and depth to seasonal saturated zones may be limiting factors. It is possible some inclusions of other soil types may have low strength and potentially shrink-swell clays could occur in the area. While no direct geologic hazards appear evident, a geotechnical analysis for building

foundations and roads would provide specific data on the make up and extent of limitations for design and engineering components of resort improvements. The minor seasonal seepage in the vicinity upgradient of the Figure 8 pond and near the west end of the shuffleboard court can be further evaluated during such an analysis. The marina terrace area also contains archaeological deposits that will influence redevelopment.

The Bowman Bluff cottage sites west of the southernmost reach of Bowman's Creek occurs on shallow soils overlying bedrock. Some of the area was also mulched with wood chip or hogfuel years ago. While this parcel had been historically cleared, some native shrubs and young trees do occur, and a portion of the lot is colonized by a large weedy thicket of Himalayan blackberry (*Rubus armeniacus*). The shoreline is composed of bedrock and would not be identified as an erodible marine shoreline according to guidance provided in Figure 3.1 of SJCC 18.35.130. These cottage sites were previously identified in the FEIS, with their foundations occurring behind the 50-foot shoreline setback from the Ordinary High Water Mark (OHWM) of Cascade Bay. Engineering and possible geotechnical analysis would be necessary to ensure foundations are properly designed and keyed into the shallow bedrock.

The Resort Core area, and the parcel with the proposed Bowman Bluff cottages, meet the definition of an existing development area, having been previously cleared, developed, and/or maintained for the last century. Existing development areas within 200 feet of the marine shoreline OHWM would be regulated by *SJCC 18.35.025(A) Critical Areas Subsection A: Applicability to Uses and Structures within the Shorelines of the State*. Under this subsection, "any use or structure legally located within the shorelines of the state that was established or vested on or before the effective date of the County's development regulations to protect critical areas, shall be regulated consistent with RCW 36.70A.480(3)(c). Such uses or structures may continue as a conforming use and may be redeveloped or modified if the redevelopment or modification is consistent with SJCC Chapter 18.50 and either: (1) the proposed redevelopment or modification will result in no net loss of shoreline ecological functions; or (2) the redevelopment or modification is consistent with SJCC 18.35.020 through 18.35.140."

The immediate shoreline bordering the Resort core currently contains a small marina, fuel dock, a constructed breakwater peninsula, shoreline armoring, and a seawall adjacent to the Beachhouse Restaurant and its large paved parking lot. Boat traffic and floatplanes regularly maneuver through the immediate nearshore and farther offshore marine waters. This is a manipulated, built, and busy nearshore marine environment.

## **2.2 Geologic Hazardous Area Protection Standards and Mitigation**

The County Critical Area maps do not specifically identify unstable shoreline bluffs, but does highlight soils with an erodibility subclass, indicating onsite soils would be subject to erosion during construction. Soil maps indicate that the general area has localized areas of limitations due to slope, depth to bedrock, depth to seasonally saturated zones, and potentially some locations containing subsoils with low strength and shrink-swell clays. To account for potential site limitations, geotechnical analyses would provide site-specific observations, data, and recommendations for each development or redevelopment area.

The shoreline ecological functions have been affected and reduced by historic development and ongoing use and maintenance of the resort facility. To accommodate Subsection A described above, applicable to uses, structures, and their redevelopment or modification within shoreline areas, construction best management practices (BMPs), including but not limited to silt fences, straw bale sediment barriers, water bars, drainage swales, rock check dams, sediment traps, outlet protection, straw mulch, and erosion control blankets, will be used to minimize and avoid construction impacts

to the nearshore, to prevent additional impacts and maintain the current shoreline ecological functions. Once each redevelopment phase is installed, the implementation of a comprehensive stormwater management plan, with special emphasis on improvement of water quality and treatment of hydrocarbon contaminants, will prevent a net loss of existing shoreline ecological functions. Currently, the existing buildings and roof structures, roads and parking lots have no stormwater treatment. By implementing a newer comprehensive stormwater plan for various areas, it is expected that the degree of runoff and contamination would actually decrease from current levels, thereby potentially leading to a net increase in ecological function. The stormwater plan, its implementation, and maintenance, will be key to maintaining or improving shoreline ecological functions.

For expansion on the Hilltop employee residential parcel, utilizing construction BMPs, and implementing a comprehensive stormwater management plan will control erosion and minimize the possibility of additional adverse effects on ecological functions of this parcel's critical areas.

### **3.0 Frequently Flooded Areas**

#### **3.1 Frequently Flooded Areas Data Review, Onsite Conditions & Conclusions**

The Rosario Resort complex abutting Cascade Bay contains only one special flood hazard zone, as identified by the Federal Insurance Administration on its Flood Insurance Rate Maps (FIRMs) immediately north of the existing marina, extending inland into the broad lawn area and encompassing most of the foundation of the old Boatel building (see attached figure). This coastal flood zone is identified as land at and below elevation 13.2 feet. This floodplain area contains the seawall and rockery armored shoreline, the adjacent concrete walkway, the abutting broad lawn area including the Figure-8 concrete pond, and most of the footprint of the boatel building. While neither vegetation nor natural site characteristics will be affected by the proposed project, a small portion of the redevelopment will occur below the base flood elevation of 13.2 feet, and a habitat assessment for fisheries concerns is required. Aqua-Terr System, Inc. (ATSI) (HA) conducted a habitat assessment in February 2015, and its report is attached in Appendix 1 of this summary report.

ATSI concluded that under a rare occurrence flood event, approximately 1 to 1.2 feet of tidal water could inundate the lawn and rockery seawall area. This area contains approximately 70,000 square feet of pervious, non-native mowed lawn and 58,000 square feet of impervious surfaces (building, paved parking area, and the Figure-8 pond). The proposed redevelopment conditions within the 100-year floodplain contain approximately 72,500 square feet of pervious surfaces and approximately 55,000 square feet of impervious surfaces. The lawn will be reduced from approximately 50,000 square feet to approximately 30,000 square feet and the landscaped area will be increased from approximately 29,000 square feet to 42,500 square feet. There will be a net gain of pervious surfaces and habitat in the 100-year floodplain.

ATSI utilized existing documents, including the Biological Evaluation (BE) for the Rosario Resort & Spa Marina Redevelopment dated September 8, 2014 and prepared by Hart Crowser for the presence of listed endangered and threatened species (two species of salmon, two species of trout, three species of rockfish, southern resident orcas, and marbled murrelet). ATSI's "May Affect but Not Likely to Adversely Affect" determination was recommended in relation to the federally listed species because (1) development will occur the 100-year floodplain; (2) no in-water development will occur; (3) no riparian vegetation will be removed as none exists; (4) planting portions of the shoreline with native vegetation will occur, resulting in a net gain in native habitat; (5) there will be a net gain in pervious surface; (6) a fisheries connection will be made between the Figure-8 man-made pond and the marine shoreline, thereby increasing listed species (salmonid) habitat and eliminating the possibility of fish strandings in the 100-year floodplain; and (7) impacts to listed species and species habitat will be insignificant (ATSI, 2015, via Executive Summary).

New development in areas of special flood hazard must meet requirements of the San Juan County Code, including specialty area plans and health and building codes, and requirements for flood proofing or construction as detailed in SJCC Chapter 15.12, the Flood Hazard Control Regulations (Ord. 27-2012 subsection 2; Ord. 2-1998 Exh. B subsection 3.6.6).

## **4.0 Aquifer Recharge**

San Juan County identifies critical aquifer recharge areas as Critical Areas. Because of the hydrogeologic characteristics unique to this county, all of the land area of San Juan County is classified as Critical Aquifer Recharge and being highly susceptible to degradation. Groundwater protection requirements mandate that pesticides, petroleum products, and other chemicals that could be a health hazard in drinking water be used in accordance with manufacturer's directions; be stored, handled, and disposed of in a manner that prevents contamination with ground or surface waters; and not be disposed of in floor drains, injection or dry wells, septic or sewage disposal system. The San Juan County Department of Community Development (DCD) may review development and operational plans for conformance with aquifer recharge protection measures.

As the redevelopment of the Rosario shoreline parcel and the expansion of the Hilltop employee-housing parcel are designed and pursued, all necessary measures to protect groundwater resources will be implemented. In situations where redevelopment could utilize solvents, petroleum products, or other potentially hazardous chemicals, the county may request a list of the quantities and types of chemicals that will be used, proposed spill containment plans, and a plan for disposal of waste materials.

## **5.0 Wetlands**

### **5.1 Wetlands Resource Data Review and Onsite Conditions**

Several inventory resources were reviewed prior to wetland investigations onsite. Federal and County-level inventories only highlight a single location as containing wetlands. The National Wetlands Inventory identified a small wetland immediately upgradient of the marina in the general vicinity of the Figure-8 concrete pond; this location was identified as palustrine unconsolidated bottom, permanently flooded, excavated wetland (code PUBHx) (U.S. Fish and Wildlife Services, online). This is a common identifier for ponds that are either completely artificial or obviously human-excavated. San Juan County's Possible Wetlands map also shows a possible wetland near the waterfront correlating to the concrete pond and adjacent lawn area.

The Final EIS identified a possible Category II wetland west of the employees housing dormitory on the Hilltop parcel. The FEIS also mentions Cascade Lake as a Category I wetland. No additional wetlands were discussed.

#### **Hilltop Employee Housing Parcel**

The Hilltop parcel (TPN 173043001000) was examined for wetlands and streams on December 6, 8, 12, and 17, 2014. Wetlands were rated in December 2014 using *Washington State Wetland Rating System for Western Washington – Revised* (Hruby, 2004), prior to County adoption of the newer 2014 wetland rating update by the Washington State Department of Ecology. Three wetlands occurring within 300 feet of the proposed project area were delineated (see Figure 4, Hilltop Existing Conditions & Buffers). Field data plot forms, wetland rating forms, and digital photographs are not specifically included within this Critical Areas Summary Report, however they are available to reviewing agencies upon request.

Wetland "A" occurs west of the dormitory building and driveway. This approximately 0.40-acre, sloped wetland contains both forested and emergent classes, and contains two separate seasonal streams bisecting through it. These two streams converge south of the wetland and cross under Olga Road through a partially crushed culvert. Wetland A's vegetation is dominated by red alder (*Alnus rubra*), salmonberry (*Rubus spectabilis*), and large patches of giant horsetail (*Equisetum telmateia*), slough sedge (*Carex obnupta*), and small-fruited bulrush (*Scirpus microcarpus*). This sloped wetland also contains a patchwork of slightly elevated areas containing drier vegetation species, including Scouler willow (*Salix scouleriana*), saplings of western redcedar (*Thuja plicata*), western hemlock (*Tsuga heterophylla*), and grand fir (*Abies grandis*), oceanspray (*Holodiscus discolor*), Nootka rose (*Rosa nutkana*), common snowberry (*Symphoricarpos albus*), Pacific blackberry (*Rubus ursinus*), and swordfern (*Polystichum munitum*). The wetland's hydrology includes areas with seasonal saturation and inundation and the above-mentioned bisecting stream corridors. The wetland also includes a small, shallow, excavated mini-pond (about 16 feet in diameter) that had been installed in the central interior likely two or more decades ago. Hydric (wetland) soil indicators varied across the wetland and included Depleted Matrix (F3), Depleted Below Dark Surface (A11), Loamy Mucky Mineral (F1), and Black Histic (A3). Only the eastern and northern sides of this wetland were delineated; bright pink flagging embossed with WETLAND BOUNDARY were labeled A1 through A9.

Immediately abutting Wetland A's northeastern edge, a network of seasonal hillside seepages drain downward to the wetland. Soils were prominently bright colored, and did not satisfy hydric indicator criteria. This hillside seepage complex was flagged with blue-and-white striped flagging and labeled S1 through S7, standing for the upgradient edge of the seepage complex. The seeps are not formally regulated as wetland, but would be recognized as Waters of the U.S. The buffer off of Wetland A completely envelops the narrow belt of hillside seepages.

Northeast of Wetland A and its seep complex, another small seepage complex was flagged. This sloped seepage area lies within close proximity to another seasonal stream, but lacked hydric soils to definitively call the location wetland. This second seepage complex was flagged SS1 through SS6, and is roughly 1,400 square feet in size. Its seasonal waters daylight and ultimately re-infiltrate along the gentle hillslope. Non-wetland seep complexes are not specifically regulated as wetlands and would not trigger wetland buffers. Avoidance is generally recommended.

Two small wetlands occur in the far southeastern corner of the Hilltop parcel. Wetland B is approximately 1,400 square feet and was delineated with flagging labeled B1 through B5. Wetland C is approximately 3,900 square feet in size and was delineated with flagging labeled C1 through C13. Both wetlands are close enough to be considered as one wetland mosaic. The wetland mosaic contains gently sloping terrain, with various micro-depressions, some of which would hold water for weeks or potentially months during the winter months. The mosaic contains herbaceous vegetation dominated by colonial bentgrass (*Agrostis capillaris*) and smaller amounts of tall fescue (*Schedonorus arundinaceus*). In Wetland C, a sizable patch of small-fruited bulrush also occurs. Small amounts of soft rush (*Juncus effusus*), snowberry, and Pacific blackberry also grow in the wetland. Red alders are growing in scattered locations immediately along the wetland edge; most of these trees appear rooted in slightly elevated areas outside the wetland.

Immediately north of Wetland C, sloping terrain contains a patch with red alder, grand fir saplings, snowberry, low Oregon grape (*Mahonia nervosa*), Nootka rose, Pacific blackberry, and slough sedge. Slough sedge is normally considered a reliable wetland indicator, however, two plots placed in this area lacked hydric soils and lacked hydrology even at depths of 24 inches in mid December. These areas were not flagged as wetland but are likely transitional or gradational areas and should be avoided. Revisiting Wetland C on March 13, 2015 revealed no standing water, but

evidence of temporary inundation in various locations of the Wetland B-C mosaic. The upgradient non-flagged transitional area had a water table at 18 to 20 inches down within the soil profile.

Other small, sloped wetlands occur on the hilltop parcel. Two occur about 650 feet west and southwest of the dormitory building. Another sloped wetland occurs along a portion of a seasonal drainage about 315 to 400 feet northwest of the dormitory building. And two additional sloped wetlands occur approximately 500 and 950 feet east-northeast of the building. These outlying wetlands were not formally delineated, but all would rate as either Category III or IV wetlands; their buffers would place them a significant distance away from the proposed employee housing expansion project.

### **Resort Core Waterfront Parcel**

Along the resort's waterfront immediately north of the marina (on Parcel No. 160621001000), a mapped wetland polygon proved to be inaccurate, and was likely skewed by the presence of a manmade concrete pond. This Figure-8 shaped ornamental pond contains a concrete bottom and sidewalls, two concrete islands containing planted ornamental willows, a bridge, and multiple fountains, apparently for aeration. Sediment accumulated along the pond's bottom, and along with possibly submerged planting containers, allow for patches of aquatic vegetation to grow within the pond. The submerged aquatic plant species was difficult to identify because to the time of year (February) and it was dormant and covered by algae. The species could be fanwort (*Cabomba caroliniana*), a common aquarium-ornamental species, or possibly native coontail (*Ceratophyllum demersum*). In a few locations, a non-native waterlily (*Nymphaea* sp.) is growing; these may be growing in submerged planting containers. The pond's water source is outflow water from a generator in an adjacent power generation building, and the pond has an outflow standpipe that tightlines to the marine shoreline, where water discharges through the rock riprap along the shoreline.

The vicinity between the concrete pond and the shoreline is well drained and does not qualify as wetland. Slightly upgradient of the pond, two seepage areas were observed along the lawn, however, these wet spots lacked hydric soils, and are likely a result of rainwater runoff from Rosario Road immediately upslope. A sloping spot on the lawn near the west end of the shuffleboard court was another location with saturation. This localized spot, between 100 and 200 square feet in size, contains historically disturbed or modified soils. The upper portion of soil does contain small amounts of redox concentrations, however they occur in percentages below hydric soil indicator thresholds. This spot could be interpreted as an ephemeral hillslope seepage, but its water volume is not enough to create rills or wetter areas downslope. This entire lawn is regularly mowed and is part of the resort's recreation area, which includes tetherball courts, shuffleboard, and a swimming pool.

## **5.2 Wetland Protection Standards and Mitigation**

The San Juan County Unified Development Code (UDC) requires projects occurring in the vicinity of wetlands to identify the wetlands, determine their rating, and establish protective buffers to protect and maintain wetland functions. Buffer widths are dictated by wetland rating and on the land use intensity of the propose land use, for example high intensity uses, such as urban or residential densities at more than 1 unit per acre, will require larger buffers to protect wetland functions. On the Hilltop parcel Wetland A qualifies as a Category III wetland and would require a 150 foot buffer. The parcel already contains an existing development area comprised of the driveway, parking lot, clearing, dormitory building, the previous septic drainfield (now decommissioned), and utility corridor, all of which were legally established prior to the updates of the Critical Areas Ordinance (CAO). Subsection SJCC 18.35.045 *Critical areas – Existing legally established structures, uses, and activities* allows for legally established structures and uses to be continued, maintained, modified, replaced, relocated, or expanded within the development area

provided (a) any required project or development permits are obtained; (b) the magnitude of adverse impacts to water quality or functions and values of critical areas are not increased; (c) risks to people and property will not be increased; and (d) complete application(s) for any required project or development permits for replacement of structures are submitted within 48 months of removal or destruction of the original structure, unless the director extends this time period. Newly expanded buffer widths would not extend into development areas legally established prior to updates of the CAO providing that adverse impacts are not increased to the wetland. For this employee housing parcel, Wetland A's buffer would extend up to the edge of the driveway clearing and to the edge of the northwest work area clearing north of the driveway and northwest of the parking lot (see attached Figure). The 150-foot buffer would be truncated by approximately 10 to 20 feet in this immediate vicinity, leaving a 130- to 140-foot buffer. The moderate rise in topography in the buffer between the development area and Wetland A would prohibit any potential runoff from the development area from reaching the wetland. The minor reduction in buffer width should result in no additional adverse impacts to Wetland A.

The southeast corner wetland mosaic (Wetlands B and C) rates as a Category IV wetland mosaic and would require a 50-foot buffer. The transitional area immediately north of Wetland C appears to contribute ephemeral hydrology to the mosaic during times of heavy rainfall and shortly thereafter. It is recommended to expand the buffer by 25 feet along the northern edge of the buffer to encompass in entirety the transitional area corresponding to the sloped alder-snowberry-slough sedge grove.

The expansion of the employee housing will trigger greater stormwater management facilities. It is probable that these facilities would be placed in the topographically lower portions of the Hilltop Parcel, closer to Olga Road and closer to the wetland mosaic (Wetlands B and C). This will necessitate coordination with the stormwater engineer to ensure reasonable efforts are made to avoid impacts to the wetland mosaic's functions and values and to determine if mitigation measures are needed for unavoidable impacts.

The concrete pond along the Resort's waterfront parcel would not qualify as a jurisdictional wetland, therefore no wetland rating or buffer regulations apply. None of the seasonal or temporary wet spots along the sloping lawn near the concrete pond or the shuffleboard court specifically met soil criteria to qualify the spots as wetland. One or more of these areas could be identified as ephemeral seepages. These locations vary from approximately 100 to 200 square feet in size, and none trigger county critical area buffer requirements.

## **6.0 Fish and Wildlife Habitat Conservation Areas**

### **6.1 Fish and Wildlife Habitat Conservation Areas (FWHCAs) Data Review and Onsite Conditions**

The Washington State Priority Habitats and Species (PHS) inventory shows no highlighted polygons or nesting sites within the immediate area around Rosario Resort or directly on the Rosario employee housing property (the Hilltop Parcel). Outside of Cascade Bay and north of Rosario Point, along the eastern nearshore shoreline of East Sound, estuarine intertidal aquatic habitat is identified. No mapped bald eagle, peregrine falcon, or great blue heron nests occur within a half-mile from the resort. Moran State Park is highlighted for its Terrestrial Habitat under a broader classification of Biodiversity Areas and Corridor. Cascade Lake is highlighted as a Waterfowl Concentration Habitat, and as a waterbody containing rainbow trout (*Oncorhynchus mykiss*), resident cutthroat trout (*Oncorhynchus clarki*), and Kokanee (*Oncorhynchus nerka*). According to one ranger at Moran

State Park, the lake was historically stocked with these species and is periodically restocked (Al Nickerson, personal communications).

Cascade Bay immediately offshore of the Moran Mansion, the Rosario marina, and other resort buildings, contains both nearshore marine and deepwater marine habitats. The nearshore has been altered from the development of the marina, and shoreline armoring near the Boatel building and the Beachhouse restaurant. This inner portion of Cascade Bay is regularly affected by marina boat traffic and by periodic seaplane arrivals and departures from the seaplane docking facility. The Washington Department of Fish and Wildlife's PHS database only highlights Pinto abalone (*Haliotis kamtschatkana*) as having a possible presence in Cascade Bay, although this species is highlighted in most marine waters of the San Juan Archipelago. The Final Environmental Impact Statement does not identify any mapped sensitive marine habitat areas in the immediate vicinity of Cascade Bay, and references that a September 1997 eelgrass survey documented no eelgrass in the immediate area, although certain macroalgae species were identified. The Draft Biological Evaluation (Hart Crowser Inc., 2014) identifies the likely occurrence of juvenile Chinook salmon, juvenile chum salmon, juvenile Steelhead trout, juvenile bull trout, juvenile listed rockfish species (Bocaccio, canary, and yelloweye), and winter marine-water foraging by marbled murrelets in the project area. As stated above, because of the disturbances by boat and seaplane traffic, it is likely these species occur in passing and they do not continually inhabit the northernmost portion of the bay.

Bowman's Creek begins as an outfall from the Cascade Lake concrete dam spillway located at the westernmost tip of Cascade Lake. This seasonal, intermittent stream bisects through the Resort and spills into the nearshore of Cascade Bay as an approximately 18 foot high waterfall/cascade. The Washington Department of Natural Resources highlights Bowman's Creek as a fish-bearing stream (Washington Department of Natural Resources, online). The County's Polaris geographic information system (GIS) indicates Bowman's Creek as unclassified (San Juan County, online). Onsite evaluations conducted as part of the Final EIS identifies Bowman's Creek as a Type 4 (seasonal, non-fish bearing) water. The FEIS confirmed that the flow regime and naturally steep topography of Bowman's Creek prevents the passage of anadromous fish and the establishment of resident fish stocks in the same channel. The stream is unlikely to support any threatened, endangered, or sensitive fish species. As documented in the FEIS and during recent (2015) site visits, large segments of the stream course consist of cascades in excess of 100 percent slopes.

Streams occur on the employee housing property (Rosario Hilltop parcel...TPN 173043001000) [see attached figure]. This 39-acre property contains an existing dormitory-style building, gravel parking lot, a non-paved driveway, and an actively managed clearing around the building and driveway. During fieldwork in late 2014, two modest streams, one smaller stream, and two seepage drainages were observed. Streams with segments occurring within 200 feet of the development area and the proposed expansion areas, were delineated with blue-and-white-striped flagging, demarcating the stream's ordinary high water mark (OHWM).

In the far western portions of the Hilltop parcel, two modest seasonal stream flow onsite, both passing through a sloped forested wetland area, and eventually converging downgradient of the wetland and flowing down the steep roadcut along Olga Road and passing beneath this road through a partially crushed culvert. The eastern side of the eastern stream's OHWM (closet to the proposed project improvements) was delineated. Both streams consist of seasonal, non-fishbearing waters. Most of this stream is located 200 to greater than 300 feet from the parcel's driveway. During heavy storm events, or during large rain-on-snow events, this duo-stream system would likely carry considerable volume.

A smaller stream occurs northwest of the existing development area. This stream also qualifies as a seasonal, non-fishbearing water, and its flow volume is considerably less than the

above-mentioned streams further west. The OHWM of the lower, natural stream course was delineated down to the point where the development area begins and the stream is abruptly diverted into a deeply excavated ditchline. This ditch does not appear as a recently constructed drainage feature, and it may have been in existence for decades. During lower flows, this ditch conveys stream flow eastward to a point where water enters a southwest-trending, 4-inch diameter buried tightline that extends beneath the gravel parking lot and daylight flows along the eastern side of the driveway. Water then flows downhill along the driveway's ill-defined roadside swale or ditch, much of which appears minimally hand dug. During times of heavier flows, it appears stream waters flow easterly within the ditch beyond the tightline and around the northern and eastern sides of the dormitory building. The excavated ditch terminates as steep rocky topography becomes more prevalent, and stream waters appear to infiltrate along the steep ravine.

The expansion of the employee housing will trigger greater stormwater management facilities. It is probable that these facilities would be placed in the topographically lower portions of the Hilltop Parcel, closer to Olga Road and closer to the wetland mosaic in the far southeast corner. During fieldwork, an older, overgrown narrow ditch was observed approximately 50 feet from the edge of Olga Road. The ditch was about 40 feet in length, and it contained flowing water. It is possible that either a curtain drain or a tightline in this flatter portion of the parcel may discharge into this ditch line. Water from the ditch eventually spreads out to the east, and appears to infiltrate. It is possible infiltrated water may percolate easterly through subsoils and eventually enter the wetland mosaic to the southeast, or may seep into the roadside ditch along Olga Road. It is assumed this water is either a seasonal or temporary occurrence. This ditched water did not specifically meet stream or wetland definitions or criteria. This unusual occurrence of water will necessitate coordination with the stormwater engineer to ensure the stormwater management plan accounts for this source.

Two minor seepage drainages were observed approximately 500 and 950 feet east of the dormitory building. These drainages are significantly outside any improvement areas and were not specifically mapped or delineated.

## **6.2 FWHCAs Protection Standards and Mitigation**

The San Juan County Unified Development Code (UDC) requires projects occurring in the vicinity of terrestrial and aquatic FWHCAs or specific listed animal or plant species, to identify the habitat or species and establish buffers to protect and maintain the species and/or ecological functions. In areas along aquatic FWHCAs with tree cover, tree protection zone may also be required.

Within the Rosario Resort core area near the waterfront, most areas have been cleared, modified, and/or contain buildings, lawn, landscaping, parking lots, utility corridors, and other amenities. Modified areas would be recognized as part of the existing development area. Under Section SJCC 18.35.025(A), any use or structure legally located within the shoreline and bordering area 200 feet upgradient from the shoreline's ordinary high water mark, and established or vested on or before the effective updates of the County's development regulations to protect critical areas, may continue as a conforming use and may be redeveloped or modified, providing the redevelopment is consistent with the county's shoreline master program, and there will be no net loss of shoreline ecological functions. New proposed cottages and condominiums, both west of Bowman's Creek and in the approximate location of the current swimming pool and shuffleboard court, the rehabilitation of the Boatel building, and the expansion of parking would fall under this subsection A exception. During project construction, strict adherence to Best Management Practices (BMPs), such as silt fences, straw bale sediment barriers, drainage swales, rock check dams, sediment traps, outlet protection, mulches, and erosion control blankets, will avoid, minimize, and control runoff, erosion

and sedimentation. The implementation of an approved stormwater management plan for each improvement project will assist in maintaining current ecological functions of offshore marine habitat and within the lowest segment of Bowman's Creek.

On the Hilltop parcel, the seasonal streams would require a 100-foot water quality buffer, and a 30-foot-wide tree protection zone measured horizontally from a stream's bank full width (or ordinary high water mark). These water quality buffers and tree protection zones apply in portions of the parcel that are still undeveloped and natural in character. The parcel already contains an existing development area comprised of the driveway, parking lot, clearing, dormitory building, and utility corridor, all of which were legally established prior to the updates of the Critical Areas Ordinance (CAO). Under Section SJCC 18.35.030(B), existing structures and operations are exempt from critical areas regulations, providing there is no further intrusion into those critical areas, soil erosion is controlled, disturbed areas are promptly stabilized, and actions do not have additional adverse effects on the functions and values of the critical area. Newly expanded buffer widths would not extend into development areas providing that adverse impacts are not increased to the aquatic FWHCAs.

On the Hilltop parcel, the far western stream corridor that was flagged is located in excess of 150 to 300 feet from the existing driveway. This stream would require the 100-foot buffer since the stream corridor is naturally vegetated and largely undisturbed. The smaller seasonal stream that lies northwest of the dormitory building also requires a 100-foot buffer in the natural portions of the property, north of the development clearing. This buffer does not extend into the development area, hence the reason Figure 4 (the Hilltop Existing Conditions & Buffers figure) illustrating critical areas and buffers shows the buffer stopping at the edge of the clearing and alongside a prominent excavated ditch. This small stream is diverted into the ditch along the northern edge of the development area. The ditched stream waters flow easterly within the ditch, with some water diverted into a tightline under the existing gravel parking lot, and excess water carried within the ditch to a ravine east of the dormitory building, where it infiltrates.

A second subsection in the county code that appears applicable to the Hilltop parcel is Section SJCC 18.35.045, which addresses existing legally established structures, uses, and activities, continuing in perpetuity and not being considered nonconforming as a result of critical area requirements. Under this subsection, legally established structures may be maintained, modified, replaced, relocated, or expanded within the development area provided: (a) any required project or development permits are obtained; (b) the magnitude of the adverse impacts to water quality or functions and values of critical areas are not increased; (c) risks to people and property will not be increased; and (d) complete applications for any required project or development permits for replacement of structures are submitted within 48 months of removal or destruction of the original structure, unless extended by the director. Uses and activities may be continued, replaced with other activities, or relocated providing permits are obtained and there is no increase in the magnitude of adverse impacts to water quality or the functions and values of critical areas.

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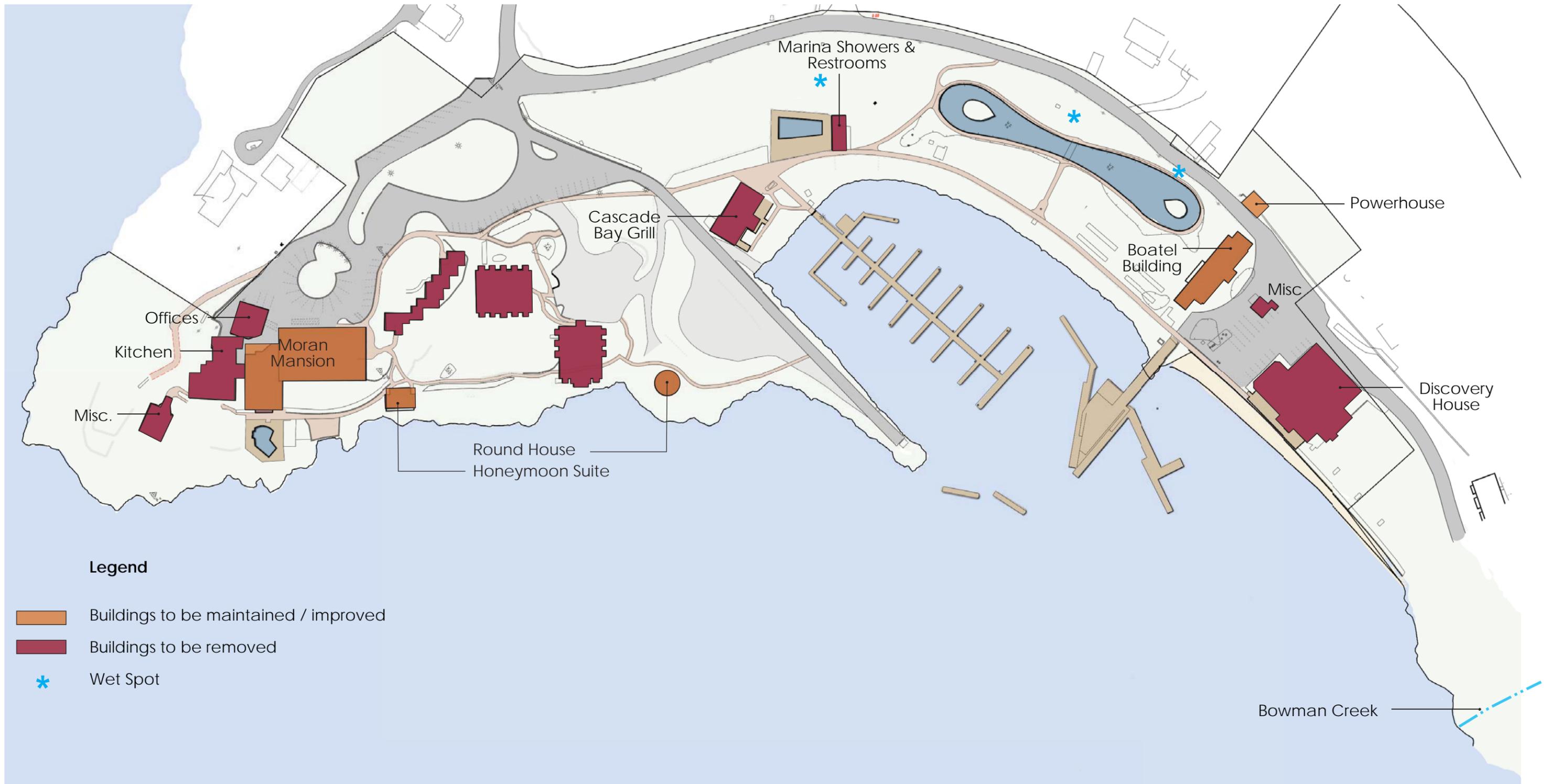
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ROSARIO RESORT P.U.D. APPLICATION

2.0 DEVELOPMENT PLANS



Legend

- Buildings to be maintained / improved
- Buildings to be removed
- \* Wet Spot



DRAFT

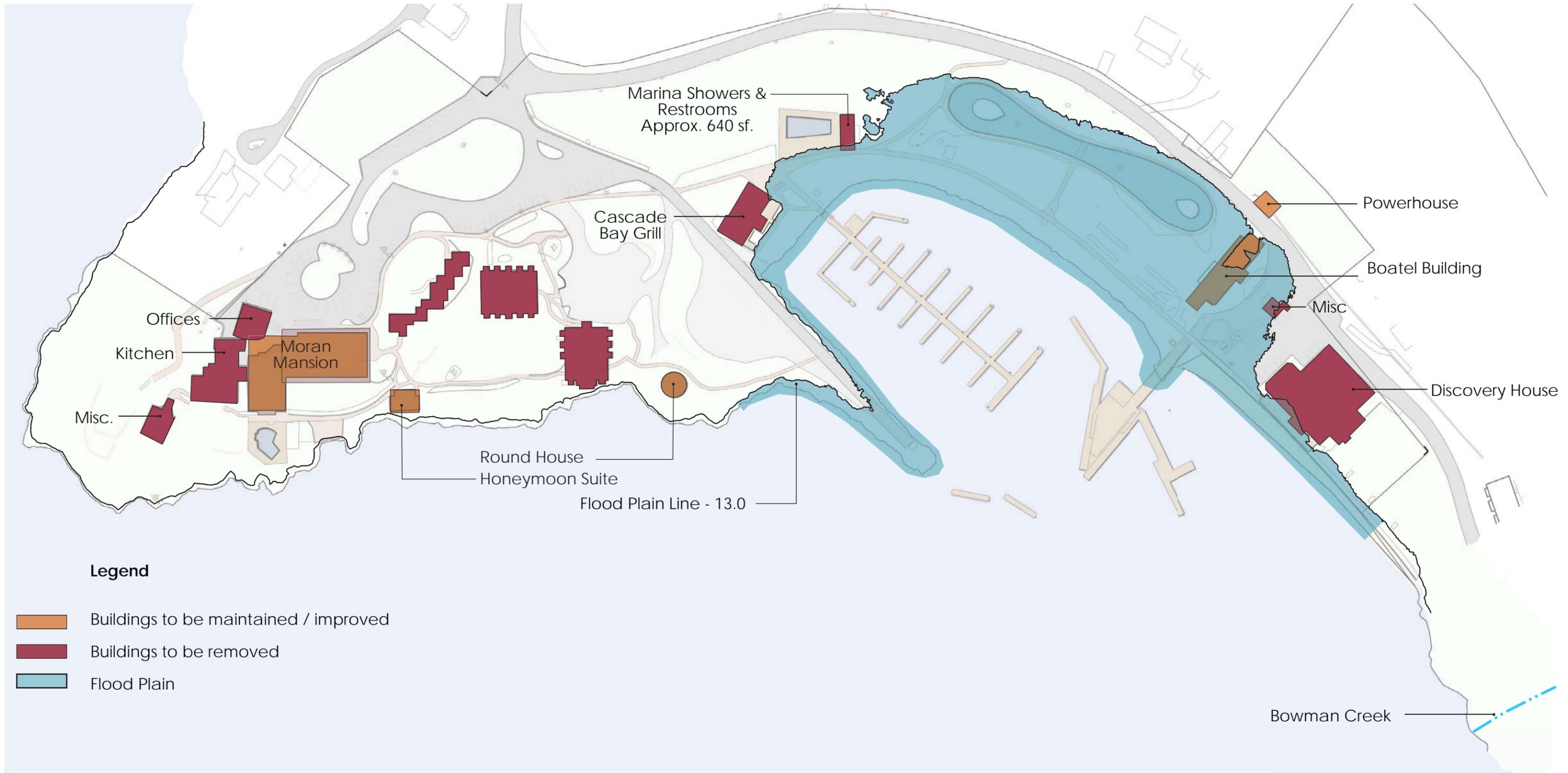
EXISTING AREA PLAN



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ROSARIO RESORT P.U.D. APPLICATION

2.0 DEVELOPMENT PLANS



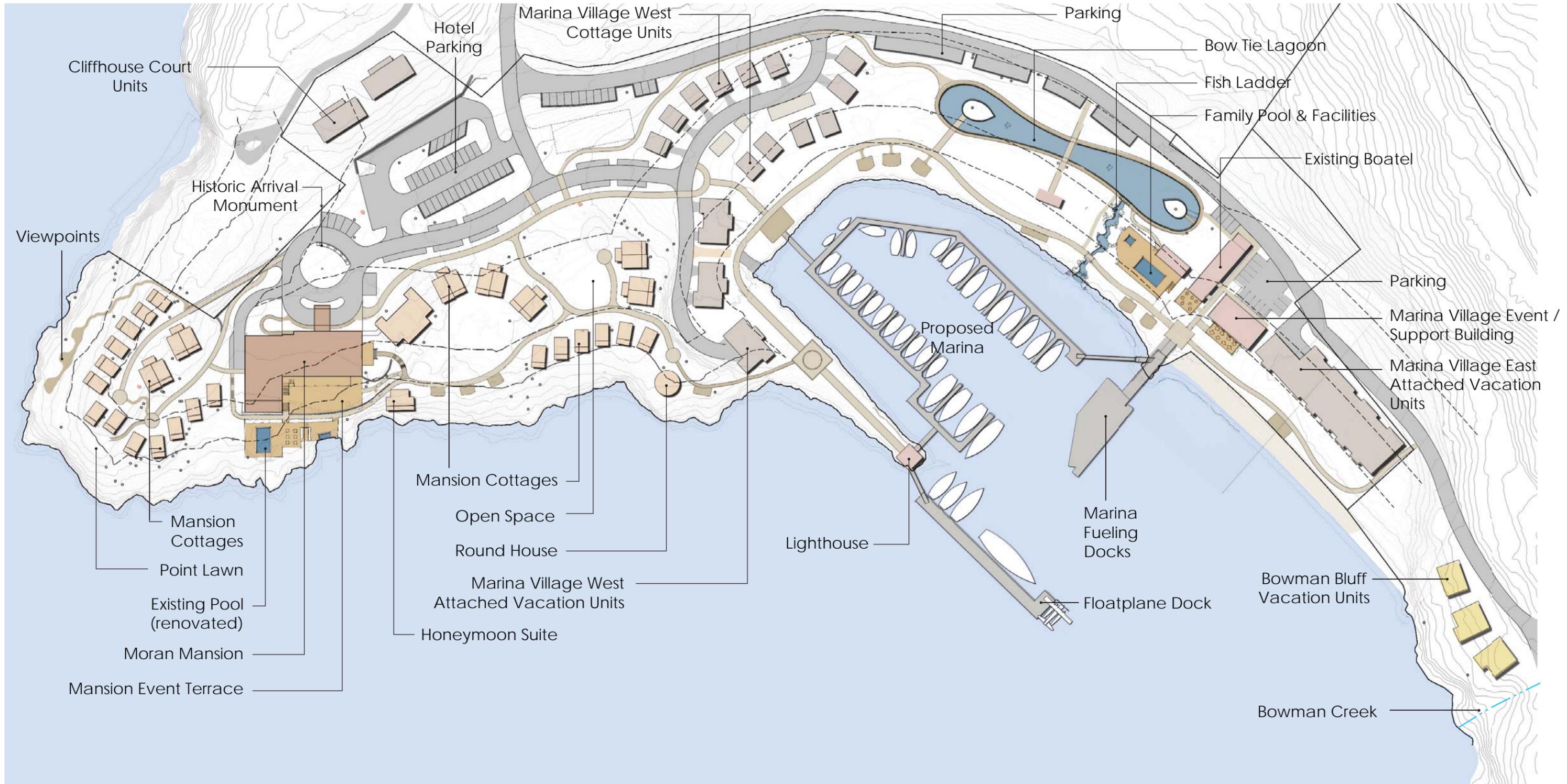
Legend

- Buildings to be maintained / improved
- Buildings to be removed
- Flood Plain



ROSARIO RESORT P.U.D. APPLICATION

2.0 DEVELOPMENT PLANS



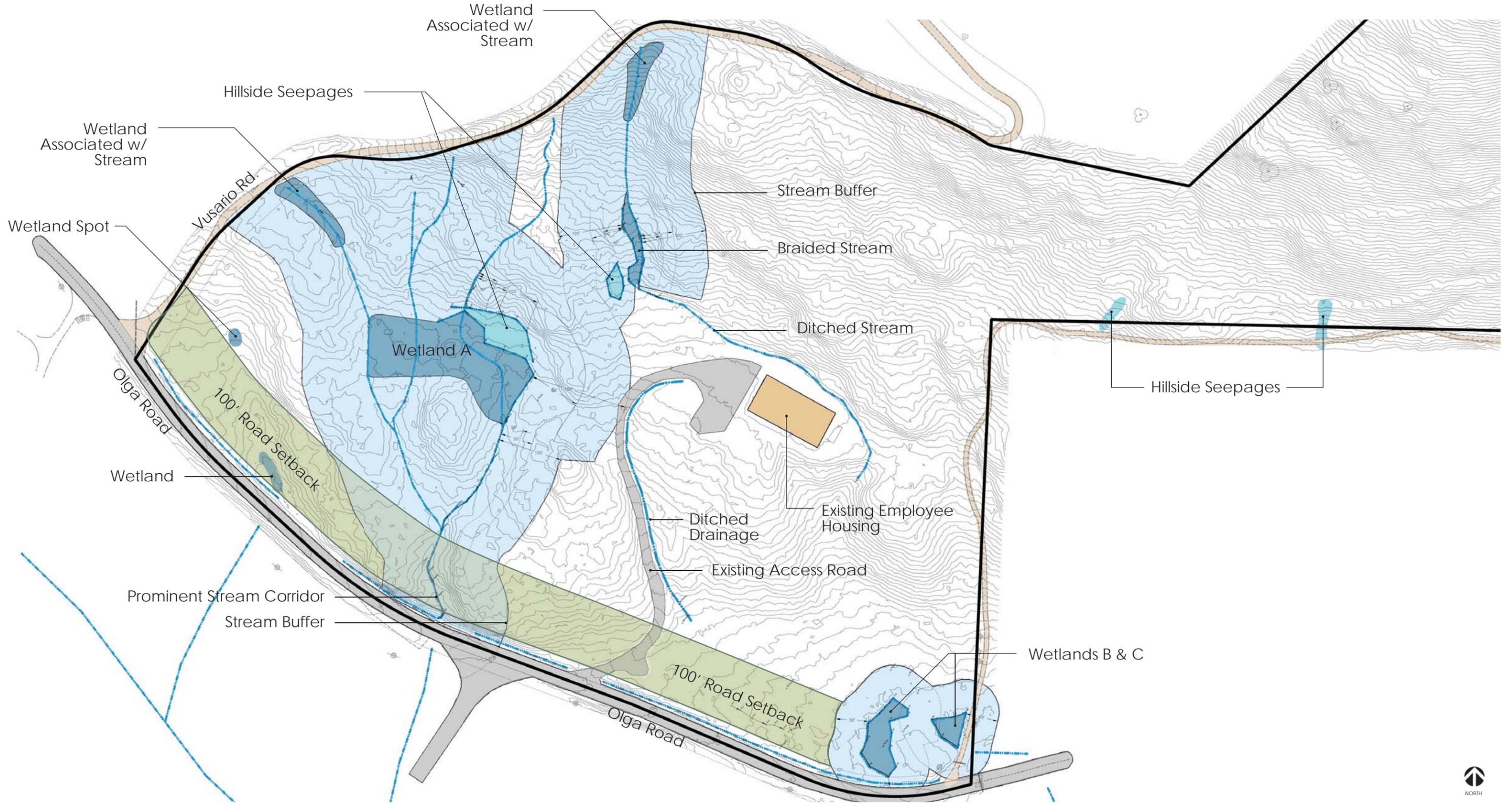
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CONCEPT DEVELOPMENT PLAN

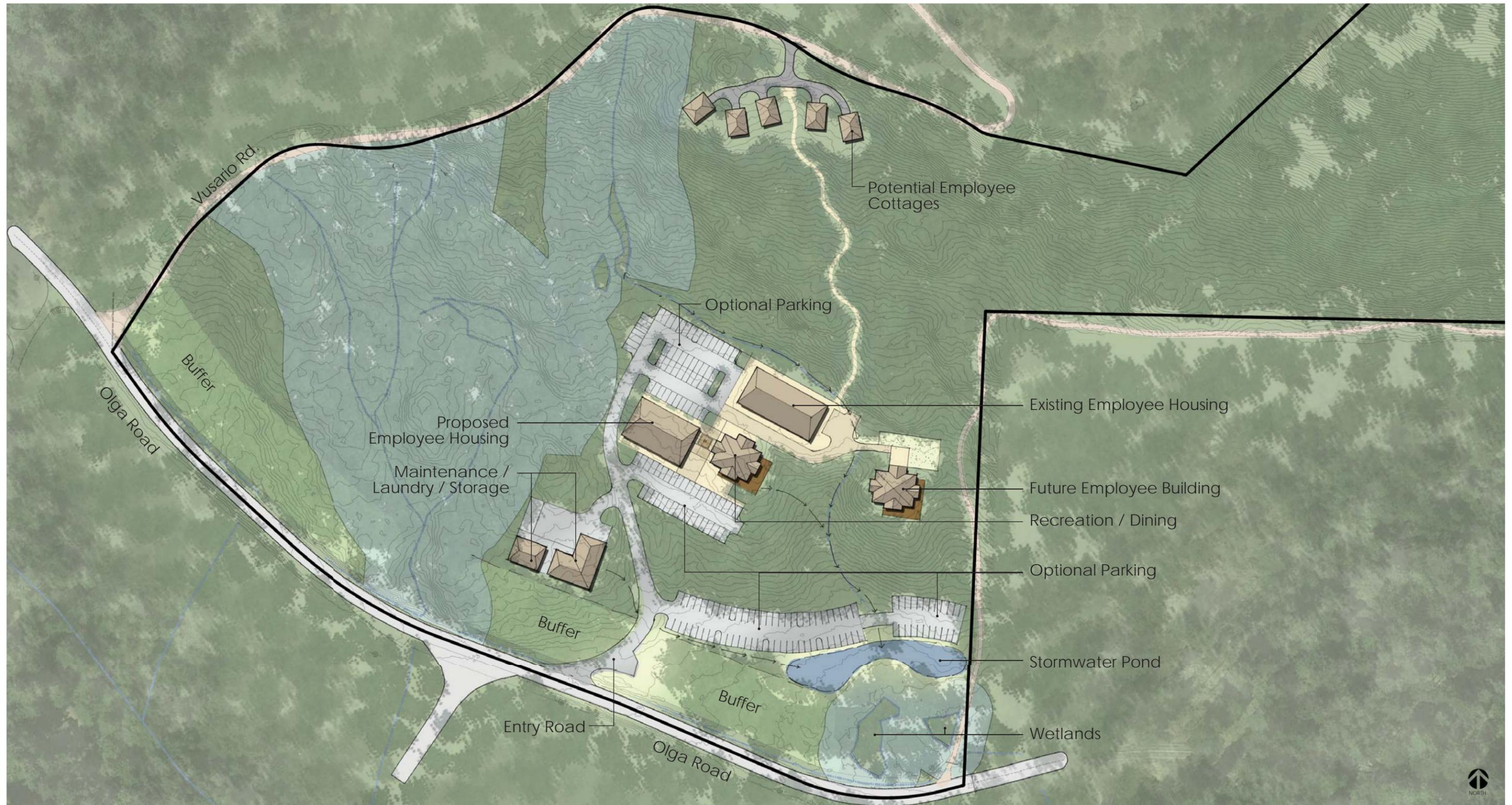


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2.3 HILLTOP



3.0 HILLTOP



**Appendix 1:**

***Habitat Assessment – Rosario Resort***

**Aqua-Terr Systems, Inc. (2015)**

**HABITAT ASSESSMENT  
Rosario Resort**

**5 May 2015**

***Prepared for:***

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**HABITAT ASSESSMENT  
Rosario Resort**

**5 May 2015**

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## ABBREVIATIONS & ACRONYMS

Aqua-Terr Systems, Inc. (ATSI)  
Best Available Science (BAS)  
Best Management Practices (BMPs)  
Biological Assessment (BA)  
Biological Evaluation (BE)  
Direct Current (DC)  
Endangered Species Act (ESA)  
Evolutionary Significant Unit (ESU)  
Federal Emergency Management Agency (FEMA)  
Final Environmental Impact Statement (FEIS)  
Habitat Assessment (HA)  
Joint Aquatic Resources Permit Application (JARPA)  
Magnuson Stevens Act (MSA)  
NOAA Marine Fisheries Service (NMFS)  
Ordinary High Water Mark (OHWM)  
Priority Habitats & Species (PHS)  
Planned Unit Development (PUD)  
United States Army Corps of Engineers (Corps)  
United States Fish and Wildlife Service (USFWS)  
Washington Department of Fish and Wildlife (WDFW)  
Willamette Meridian (WM)

## EXECUTIVE SUMMARY

Aqua-Terr System, Inc. (ATSI) has been retained by Strandberg Construction to prepare this Habitat Assessment (HA) for the redevelopment of the Rosario Resort located on Orcas Island, Washington. This HA is required to fulfill the “Additional Shoreline Requirements” as stated in the San Juan County Community Development & Planning Application Submittal Checklist for Land Use Review, 29:

*If development, removal of substantial amounts of vegetation, or alteration of natural site characteristics is proposed below the base flood elevation as determined by the Corps of Engineers (Corps), a fisheries habitat assessment is required and the project must conform to the September 22, 2008 FEMA biological opinion (NMFS tracking no. 2006-00472). This assessment must be prepared by a qualified professional (SJCC 18.20.170) and conform to Floodplain Habitat Assessment and Mitigation, Regional Guidance for the Puget Sound Basin, 2013, FEMA Region 10.*

Although generally neither vegetation nor natural site characteristics will be affected by the proposed project, because a portion of the proposed redevelopment (development) of the Rosario Resort will occur within the United States Army Corps of Engineers (Corps) determined base flood elevation of 13.2 feet (100 year floodplain), this HA addresses said requirements.

To complete this HA, ATSI completed a site visit in February 2015 and has reviewed and includes the information provided in the below referenced documents. Said documents have been prepared by consultants retained by Strandberg Construction for this project and are a part of the permit package submittal.

This HA focuses primarily on the area within the 100 year floodplain. The surrounding area and the remainder of the proposed project are included in part within this HA. ATSI requests the reviewers reference the documents listed below for a thorough description of the project, surrounding environment, listed Endangered Species Act (ESA) species, species and habitat impacts, and the results and conclusions of said reports and studies because they are intended to be a part of this HA.

1. Rosario Resort Public Utility District (PUD) Application, March 23, 2015; DRAFT  
Prepared by: GHC, Seattle Washington
2. Biological Evaluation, Rosario Resort & Spa Marina Redevelopment, September 8, 2014  
Prepared by: HartCrowser, Seattle Washington
3. Critical Areas Summary Report for Rosario Resort Improvements, 2015  
Prepared by: Rozewood Environmental Services, Inc.

4. Corps, Hydraulic & Hydrology Branch, Hydraulic Engineering Letter Re: Base Flood Elevation, January 16, 2014  
Prepared by: Scott H. Brown, PE, Coastal Hydraulic Engineer
5. Ordinary High Water Mark (OHWM) Determination for Rosario, June 9, 2014  
Prepared by: Mindy Kayl
6. Rosario Resort Survey, January 21, 2015  
Prepared by: Islands Surveying Inc.
7. Joint Aquatic Resources Permit Application (JARPA), Rosario Resort Marina Redevelopment, September 3, 2014
8. Rosario Resort Master Plan, Final Environmental Impact Statement (FEIS) December 21, 2006  
Prepared by: SE Group
9. Floodplain Habitat Assessment & Mitigation, Regional Guidance for the Puget Sound Basin, 2013

The vegetation and general conditions of the portion of the proposed project that is within the 100 year floodplain is primarily mowed lawn with a few trees, buildings, asphalt parking, sidewalks, and a figure-eight shaped constructed pond (figure-eight pond). Listed species habitat within this floodplain area is de minimus and therefore the effects to listed species are insignificant. This statement is predicated on the fact there are no primary constituent elements, or habitat features such as riparian vegetation or woody debris in the 100 year floodplain.

Additionally, there are man-made physical barriers between the 100 year floodplain and the marine water in the form of rip rap adjacent to the marina and a concrete wall adjacent to the asphalt parking area and restaurant. A sidewalk further hinders access to the floodplain by listed species during high water.

The floodplain is at approximately 12 feet in elevation and the base flood elevation is approximately 13 feet in elevation. Therefore, during a "flood", there would be approximately 1 foot of water inundating the floodplain. However, because part of the project area and property lies within the 100 year floodplain, by default, said 100 year floodplain is considered habitat for listed species.

The existing conditions within the 100 year floodplain (approximately 128,000 square feet) contain approximately 70,000 square feet of pervious, non-native mowed lawn with three to four native conifer trees and approximately 58,000 square feet of impervious surfaces (building, paved parking area, and the figure-eight pond). The proposed conditions within the 100 year floodplain contain approximately 72,500 square feet of pervious surfaces and approximately 55,500 square feet of impervious surfaces. The lawn will be reduced from approximately 50,000 square feet to approximately 30,000 square feet and the landscaped area will be increased from approximately 29,000

square feet to 42,500 square feet. There will be a net gain of pervious surfaces and habitat in the 100 year floodplain.

We are using the information from the above referenced documents to complete this HA. Specifically, the information as it pertains to the Biological Evaluation (BE) for the Rosario Resort & Spa Marina Redevelopment dated September 8, 2014 and prepared by HartCrowser for the presence of listed species. We have contacted the relevant agencies for said habitat information and is the same as discussed in the above referenced BE.

Per the above referenced BE, the endangered and threatened species listed below occur within the adjacent marine waters. It is therefore assumed the 100 year floodplain, in the event of a 100 year flood event, may provide refugia habitat for said species.

- Puget Sound Chinook Salmon (*Oncorhynchus tshawytscha*)
- Puget Sound Chum Salmon (*O. keta*: Hood Canal summer-run ESU)
- Puget Sound Steelhead Trout (*O. mykiss*)
- Coastal-Puget Sound Bull Trout (*Salvelinus confluentus*)
- Bocaccio Rockfish (*Sebastes paucispinis*)
- Yelloweye Rockfish (*S. ruberrimus*)
- Canary Rockfish (*S. pinniger*)
- Southern Resident Orca (*Orcinus orca*)
- Marbled Murrelet (*Brachyramphus marmoratus*)

A “May Affect but Not Likely to Adversely Affect” determination is recommended in relation to the above federally listed species because:

1. Development will occur within the 100 year floodplain.
2. No in-water development will occur.
3. No riparian vegetation will be removed as none exists.
4. Planting portions of the shoreline with native vegetation will occur. There will be a net gain in native habitat.
5. There will be a net gain in pervious surface (pre and post development).
6. A fisheries connection will be made between the figure-eight man-made pond and the marine shoreline. This will increase listed species habitat (salmonid) and eliminate the possibility of fish stranding in the 100 year floodplain.
7. Impacts to listed species and listed species habitat will be insignificant.

## **1.0 PROJECT OVERVIEW**

### **1.1 Federal/County Nexus**

The federal and county nexus for this project is due to the fact that development will occur within the Corps determined 100 year floodplain. Per the San Juan County Community Development & Planning Application Submittal Checklist for Land Use Review, 29, compliance with the ESA and the Magnuson Stevens Act (MSA), is required.

This HA evaluates the potential effects of the proposed project on species that are federally listed under the ESA and it identifies specific project design elements necessary to avoid or minimize potential adverse effects to listed species from the proposed project. This HA is therefore necessary to demonstrate that the project will not ultimately jeopardize the continued existence of endangered and threatened species, designated critical habitat, and/or essential fish habitat.

### **1.2 Project Purpose**

The project is the redevelopment of an historic mansion and related guest facilities including a restaurant and swimming pool, to become a high-end family oriented facility.

### **1.3 Project Area Location**

The project is located on the Rosario Resort waterfront on Orcas Island in San Juan, County, Washington (southwest quarter of Section 31, Township 37 north, Range 1 west, and in the northwest quarter of Section 6, Township 36 north, Range 1 west, Willamette Meridian (WM) (Figure 1).

Driving directions are as follows: From I-5, take the exit for WA-20 West. Follow WA-20 spur west to the San Juan Island Ferry Terminal and take the ferry to Orcas Island. Take a left onto Orcas Road and stay on Orcas Road for 8 miles. Turn right onto Main Street and continue on to Crescent Beach Drive for about a mile. Turn right onto Olga Road for 3 miles and then turn right onto Rosario Road. Stay on Rosario Road for about 1.5 miles and the resort will be to the right.

### **1.4 Proposed Project Description**

#### *1.4.1 Overall Area*

The existing conditions of the overall development area include 10 buildings, six of which are in the uplands of the property and are used for guest accommodations. Along the shoreline, the Moran Mansion contains guestrooms, a historical museum, a year-round restaurant, a spa and fitness center, a gift boutique, and administrative offices. Nearby the mansion are the Mansion Pool, Honeymoon Suite, several guesthouses, and Activity Center. Also, adjacent to the shore is the historic Round House (used for accommodations), Boatel (used as storage), Powerhouse (contains Direct Current (DC) hydroelectric generator), a seasonal restaurant, a second in-ground pool, the Discovery House (used for conferences and large gatherings), and a man-made figure eight pond. There is a small marina with 34 slips on floating docks and a wooden pier; the structure is protected by a man-made jetty. The marina facilities are in poor condition and are in the process of being modified (Figures 2, 3 and 4).

#### 1.4.2 100 Year Floodplain

Per the PUD Application, March 2015, the proposed project within the 100 year floodplain is as follows:

*The Rosario Resort Redevelopment plans under the Rosario Master Plan, approved by San Juan County, include some development in areas now designated within the regulatory floodplain, i.e., the 100 year floodplain. The redeveloped plans will be largely consistent with existing uses, and will include improvements to main and secondary pathways, pedestrian access, public shoreline viewpoints and community open space.*

*The 100 year floodplain area is largely contained within an area now designated as 'The Green'. The Green serves as a large active open space area, linking the Marina Village West and Marina Village East. Providing a grassy foreground for the figure eight pond, the Green will also be a recreation area open to the public, with potential for croquet, bocce ball, badminton, horseshoes, and other lawn games for use by Rosario guests and visitors. As the largest flat lawn area on the Resort and containing an inviting, open Event Pavilion, the Green is one of the best sites for large outdoor gatherings such as weddings, concerts, craft fairs, or farmers' markets. A portion of the Marina Village Facilities may extend into the Green area such as the family pool, hot tub, and various event spaces. This zone may also contain a potential fish ladder extending from the marina water's edge to the figure eight pond. A portion of the Green anticipates shoreline re-naturalization as shown in the Landscape Treatment Diagram per said PUD Application, which could contain some informal seating areas and fire pits along the water's edge.*

*The Green provides a variety of opportunities for passive interaction with the natural waterfront setting and is fundamental to the identity of Rosario Resort. The arrival experience intentionally brings visitors straight to a view of open lawn with water beyond, announcing the arrival to Rosario. From stretches of open lawn to the walking loop surrounding the figure eight pond, a mixture of landscaped and natural greenery helps promote the tranquility and restorative nature that makes up the San Juan Island experience. Open space, particularly with natural vegetative cover, provides valuable habitat functions. Through preserving and rehabilitating the natural shoreline, this valuable habitat can be maintained. Upland portions of the Rosario Resort will maintain large areas of undeveloped forested land. In addition, "The legislative finding is that such areas contribute to the value and appeal of the resort, and great emphasis is given to the protection of such areas in the resort" (SJCC 18.60.190 A).*

*The waterfront location of Rosario Resort is fundamental to its identity and character. In selected areas, rehabilitation could improve the environmental and aesthetic quality of the shoreline, ultimately improving the relationship between the Resort and the water. According to SJC code 18.50.130, "restoration of any shoreline that has been disturbed or*

*degraded shall be done with native plant materials with a diversity and type similar to that which originally occurred on-site.”*

*As noted above, The Green is flanked by Resort Marina Village West and Marina Village East. Marina Village East has two structures that fall within the regulatory floodplain area, the Grocery/Office building and the Restaurant/Event building, also known as the ‘Marina Village Cabana’. The center of activity for the Marina Village would be the Cabana - an attractive outdoor swimming pool and activities complex with a variety of other amenities oriented toward family activity and events. The Cabana will serve Resort guests, visiting boaters, Marina Village cottage/condo owners, and eligible local residents of all ages seeking outdoor activities such as swimming, sunbathing, soaking, and casual dining. The new Cabana will feature a bar and grill with outdoor patio seating oriented around a new pool. The upper level of this building will have interior space for events, weddings, gatherings, etc. This facility would also include, showers, restrooms, lockers, for swimmers / marina guests. Adjacent to the Cabana is a small office/grocery structure for the convenience of Marina and Resort guests which could also provide another check-in location for Hillside guests. This cabana is replacing an existing structure known as the ‘Boatel’. Due to historic considerations, the Boatel structure will remain in its current location, and will be rehabilitated to perform some of the Cabana functions.*

*In general, the area now designated within the regulatory floodplain functions as a flexible open space, and a circulation corridor. The general intent of the Rosario Resort Core is to keep the vehicles of hotel guests to the exterior and buffered from view for both the resort and surrounding land uses. The Resort’s primary interior circulation will mainly be walking paths with cart/shuttle access. See circulation diagram within the PUD application. The existing network of sidewalks, trails, and pathways should be upgraded concurrent with redevelopment of the Resort. A system of separate trail networks should support different uses such as primary circulation and access routes, secondary pathways, and recreational trails. All pathways and trails within the Resort should be between 4 and 10 feet wide, in compliance with Section 18.60.110 of the Unified Development Code and employ pervious materials where reasonable to allow stormwater infiltration. A main pedestrian route is proposed to link the various Resort Core Zones. This route will extend from the Moran Mansion to the Marina Village East, as well as to the Hotel Cottages on the southern point. This main pedestrian route will also serve as a hotel cart/shuttle access path to the hotel units, the Marina Village Cabana, and the Lighthouse. This main route meanders through the resort and gives many opportunities. A series of secondary pedestrian routes should be provided in more remote areas of the site or where cart/vehicle access is not needed. These secondary paths should connect to the main pedestrian route to form a unified trail network and allow shoreline access/viewpoints.*

## **1.5 Interrelated/Interdependent Projects**

Generally, there are no other projects within the area; interrelated/interdependent projects are not applicable. However, there is a proposal to upgrade facilities at the existing marina. This work was envisioned as part of a larger resort Master Plan that was completed in 2006. A BE has been prepared to help the project proponents assess the potential effects of the proposed marina redevelopment on fish and wildlife species listed, or proposed for listing, as threatened or endangered under the ESA.

## **2.0 BASELINE**

### **2.1 Location & Methods**

ATSI staff performed a site reconnaissance to identify critical areas on or adjacent to the project area boundary on 24 February 2015. ATSI staff observed one critical area, the marine habitat of Cascade Bay.

### **2.2 Project Area History**

Historically, a sawmill and box factory, known as the Cascade Bay Lumber and Manufacturing Company, were once located on the property, operating from 1887 to 1901. In 1905, the owner Andrew Newhall sold the property to the shipbuilding magnate Robert Moran. In 1909, Moran built Rosario as a private estate. It was sold to Donald Rheem in 1938, who used it as a private residence before selling it to the Falcon Corporation in 1958. The Falcon Corporation unsuccessfully tried to redevelop the property into housing subdivisions. Due to financial trouble, the property was sold to Gilbert Geiser in 1960. Geiser developed the property as a commercial resort, and since 1960 the area has actively operated as a resort and marina. The property was purchased in 2008 by Rosario Signal LLC.

### **2.3 General Project Area Description**

The existing conditions of the overall development area include 10 buildings, six of which are in the uplands of the property and are used for guest accommodations. Along the shoreline, the Moran Mansion contains guestrooms, a historical museum, a year-round restaurant, a spa and fitness center, a gift boutique, and administrative offices. Nearby the mansion are the Mansion Pool, Honeymoon Suite, several guesthouses, and Activity Center. Also, adjacent to the shore, is the historic Round House (used for accommodations), Boatel (used as storage), Powerhouse (contains DC hydroelectric generator), a seasonal restaurant, a second in-ground pool, the Discovery House (used for conferences and large gatherings), and a man-made figure eight pond. There is a small marina with 34 slips on floating docks and a wooden pier; the structure is protected by a man-made jetty. The marina facilities are in poor condition and are in the process of being modified.

The conditions of the marine environment are described in the BE prepared by HartCrowser September 2014.

The existing conditions within the 100 year floodplain (approximately 128,000 square feet) contain approximately 70,000 square feet of pervious, non-native mowed lawn with three to four native conifer trees and approximately 58,000 square feet of impervious surfaces (building, paved parking area, and man-made figure eight pond).

In the lawn area between the sidewalk and the figure eight pond, soil data observations (per Scott Rozenbaum of Rozewood Environmental Services via email April 2015) are as follows:

*All soils indicated or suggested moderate to major disturbance.*

*From the figure eight pond seaward, the lawn is well drained with no evidence of near-surface saturation and no evidence of temporary or seasonal ponding. Minor drift line of small wood fragments and fragments of Styrofoam were observed at the top and slightly landward of along the riprap shoreline armoring and concrete bulkhead adjacent to the restaurant (photos available). There was no evidence of tides up to the concrete sidewalk.*

*West End: 10YR 2/1 loam topsoil, overlying 10YR 3/2 gravelly sandy loam subsoil, with 10YR 3/2 to 4/2 very gravelly silt loam to loamy silt lower subsoil. No saturation. Soil layers did contain an occasional fragment of shell, but infrequent.*

*Central: 10YR 2/1 loam topsoil with minor amounts of shell fragments, 10YR 3/2 gravelly loam subsoil with some shell fragments. No saturation.*

*East End (West of Boatel Building): shell midden, 10YR 2/1 loam cap, overlying 10YR 2/1 loam mixed with numerous shells. Drilled to 13" to confirm no saturation. Stopped and no further disturbance to location. Like often in midden soils, the black loam (sometimes silt loam) soil material is organic enriched. This would not be from organic accumulations due to anaerobic soil conditions. Likely either a micro-char component or compost effect. Anthropogenic.*

*Lawn composed of Kentucky bluegrass (*Poa pratensis*)-dominant, bent grass (*Agrostis* sp.), annual bluegrass (*Poa annua*), and what likely is perennial ryegrass (*Lolium perenne*). Occasional lawn daisy (*Bellis perennis*).*

*Two of the ephemeral seepage areas were noted upgradient of cement pond (northwest side of pond). Soils composed of different lifts (layers), likely imported or graded soil layers, loam, and loam with 5-10% gravels, 10YR 3/2, 3/3, 2/1. Matrix color 10YR 3/2 by far most prevalent. Redox concentrations intermittent. 1-2% within one layer, than lacking in the next. Sloping lawn soils also consist of 10YR 2/1 to 3/2 loam topsoil overlying gravelly loam 10YR 3/2 & 3/3 subsoils; no redox. Near shuffleboard court, soils 10YR 2/1 loam, some locations inter-layered with 10YR 3/2 and 3/1. Redox concentrations observed as pore linings, 1%, in 2-4" layer, otherwise lacking. Lower subsoil, compacted loam to sandy loam. Compaction seemed unnatural, assuming historic.*

## **2.4 Habitats**

Habitats within the 100 year floodplain are as follows:

### *2.4.1 Vegetation & Fauna*

The vegetated and faunal habitat within the 100 year floodplain is primarily mowed/maintained lawn (Figures 2 and 3). The area directly adjacent to the rip rapped shoreline is a gravel road and a paved sidewalk. The area directly adjacent to the concrete bulkhead is a paved sidewalk. There are three to four native conifer trees that have been historically maintained. There is neither native understory nor native herbaceous vegetation in this 100 year floodplain area. Faunal species are few to devoid except for an occasional deer and passerine birds.

### *2.4.2 Woody Debris*

No woody debris is found within the 100 year floodplain where the proposed development will occur due to routine maintenance and mowing activities.

### *2.4.3 Floodplain Refugia & Primary Constituent Elements*

Floodplain refugia within the 100 year floodplain is insignificant for the reasons described above. The Primary Constituent Elements are not present.

## **2.5 Water Quantity**

No water quantity data was analyzed or is included for this report because the area of the proposed development is upland.

## **2.6 Observed Listed Species & Priority Habitats**

ATSI did not observe listed species or their habitat (floral or faunal) within the 100 year floodplain. Listed species and listed species habitat, as described in the HartCrowser BE, occur in the adjacent marine water.

## **3.0 PROJECT DETAILS**

### **3.1 Development Area**

The proposed developed area is within the 100 year floodplain.

### **3.2 Floodplain Fill & Excavation**

The excavation proposed in the floodplain area will be limited to that required for the trenching, installation, and backfill of required utilities. In addition, a proposed swimming pool for the Marina Cabana recreation building will require excavation. Fill will be limited to that required to ensure that any buildings constructed in or near the floodplain will be certifiable above the floodplain. Affected buildings near the floodplain include 2 vacation cottages which may require a small amount of fill into the floodplain, and the proposed grocery building, which is expected to require about 92 cubic yards to bring the finish floor to a level of 15.5'. The Boatel Building is in the National Historic Registry and the finish floor elevation will not be changed.

### **3.3 Conservation Measures**

#### *3.3.1 Best Management Practices (BMPs) & Preliminary Stormwater Management Plan*

A technical memorandum will be prepared by the project engineer to address the use of BMPs, temporary erosion and control measures, and stormwater requirements and

compliance. BMPs related to staging and stockpiling areas for construction equipment will be clearly marked in the field. Temporary erosion control measures will be utilized and are expected to include designated clearing limits, silt fencing, seeding, and mulching to minimize the potential for erosion during construction.

### 3.3.2 Post Project Area Restoration & Maintenance

Post project area restoration will include restoration of approximately 42,500 square feet of shoreline with native plantings (refer to PUD Application).

### 3.4 Project Timeline

Project construction activities related to site clearing or other ground disturbances will commence upon completion of permitting. The project timeline anticipates a period of approximately one year to complete construction of all project components within the 100 year floodplain.

### 3.5 Avoidance & Minimization Measures

Avoidance and minimization measures for the 100 year floodplain include a net gain in pervious surfaces and native plantings. Therefore, impacts to the natural environment have been avoided and minimized.

## 4.0 EFFECTS ANALYSIS

The determination of effect is a finding of a federal agency based on an assessment provided for the potential effects upon a species, designated critical habitat, and essential fish habitat. One of three effect determinations is assigned as follows (United States Fish and Wildlife Service (USFWS) National Biological Assessment (BA) Template Instructions):

1. **No effect** means the project will have no adverse or beneficial effects on the listed or proposed species or habitat.
2. **Not likely to adversely affect** means that the direct and indirect effects of the project (including interrelated and interdependent activities) will be discountable, insignificant, or beneficial.
3. **Likely to adversely affect** means that the direct or indirect effects of a project (including interrelated and interdependent activities) will have adverse effects on listed species or habitat, and these effects are not discountable, insignificant, or wholly beneficial.

### 4.1 Assumptions

This HA is focused on impacts to listed species. Assumptions related to this effects analysis include:

1. The project as proposed within the PUD application;
2. Construction and restoration of portions of the shoreline of the project as proposed;

and;

3. That ATSI, the preparers of this HA, or another qualified biological consulting company, will oversee planting and will periodically be on site throughout construction to ensure that said measures outlined in this HA and listed documents are carried out.

#### **4.2 Direct Effects**

Direct effects are not expected to occur because:

1. No in-water work will occur.
2. The project will implement BMPs, including erosion controls and stormwater management designed to prevent sediment or runoff from entering marine water where listed species occur.
3. Altered topography resulting in the potential for “fish stranding” will not occur. The proposed connection from the figure eight pond to the shoreline will prevent fish stranding.
4. Increased water temperature will not occur because there will be a net gain in pervious surfaces and the immediate shoreline will be enhanced with native vegetation.

#### **4.3 Interdependent & Interrelated Effects**

Other than project approval, there are no other known interdependent or interrelated actions.

#### **4.4 Indirect Effects**

Indirect effects are those effects that may occur at a later period in time, after project construction, and are caused by ensuing development or circumstances created by the proposed project.

##### *4.4.1 Analysis of Indirect Effects*

To examine the potential for indirect effects that may occur as a result of this project, ATSI used the following analysis:

1. Does the project create a new facility?

The project does not create a new facility; it is upgrading existing facilities.

2. Does the project provide or increase access to the area, increasing human activity levels, and resulting in potential land use changes and impacts that would not have occurred otherwise?

No new roads or access points will occur due to this project. The current uses and proposed uses of the 100 year floodplain will remain similar although there may be a higher use of the “Green” during the summer months.

### 3. Does the project have the potential to increase the rate of development?

The 100 year floodplain and surrounding area will not increase the rate of surrounding development because said surrounding area is currently developed or is a portion of this PUD application.

#### *4.4.2 Conclusion of Indirect Effects Analysis*

Therefore, the project as proposed is consistent with local land use so there will be no indirect effects from this project.

## **5.0 ACTION AREA**

An “action area” is defined to provide a context for evaluating potential effects upon all areas affected either directly or indirectly by the proposed project.

The action area for the proposed project was determined based on the maximum potential extent of direct and indirect effects that may result from the proposed project.

The action area for the redevelopment of the floodplain is the same as that expressed in the BE for the proposed marina redevelopment. Please refer to said document.

## **6.0 PRIORITY HABITATS & SPECIES (PHS)**

### **6.1 General Information**

Best Available Science (BAS) for information related to listed species and habitats was acquired from NMFS, the USFWS, the Washington Department of Fish and Wildlife (WDFW), and San Juan County. However, because a BE has been recently prepared for the proposed marina redevelopment, please refer to said BE for a complete list of all species, species habitat, species of local concern, distribution, presence, and said results.

## **7.0 EFFECTS DETERMINATION**

### **7.1 Effects Determinations/Recommendation for Listed Species**

Refer to the BE prepared by HartCrowser for the marina for listed species, species habitat, and essential fish habitat within the marine water. Said BE also reviews and lists the species, species habitats, and effects the proposed marina will have on said species. As stated above, listed species, listed species habitat, and essential fish habitat are not present within the 100 year floodplain as described within this report. However, because there will be development within the 100 year floodplain, by default the possible effect said project will have on listed species, listed species habitat, and essential fish habitat cannot be a No Effects Determination. Therefore, Not Likely to Adversely Affect determination is recommended in relation to the above federally listed species.

## **8.0 CONCLUSIONS**

The project is the redevelopment of an historic mansion and related guest facilities including a restaurant and swimming pool, to become a high-end family oriented facility. A portion of this redevelopment will occur within a Corps determined 100 year floodplain of marine waters. The portion of the 100 year floodplain where redevelopment is

proposed is an historic mowed and landscape area separated from the marine water by either a rip rapped shoreline or a concrete bulkhead.

The proposed project will provide a net gain in pervious surfaces and a net gain in shoreline native habitat. Because a portion of the proposed project will occur within the Corps determined 100 year floodplain, a Not Likely to Adversely Affect determination is recommended.

## **9.0 LIMITATIONS**

We have used the most current, established methods to make determinations regarding listed species and designated critical habitat. All of the above statements are based on our best professional judgment. Although we follow the local, state, and federal criteria, we cannot guarantee that the local jurisdiction federal or state agency determinations will correspond to ours. Please note that regulations pertaining to listed species and designated critical habitat are subject to change over time.

## **10.0 WORKS CONSULTED**

1. Rosario Resort Public Utility District (PUD) Application  
March 23, 2015  
Prepared by: GHC, Seattle Washington
2. Biological Evaluation, Rosario Resort & Spa Marina Redevelopment  
September 8, 2014  
Prepared by: HartCrowser, Seattle Washington
3. Critical Areas Summary Report for Rosario Resort Improvements 2015  
Prepared by: Rozewood Environmental Services, Inc.
4. Corps, Hydraulic & Hydrology Branch, Hydraulic Engineering Letter Re: Base Flood Elevation, January 16, 2014  
Prepared by: Scott H. Brown, PE, Coastal Hydraulic Engineer
5. Ordinary High Water Mark (OHWM) Determination for Rosario, June 9, 2014  
Prepared by: Mindy Kayl
6. Rosario Resort Survey, January 21, 2015  
Prepared by: Islands Surveying Inc.
7. Joint Aquatic Resources Permit Application (JARPA), Rosario Resort Marina Redevelopment  
September 3, 2014
8. Rosario Resort Master Plan, Final Environmental Impact Statement (FEIS)  
December 21, 2006  
Prepared by: SE Group
9. Floodplain Habitat Assessment & Mitigation, Regional Guidance for the Puget Sound Basin, 2013



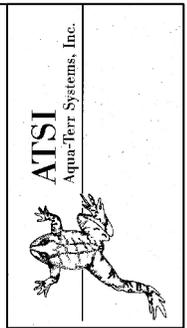
**Figure 1. Vicinity Map & Project Area**

Strandberg-Rosario Resort

Orcas Island, San Juan County, Washington

SW 1/4 Section 31, Township 37 N, Range 1 W & NW 1/4 Section 6, Township 36 N, Range 1 W, WM

May 2015

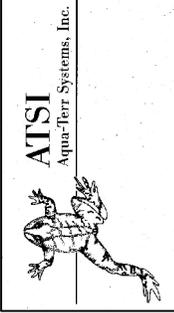


**Note** Basemap obtained from Rosario Resort PUD Application 23 March 2015. Not to scale.



**Figure 2. Aerial Photograph Panned Out**

Strandberg-Rosario Resort  
Orcas Island, San Juan County, Washington  
SW 1/4 Section 31, Township 37 N, Range 1 W & NW 1/4 Section 6, Township 36 N, Range 1 W, WM  
May 2015

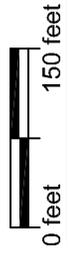


**Note** Baseaerial obtained from Google Earth.

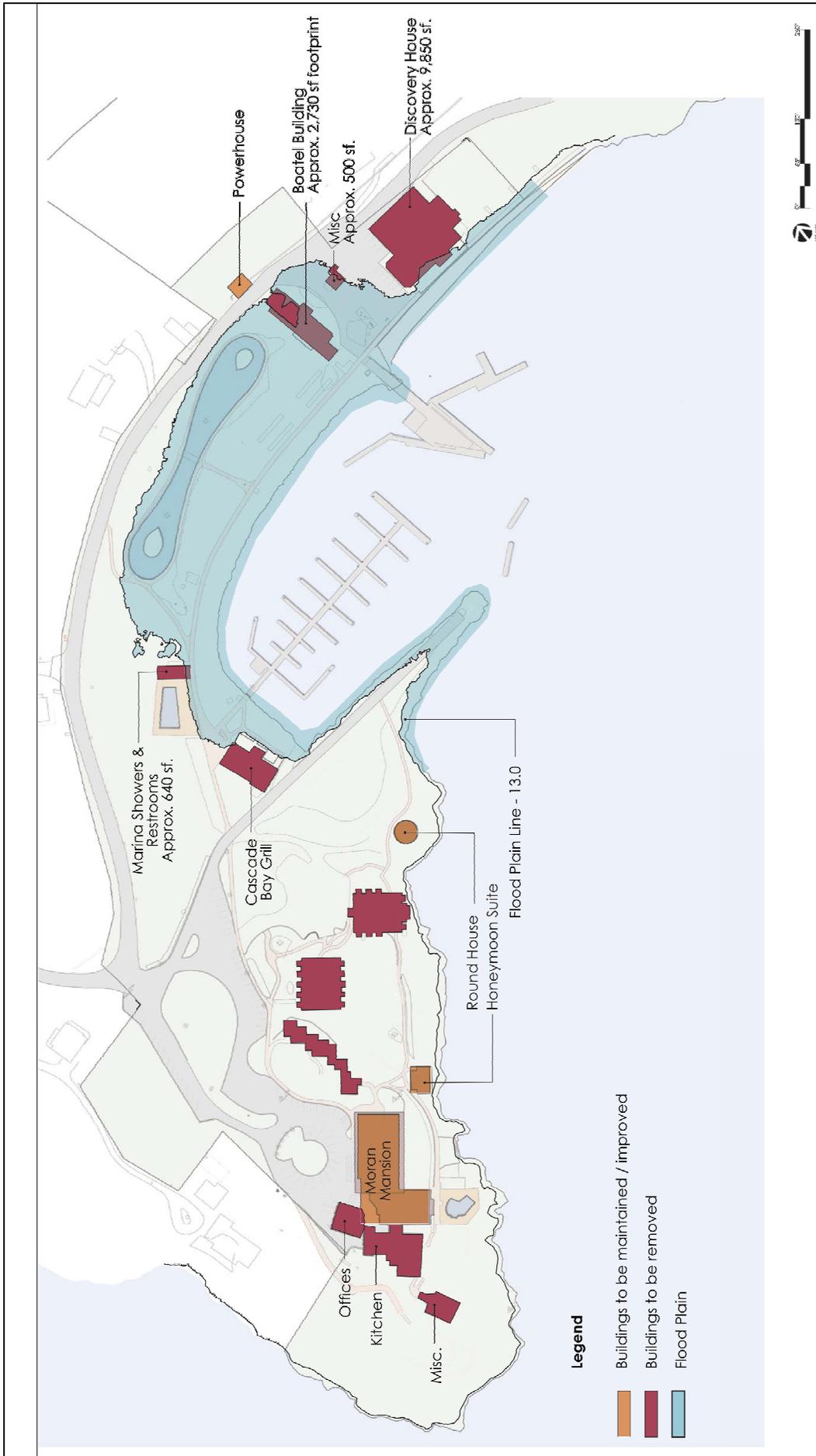


**Figure 3. Aerial Photograph Panned In**

Strandberg-Rosario Resort  
Orcas Island, San Juan County, Washington  
SW 1/4 Section 31, Township 37 N, Range 1 W & NW 1/4 Section 6, Township 36 N, Range 1 W, WM  
May 2015



**Note** Baseaerial obtained from Google Earth. Imagery date 10 July 2014.



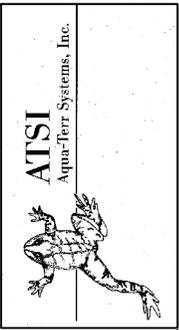
**Figure 4. Existing Conditions**

Strandberg-Rosario Resort

Orcas Island, San Juan County, Washington

SW 1/4 Section 31, Township 37 N, Range 1 W & NW 1/4 Section 6, Township 36 N, Range 1 W, WM

May 2015



**Note** Basemap obtained from Rosario Resort PUD Application 28 January 2015.



**Figure 5. Proposed Conditions**

Strandberg-Rosario Resort  
Orcas Island, San Juan County, Washington  
SW 1/4 Section 31, Township 37 N, Range 1 W & NW 1/4 Section 6, Township 36 N, Range 1 W, WM  
May 2015



**Note** Basemap obtained from Rosario Resort PUD Application 28 January 2015.