APPENDIX B

Environmental Report and Response to USDA Comments

B1. Preliminary Environmental Report

B2. Response to USDA Comments

B1. Preliminary Environmental Report

Preliminary Environmental Report

Prepared for

Pacific City Joint Water-Sanitary Authority
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CITATION

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ACRONYMS

APE	area of potential effect
BLM	Bureau of Land Management
BOD	Biochemical Oxygen Demand
CDP	Census-designated place
CGB	Community Growth Boundary
CZMA	Coastal Zone Management Act
DEQ	Oregon Department of Environmental Quality
DLCD	Department of Land Conservation and Development
ESA	Endangered Species Act
FIRM	Flood Insurance Rate Map
LCDC	Land Conservation and Development Commission
MBR	membrane bioreactor
MGD	million gallons per day
NMFS	National Marine Fisheries
NPDES	National Pollutant Discharge Elimination System
OAR	Oregon Administrative Rules
OCMP	Oregon Coastal Management Program
ORBIC	Oregon Biodiversity Information Center
PCJWSA	Pacific City Joint Water-Sanitary Authority
PCW-P	Pacific City/Woods Park Zone
PCW-R2	Pacific City/Woods Medium Density Residential
PCW-R3	Pacific City/Woods High Density Residential
SBR	sequencing batch reactor plant
SHPO	Oregon State Historic Preservation Office
TSS	total suspended solids
USDA-RD	U.S. Department of Agriculture Rural Development
USFWS	US Fish and Wildlife Service
UV	ultraviolet
WWMP	Wastewater Master Plan
WWTP	Wastewater treatment plant

1. PURPOSE AND NEED OF THE PROPOSAL

The Pacific City Joint Water-Sanitary Authority (PCJWSA) owns and operates the wastewater treatment plant (WWTP) that serves approximately 1,000 full-time residents and approximately 3,000 seasonal residents in the unincorporated communities of Pacific City and Woods.

The WWTP has experienced permit violations, and recently PCJWSA was fined by the Oregon Department of Environmental Quality (DEQ) for exceedances in water quality parameters of the National Pollutant Discharge Elimination System (NPDES) permit for total suspended solids (TSS), biochemical oxygen demand (BOD), and pH on several occasions in 2011, 2012, and 2013. The purpose of this proposal is to upgrade existing facilities to bring the facility into compliance with the water discharge permit.

2. ALTERNATIVES TO THE PROPOSED ACTION

This environmental report is limited to reviewing the proposed action, which is detailed below, and the no action alternative. Other alternatives considered but rejected are listed in the section below.

The No Action Alternative would result in no changes to the existing facility. The current exceedances in water quality parameters would continue and potentially increase in frequency as the system is currently operating at capacity. The facility is currently running as efficiently as possible with the current configuration, so future water quality violations are inevitable without changes to the facility itself.

The proposed action is to upgrade the existing WWTP. Three engineering options evaluated for upgrading the existing WWTP are listed below:

- Upgrading the existing activated sludge WWTP, in general as described in the 2005 WWMP.
- Converting the existing WWTP to a sequencing batch reactor plant (SBR).
- Converting the existing WWTP to a membrane bioreactor (MBR) plant.

For each option, flow and loading under current and future conditions were estimated to develop the size of treatment processes. The activated sludge option affects the largest footprint on the site and is not significantly different in construction, operation, or long-term environmental effects from the other options. The activated sludge was used for the analysis in this environmental report. An overview of the improvements needed to implement the activated sludge option and the approximate areas and volumes of excavation are described below.

- Headworks improvements. The current WWTP does not have grit removal equipment. A new grit tank, grit pump, grit classifier/washer, and screenings compactor are recommended. This involves shallow 2-foot excavation for installation of three concrete foundations on grade for some components and for the concrete grit tank excavation to a depth of 10 feet and total excavation volume of 67 cubic yards.
- Replacement of pumps in the flow equalization basin and discharge piping and valves. This involves 3-foot-deep excavation for the new piping for a volume of approximately 15 cubic yards.

- Construction of a third concrete aeration basin encompassing an area of 625 square feet on the east side of the existing aeration basins. Replace existing mechanical aeration system with fine bubble diffusers and associated air piping, valves, and blowers. Raise the concrete walls in the two existing aeration basins. This involves 3-foot-deep excavation for the air piping and 13-foot-deep excavation for the third aeration basin for a total excavation of approximately 1,072 cubic yards.
- Construction of two new 35-foot-diameter circular secondary clarifiers and supporting equipment such as sludge pumps, piping, valves, and flow meters. This involves 3-foot-deep excavation for the piping and 15-foot-deep excavation for the clarifiers for a total excavation of approximately 2,460 cubic yards.
- Filter feed holding tank improvements would involve constructing a new sloped floor. No excavation is needed.
- Construction of third tertiary cloth media filter and associated piping and valves is needed to accommodate future flows and provide needed redundancy. The filter would be on an 8- by 12-foot concrete foundation on grade and requires 2-foot-deep excavation of 6 cubic yards.
- Two ultraviolet (UV) light disinfection banks would be installed in an existing basin. No excavation is needed.
- Improvements to the existing aerobic digester consisting of new aeration system, two new blowers, and associated piping and valves. This involves 3-foot-deep excavation for new piping for a volume of approximately 8 cubic yards.
- New aerobic digesters in a 1,089-square-foot concrete tank, coarse bubble diffusers, blowers, pumps, piping, and valves. The tank would have an excavation depth of 13 feet and a total approximate excavation volume of 1,450 cubic yards.
- A new biosolids dewatering system housed in a new 35- by 40-foot building. The building would require 2-foot-deep excavation for installation of a concrete foundation on grade and total excavation volume of 141 cubic yards.
- A new standby diesel generator and automatic transfer switch housed in an expansion of the existing blower building. The building would require 2-foot-deep excavation over a 26- by 17-foot area for the concrete foundation on grade and total excavation of 42 cubic yards.
- Instruments and controls would be provided on new equipment. Various electrical conduits would be installed in shallow trenches 2 feet deep for a total excavation volume of 15 cubic yards.

2.1 ALTERNATIVES CONSIDERED BUT REJECTED

Three alternatives other than upgrades to the existing WWTP were considered but rejected. These include:

- Building transmissions lines to new or different centralized facilities. This alternative assumes a new pump station and transmission pipeline would transmit sewage to the nearest neighboring community with a wastewater treatment system, which is currently more than 5 miles away. This option was rejected because the cost and time required to build the pump station and transmission line greatly exceed upgrading the existing facility, and the neighboring facility may also need upgrades to handle the additional

wastewater. In addition, placement of more than 5 miles of additional transmission pipe would likely result in greater environmental impacts.

- Developing centrally managed decentralized systems. This alternative would decommission the existing WWTP and construct septic tanks serving clusters of homes. This alternative would be a return to the previous condition before the community built the WWTP. The soils are poor and lot sizes are small, which makes this alternative a poor and unreasonable option. In addition, water quality would likely decrease under this option.
- Developing an optimum combination of centralized and decentralized systems. This alternative would maintain the existing WWTP facility in the current condition and remove some residential and commercial properties from service. Instead these properties, as well as future construction, would have septic systems installed. This alternative was rejected because the soils in the area are poor for drainfields and lot sizes are too small to support building development along with a drain field. In addition, water quality would likely decrease under this option.

3. AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

3.1 LAND USE

Pacific City is an unincorporated community in Tillamook County, Oregon (Pacific City 2014). While the community did have a working-town history mostly for fishing, logging, and dairies, it has primarily been a resort and vacation destination since the 1950s.

The WWTP is located at 34005 Cape Kiwanda Drive, Pacific City, Tillamook County, Oregon, and parcel information is Map 4S10-19 Tax Lot 301 (see Figure 1). The facility is located in Pacific City/Woods Park Zone (PCW-P) where wastewater treatment plants are an outright permitted use (Murphy 2014). The outfall is located at the road end of Ella Avenue on the Nestucca River; however, no changes are planned for the outfall or any of the transmission lines to or from the WWTP. No changes to land use or zoning are required, and no special permits are required for the proposed project. Necessary permits would be limited to those required for any construction project, such as construction, grading, and development permits.

3.1.1 General Land Use

The zoning around the WWTP includes the following:

- PCW-P Pacific City/Woods Park Zone
- PCW-R2 Pacific City/Woods Medium Density Residential
- PCW-R3 Pacific City/Woods High Density Residential

The lot to the north of the WWTP is zoned PCW-P and is currently forested (Figure 2). The property to the east is part of the Salem District of the Bureau of Land Management (BLM) and is forested. To the northwest is PCW-R3 and the remainder is PCW-R2, high density and medium density residential, respectively. The uses west of the facility are residential, and the use to the south is mini-storage.

3.1.2 Important Farmland

According to the USDA Web Soil Survey, the site is located on Waldport fine sand, thin surface, 3 to 12 percent slopes (see Figure 3), which is not rated as prime farmland (NRCS 2013). No important farmland would be impacted.

3.1.3 Formally Classified Lands

The project area is not located within or directly adjacent to formally classified lands. Within 1 mile of the facility are four local, state, and national parklands. These facilities are located within the service area of the WWTP and would benefit positively by the proposed project as water quality in the area would be protected.

Name	Distance and direction from WWTP	Owner
Mugg County Park	0.4 mile SE	Tillamook County
Webb County Park	0.4 mile NNW	Tillamook County
Cape Kiwanda State Park	0.8 mile NW	State of Oregon
Bureau of Land Management	Portions within 0.5 mile NE, E, and S	Bureau of Land Management

3.2 FLOODPLAINS

The WWTP is located in Zone C per the most recent Flood Insurance Rate Map (FIRM), Community-Panel Number 41096-0305A and dated August 1, 1978 (FEMA 1978) (see Figure 4). Flood Zone C is listed as having a minimal flood hazard and less than a 0.2 percent chance of annual flooding. There is minimal flooding hazard for the facility.

Related to flooding and of concern for the entire west coast are tsunami hazards. Under the Local Source (Cascadia Subduction Zone) inundation map, the facility is located in the tsunami hazard zone under a large earthquake situation (DOGAMI 2014). The facility is included in the local evacuation planning, including protection of key facilities and evacuation routes. The proposed project would not impact current tsunami planning efforts, and no changes are proposed to the facility tsunami planning documents.

3.3 WETLANDS

Based on a June 10, 2014, site visit by Parametrix staff, no wetlands occur within the project area. According to the United States Fish and Wildlife Service (USFWS) National Wetlands Inventory, no wetlands occur within the project area (USFWS 2014) (see Figure 3). Furthermore, according to the United States Department of Agriculture Natural Resources Conservation Service Web Soil Survey, hydric soils are not present within the project area (NRCS 2013). Local Wetlands Inventory is not available for the project area.

Based on the above information, the proposed project would have no impacts to wetlands.

3.4 HISTORIC PROPERTIES AND ARCHAEOLOGY

Pacific City was originally homesteaded as Ocean Park in 1893, with the name changed to Pacific City in 1907 to reduce confusion with another city in Washington (Pacific City 2014).

3.4.1 Historic Property Information

The purpose of this section is to identify if there are properties or places within or near the project area that are protected under Section 106 of the National Historic Preservation Act. For purposes of this review, the area of potential effect (APE) is the property boundary as all work would occur on the existing property. Two properties were identified on the Oregon Historic Sites Database (OPRD 2014a, 2014b) as being within 1 mile of the APE. They are Cape Kiwanda and Ferry Street house.

Cape Kiwanda is a park/plaza area located at the end of Beach Road and approximately 1 mile northwest of the WWTP. Its historical name was Sand Cape. The site is listed in the Tillamook County Comprehensive Plan as being significant to the county for its association with travel and recreation (Tillamook Comprehensive Plan). The site is also identified as a dory launching site, which is of cultural significance to the area. The original construction occurred circa 1910 with an update possibly constructed in 1972. The site is eligible and a contributing element for a potentially eligible site for listing on the National Register of Historic Places. The site would not be directly impacted by the proposed action. There are no indirect impacts including visual impacts of the view from and to the park because there would be no noticeable changes to the view of or to the park. Negligible indirect construction impacts may occur due to the visual impact of construction vehicles but noise is not expected to impact park activities.

The second site is a single-family dwelling located at 6445 Ferry Street, reportedly built circa 1947. It is located approximately 0.5 mile south-southeast of the WWTP and across the Nestucca River. It was deemed ineligible for listing on the National Register of Historic Places. Therefore, there are no Section 106–related impacts to this property.

3.4.2 Archaeological Resources

Correspondence with SHPO indicated there were no known archaeological sites and/or buried human remains reported in the general project vicinity but that the "project area lies within an area generally perceived to have a high probability for possessing archaeological sites and/or buried human remains." However, few surveys have previously been conducted near the project area. SHPO recommends extreme caution during ground-disturbing activities.

The project team conducted an archaeological survey of the site on September 17, 2014. The entire WWTP property was surveyed with walking transects spaced no more than 10 meters apart. The ground surface was found to be disturbed across most of the APE, but no archaeological deposits were identified on the ground surface. Because of the location near the base of Cape Kiwanda between the ocean and the Nestucca River, the APE is considered to have moderate to high probability to contain subsurface archaeological resources. However, the specific project area appears to have lower potential. For that reason, it was recommended that no further archaeological investigations are necessary. If during construction activities discolored soils, rocks, buried soil horizons, artifacts (prehistoric or historical), or cultural features are encountered, all activities should cease immediately and the Oregon SHPO should be promptly notified. The methods, results, and conclusions are detailed in the survey report (see Exhibit A).

3.4.3 Visual Aesthetics

Pacific City is a resort destination community so visual aesthetics are important to the visitor experience. Visiting the beach and viewing the ocean, including Haystack Rock, are visually important activities within the community. The community is sensitive to ensuring a quality experience for visitors including seasonal residents, tourists to the community, and others

enjoying the Oregon beach in general. Among the ways the community protects views and visual aesthetics is through implementation of the comprehensive plan, which limits the heights of most structures, including locating communication towers away from where aesthetic views could be impacted.

In addition to the general resort area, there are several sensitive visual aesthetics receptors in the area including several county and state parks, BLM land, and a historic site. As there would be no noticeable change post-construction, there are no visual impacts due to the proposed project. There would be negligible impacts during construction due to the slight increase in truck traffic through the community.

3.5 BIOLOGICAL RESOURCES

In order to fully assess biological resources within and near the project area, Parametrix biologists reviewed available data sources and conducted a site visit on June 10, 2014. During the site visit, Parametrix biologists assessed habitat conditions within the project area.

The project area consists of existing buildings, storage tanks, gravel access roads, patches of grass/weeds that are regularly mowed, a small depressional area that collects stormwater, and scattered shore pines (*Pinus contorta* var. *contorta*). Thus, biological resources within the project area are limited.

Treated wastewater from the WWTP is discharged through Outfall 001 to the Nestucca River at river mile 1.5, approximately 0.5 mile south (off site) of the project area. The outfall's associated 36-foot total length diffuser pipe is located approximately 180 feet off the west shore of the Nestucca River at a point where the river is approximately 350 feet wide. The diffuser is approximately 8 feet below low water level in the river. However, no changes are planned for the outfall or any of the transmission lines to or from the WWTP.

3.5.1 Biological Resources Information

During the June 10, 2014 site visit, a Parametrix biologist observed black-tailed deer (*Odocoileus hemionus columbianus*) and various song birds adjacent to the project area within the forested land. The forested land may also support small mammals (e.g., raccoons [*Procyon lotor*]) and reptiles (e.g., common garter snake [*Thamnophis sirtalis*]).

Off-site data collection efforts involved a search and review of existing information related to fish and wildlife distribution and habitat within and surrounding the proposed project area. To determine species presence, existing data covering the project area were accessed from USFWS and National Marine Fisheries Service (NMFS) websites. The species lists from these websites were most recently accessed in June 2014. Furthermore, the Oregon Biodiversity Information Center (ORBIC) produced a database search on June 11, 2014, for rare, threatened, and endangered plant and animal records for species that may occur within a 2-mile radius of the proposed project. Records of two federally listed species were returned from the database search: Oregon Coast (OC) coho salmon (*Oncorhynchus kisutch*) and Western snowy plover (*Charadrius alexandrinus nivosus*).

Federally listed species identified by USFWS, NMFS, and ORBIC that may be present within the project vicinity are listed in Table 1 and are addressed within Exhibit B – Determination of No Effect for Listed Species.

Table 1. Federally Listed Species within Vicinity of Project Area

Species[a] *(Scientific Name)*	ESA[b] Status	Critical Habitat Designated?
Marbled murrelet *(Brachyramphus marmoratus)*	Threatened	Yes; not present in project area
Northern spotted owl *(Strix occidentalis caurina)*	Threatened	Yes; not present in project area
Western snowy plover (*Charadrius alexandrinus nivosus*)	Threatened	Yes; not present in project area
Short-tailed albatross (*Phoebastria [=Diomedea] albatrus*)	Endangered	No
Coho salmon (Oregon Coast ESU) (*Oncorhynchus kisutch*)	Threatened	Yes; not present in project area
Green sturgeon (Southern DPS) (*Acipenser medirostris)*	Threatened	Yes; not present in project area

a ESU = Evolutionarily Significant Unit; DPS=Distinct Population Segment

b ESA= Endangered Species Act

Salmonids found within the Nestucca River that are not federally listed as threatened or endangered include chum salmon (*O. keta*), Chinook salmon (*O. tshawytscha*), steelhead (*O. mykiss*), and coastal cutthroat trout (*O. clarki clarki*) (USFWS 2013). Of these, Chinook salmon, chum salmon, and steelhead returned from the ORBIC database search. Other species found in the Nestucca River include, but are not limited to, Western brook lamprey (*Lampetra richardsonii*), river lamprey (*L. ayersii*), Pacific lamprey (*Entosphenus tridentatus*), daces (*Rhinichthys* spp.), and sculpins (*Cottus* spp.).

The Nestucca River Bay area supports six subspecies of geese, including the Aleutian cackling goose (*Branta hutchinsii leucopareia*) and the only coastal wintering population of dusky Canada goose (*Branta canadensis occidentalis*). It is also an important rest stop for migrating shorebirds and other waterfowl and is used by peregrine falcons (*Falco peregrinus*) and bald eagle (*Haliaeetus leucocephalus*) (USFWS 2013). Of these, records of Aleutian cackling goose, peregrine falcon, and bald eagle were returned from the ORBIC database search as well as tufted puffin (*Fratercula cirrhata*) and fork-tailed storm-petrel (*Oceanodroma furcata*).

The ORBIC database search returned records of two plant species that have been observed within 2 miles of the project site: short-stemmed sedge (*Carex brevicaulis*) and Henderson's sidalcea (*Sidalcea hendersonii*). Neither of these plants, nor their habitats, occurs within the project area.

Additionally, Parametrix biologists contacted Martin Nugent from the Oregon Department of Fish and Wildlife on June 17, 2014, to discuss habitat conditions, species presence, potential project impacts, and other project details, but a response to the queries was not received.

3.5.2 Biological Resources Summary

The proposed project would have negligible impacts to wildlife species or habitats based upon the following:

- Activities would occur within the existing footprint of the WWTP which does not provide suitable habitat for wildlife species.

- The distance where construction noise becomes indistinguishable from background (ambient) noise is less than the distance from the project area to suitable habitat for federally listed wildlife species (See Exhibit B).
- Forested areas would not be disturbed; approximately three shore pines with diameters at breast height of less than 6 inches may be removed from within the existing facility.
- No jurisdictional wetlands would be impacted.

The proposed project would have negligible impacts to fish species or habitats based upon the following:

- No changes would occur to the treated wastewater outfall (the outfall is sized for 1 MGD, the upgraded facility would not approach this flow amount) or any of the transmission lines to or from the WWTP.
- No in-water work would be required.
- No jurisdictional wetlands would be impacted.

3.6 WATER QUALITY

The WWTP has experienced permit violations for exceedances in water quality parameters of the NPDES permit for TSS, BOD, and pH on several occasions in 2011, 2012, and 2013. Therefore, PCJWSA plans to upgrade the WWTP by implementing selected projects from an existing wastewater master plan improvement list. These upgrades are described and addressed within this document. The proposed upgrades are anticipated to meet discharge permit requirements as well as to provide dependable treatment for the future.

Furthermore, the proposed project would not impact existing or potential beneficial uses of groundwater. All wastewater and process-related residuals would be managed and disposed of in a manner that would prevent violation of the Groundwater Protection Rules (OAR 340-040).

3.7 WILD AND SCENIC RIVERS ACT

The Wild and Scenic Rivers Act of 1968 preserves "certain rivers with outstanding natural, cultural, and recreational values in a free-flowing condition for the enjoyment of present and future generations." The Nestucca River is not designated as a wild or scenic river (NWSRAS 2014), so this act does not apply to the project.

3.8 COASTAL ZONE MANAGEMENT ACT

Oregon implements the Coastal Zone Management Act through the adoption of statewide planning goals and administrative rules, adoption and amendment of local comprehensive plans, and ensuring local land use decisions are in conformance with state-approved comprehensive plans. Proposed projects that meet the land use and zoning requirements of the local jurisdiction's comprehensive plan are in compliance with the Coastal Zone Management Act. The proposed project is consistent with the applicable regulations including the Tillamook Comprehensive Plan; therefore the proposed project is consistent with the Coastal Zone Management Act. The Consistency Determination is included in Exhibit C.

3.9 SOCIO-ECONOMIC ISSUES/ENVIRONMENTAL JUSTICE

The 2010 Census population for the Pacific City Census-designated place (CDP) was 1,035, a slight increase from 2000 when the population was 1,027 (American FactFinder 2010). Using the 2010 census results, the median age was 55.4 years and the majority of residents identified as white (92 percent). Approximately 2 percent of the residents classified themselves as "some other race," and 1 percent identified as American Indian/Native Alaskan. A small percentage identified themselves as Hispanic (6 percent). Approximately 56 percent of the housing units are identified as seasonal, recreational, or occasional use where approximately three-quarters of the housing is owner-occupied.

The community is served by Nestucca Valley School District #101 with an elementary and high school in Cloverdale, which is approximately 6 miles away, and a middle school in Beaver, which is approximately 11 miles away (Pacific City 2014).

There are several parks within the project area including Woods Park at the north end of the community, Mugg Park also at the north end, and Presbyterian Community Park located near the center of town (Pacific City 2014). Bob Straub State Park is located on the spit created by the Nestucca River. Cape Kiwanda State Park and Natural Area is located on the spit to the west of town. Webb Park Campground is also located in this area.

Pacific City has a medical and dental building in the city limits with the nearest full service hospital is the Tillamook County Hospital in the City of Tillamook. The Pacific City community utilizes the Tillamook County Sheriff Department for police services but maintains its own fire and rescue department.

3.9.1 Socioeconomic Issues

The project area is located in an unincorporated portion of Tillamook County. As demonstrated by the census information above, the area is lightly populated with little change over 10 years, maintaining a rural character. Population projections indicate little change is anticipated in the population of the area for permanent and seasonal residents and visitors. The proposed project would not change the area's socioeconomic makeup, as the proposed project would serve the current needs of the community.

3.9.2 Environmental Justice Issues

Environmental justice is a two-step process to determine if there is a potential environmental justice concern. The first step is to determine if there is a protected minority or low-income population in the project area. The second step is to determine if there is a disproportionately high or adverse human or environmental impact on that protected population.

According to the American Fact Finder, the community was approximately 92 percent white and that 100 percent spoke English as their primary language (American FactFinder 2010). A minority population was not identified in the community.

The community had approximately 24 percent of households identified as below the poverty level (American FactFinder 2010). While the poverty level is a sliding scale depending on the number of people in the household, for 2010 the poverty threshold for a two-adult, two-child household was $22,113. This finding indicates a low-income population in the Pacific City/Woods community.

As negative permanent environmental impacts are negligible, there is not a disproportionately high and adverse health impact on environmental justice populations. The construction impacts are negligible for all populations, and impacts would be the same for all populations.

3.10 AIR QUALITY

The project is not located in a non-attainment area for air quality (EPA 2014). The WWTP currently has no odor control facilities, but odor complaints are very infrequent (Owen 2014). The current practice is to minimize potential odor issues by restarting the digester when there are strong winds, which would usually be blowing onshore. This is away from populations and has been an effective means of minimizing odors and odor complaints.

The proposed project would not add odor control facilities. However, improved performance with the project would better treat organic loads, which would coincidentally reduce the potential for odor creation. Therefore, no direct project impacts are anticipated on air quality.

Negligible air quality impacts are noted for construction due to the use of heavy equipment and trucks. However, onshore winds prevent air quality from exceeding thresholds, so no mitigation is required.

3.11 TRANSPORTATION

The community is accessed from the north via Cape Kiwanda Drive/Sandlake Road and from the west via US 101 and Brooten Road or Resort Drive. These roads are well-traveled during the summer months and holidays. The main roadways are used by many motorized and nonmotorized users, especially in the tourist season. Nonmotorized users include pedestrians and bicyclists. The Pacific City State Airport is located within the community and is suited to smaller private airplanes with a 1,875-foot-long runway. A traffic study was not performed.

Roads within the community are paved as are many parking areas. The major roads are two-lane roadways with shoulders through the community. Many of the side streets are single-lane without striping, as well as there being many driveways for access to multiple residences. Exterior lighting is minimal and mostly restricted to parking lot areas with no street lighting in the project area. There are street lights at some intersections.

Local roadways and transportation would not be impacted by the project. No roadway work is proposed. During construction, trucks would use the roadways for access to the project site, but the likely travel routes have wide shoulders and good site distances for truck mobility.

There would be no permanent transportation impacts due to the proposed project. Negligible construction impacts may occur due to the minor increase in truck traffic. However, truck traffic would be limited to major roadways, and there is sufficient capacity and site distance for turning into and out of the facility.

3.12 NOISE

The project is located within a resort community and adjacent to BLM land. Current conditions of very low levels of noise would be maintained after upgrades to the WWTP. The primary source of noise pre- and post-construction is from backup alarms on vehicles. During construction, there would be more truck and heavy equipment activity, including the associated backup alarms and noise from large equipment. Additionally, there would be truck traffic through residential neighborhoods and potentially near sensitive park and recreation sites. Truck traffic may use Cape Kiwanda Drive/McPhillips Drive/Sandlake Road from the north or access the site from US 101 via Resort Drive or Brooten Road. There would be no change in noise levels from current conditions during operation and negligible noise levels during construction of the proposed project.

3.13 CUMULATIVE EFFECTS

Cumulative effects result from the incremental effect of a proposal when added to other past, present, and future actions regardless of who undertakes such other actions. The project area has been developed since the early 1900s with fluctuations in population over time. The community has been a resort destination with moderate residential and commercial development. However, in the last 5 years there has been no new commercial development and minimal new housing stock added (Tupper 2014). Utilizing available data from real estate sources, the average age of homes is 27 years with few to no new building permits issued in the last few years and infrequent sales of existing stock. This housing trend summary is supported by the minimal change to the census figures for permanent residents (+0.01 percent) from 2000 to 2010.

The direct and indirect permanent and construction impacts from the project are none to negligible with the majority of impacts being negligible construction impacts. In combination with the past development and future development, the project would not have a cumulative impact.

4. SUMMARY OF MITIGATION

No mitigation is proposed for this project. There are negligible effects anticipated from construction of the project but none that require mitigation.

Due to the lack of data concerning archaeological and buried human remains, the contractor should use caution during construction and immediately stop work in areas where archaeological and/or human remains are encountered until a professional archaeologist can evaluate the discovery.

5. AGENCY CORRESPONDENCE

A letter was sent to SHPO on June 12, 2014, requesting a review of available data for archaeological sites. The response dated July 7, 2014, indicated there were no known archaeological sites and/or buried human remains reported in the general project vicinity but that the "project area lies within an area generally perceived to have a high probability for possessing archaeological sites and/or buried human remains." However, few surveys have been conducted near the project area. SHPO recommends extreme caution during ground-disturbing activities.

An email was sent to Patrick Wingard with Department of Land Conservation and Development (DLCD) on June 16, 2014, regarding the coastal zone consistency determination procedure. During a phone conversation on June 16, 2014, it was indicated that Coastal Zone Management Act consistency is covered if the comprehensive plan is followed.

An email was sent to Debbie Tupper at the Tillamook County Permit Counter on June 25, 2014, regarding the number of building permit applications and issued permits over last 5 years.

On August 27, 2014, letters were sent to the Confederated Tribes of the Grand Ronde and the Confederated Tribes of Siletz Indians regarding initiation of the Section 106 process. These letters included a description of the project and communication between project staff, USDA, and SHPO. See Exhibit D for a copy of the letter sent to the Confederated Tribes of the Grand Ronde. A response from Jordan Mercier of the Confederated Tribes of the Grand Ronde

Community of Oregon Cultural Protection Program was received by email on September 24, 2014, requesting additional project details regarding the depths of the excavations and depth of the fill layer at the site. Additional detail will be provided with the submittal of the pedestrian survey report to both tribes.

5.1 RESPONSE TO AGENCY COMMENTS

See Appendix B2 following this report.

6. LIST OF PREPARERS

The following sections were prepared by Jennifer Lundberg, CEP. Jennifer has over 22 years of experience in environmental documentation. She has been the author for environmental assessments meeting USDA Rural Development projects in Alaska as well as has served as a technical expert for numerous subject areas for environmental assessments and environmental impact statements for various federal projects.

- Land use
- Floodplains
- Historic properties and archaeology including visual aesthetics
- Wild and scenic rivers act
- Coastal zone management act
- Socio-economic
- Environmental justice
- Air quality
- Transportation
- Noise
- Cumulative effects

The following sections were prepared by Cyrus Bullock of Parametrix. Cyrus has over 17 years of experience in environmental science and specifically in fisheries, ecological function, and wetlands. He is certified to author biological assessments by the Oregon Department of Transportation.

- Wetlands
- Biological resources
- Water quality
- Determination of Effect for ESA- and other listed species

7. REFERENCES

American Fact Finder 2010. 2010 US Census. Accessed 10 June 2014. Available at http://factfinder2.census.gov/faces/nav/jsf/pages/community_facts.xhtml.

EPA 2010. EnviroMapper. Accessed 10 June 2010. Available at http://www.epa.gov/emefdata/em4ef.html?ve=12,45.20193099975586,-123.9626235961914&pText=Pacific City, OR.

Federal Emergency Management Agency (FEMA) 1978. Flood Insurance Rate Maps (FIRMs). Accessed 11 June 2014. Available at https://msc.fema.gov/webapp/wcs/stores/servlet/CategoryDisplay?catalogId=10001&storeId=10001&categoryId=12001&langId=-1&userType=G&type=1&dfirmCatId=12009&future=false.

Murphy, Tim. Personal Communication. Planner with Tillamook County. Contacted 12 June 2014.

National Wild and Scenic Rivers System (NWSRAS) 2014. Access 10 June 2014. Available at http://www.rivers.gov/washington.php.

NRCS (Natural Resources Conservation Service). 2013. Web Soil Survey. Available at: http://websoilsurvey.nrcs.usda.gov/app/. Last Modified December 6, 2013. Accessed April May 22, 2014

ORBIC (Oregon Biodiversity Information Center). 2014. Data System Search for Rare, Threatened and Endangered Plants and Animal Records for PCJWSA.

Oregon Department of Geology and Mineral Industries, State of (DOGAMI). 2014. Oregon Tsunami Clearinghouse evacuation brochures and apps. Access 16 June 2014. Available at http://www.oregongeology.org/pubs/tsubrochures/PacificCityEvacBrochure-12-12-12_onscreen.pdf

Oregon State Parks and Recreation Department (OPRD). 2014a. State parks history. Accessed 11 June 2014. Available at http://www.oregonstateparks.org/index.cfm?do=parkPage.dsp_parkHistory&parkId=130.

Oregon State Parks and Recreation Department (OPRD). 2014b. Oregon Heritage: National Register database. Accessed 11 June 2014. Available at http://heritagedata.prd.state.or.us/historic/.

Owen, Tony. Personal Communication with Tom Nielsen. Pacific City Joint Water-Sanitary Authority Manager. Contacted 13 June 2014.

Pacific City 2014. Pacific City, Oregon Visitor's Guide. Accessed 10 June 2014. Available at http://pacificcity.org/.

Tillamook County. Comprehensive Plan 1982 with various updates. Accessed 12 June 2014. Available at http://www.co.tillamook.or.us/gov/ComDev/Planning/compplan.htm.

Tupper, Debbie. Personal Communication via email. Permit Technician, Tillamook County Department of Community Development. 26 June 2014.

USDA 2014. Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture. Web Soil Survey. Accessed 12 June 12, 2014. Available online at http://websoilsurvey.nrcs.usda.gov/.

USFWS (U.S. Fish and Wildlife Service). 2013. Nestucca Bay National Wildlife Refuge. Available at: http://www.fws.gov/oregoncoast/nestuccabay/index.htm. Last Updated September 13, 2013. Accessed June 17, 2014.

USFWS. 2014. National Wetlands Inventory. Available at: http://www.fws.gov/wetlands/Data/Mapper.html. Last Updated May 7, 2014. Accessed May 22, 2014.

FIGURES

Parametrix Date: 9/29/2014 Document Path: P:\3300_PacificCity_WWTP\Fig1_PacificCity_ProjectLocation.mxd

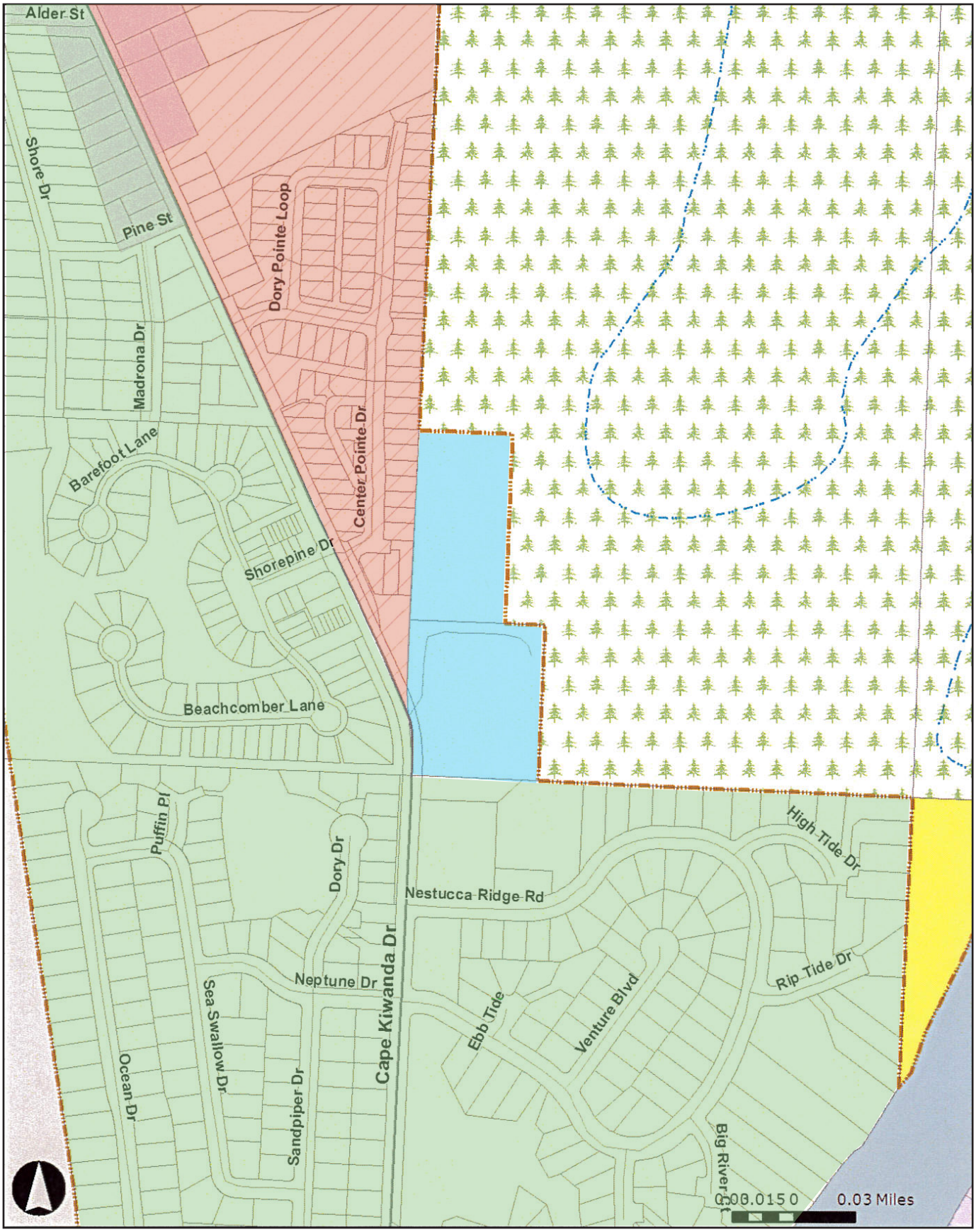
N

0 0.25 0.5

Miles

Figure 1.
Study Location and Vicinity Map

PCJWSA Wastewater
Treatment Plant Upgrades



Parametrix

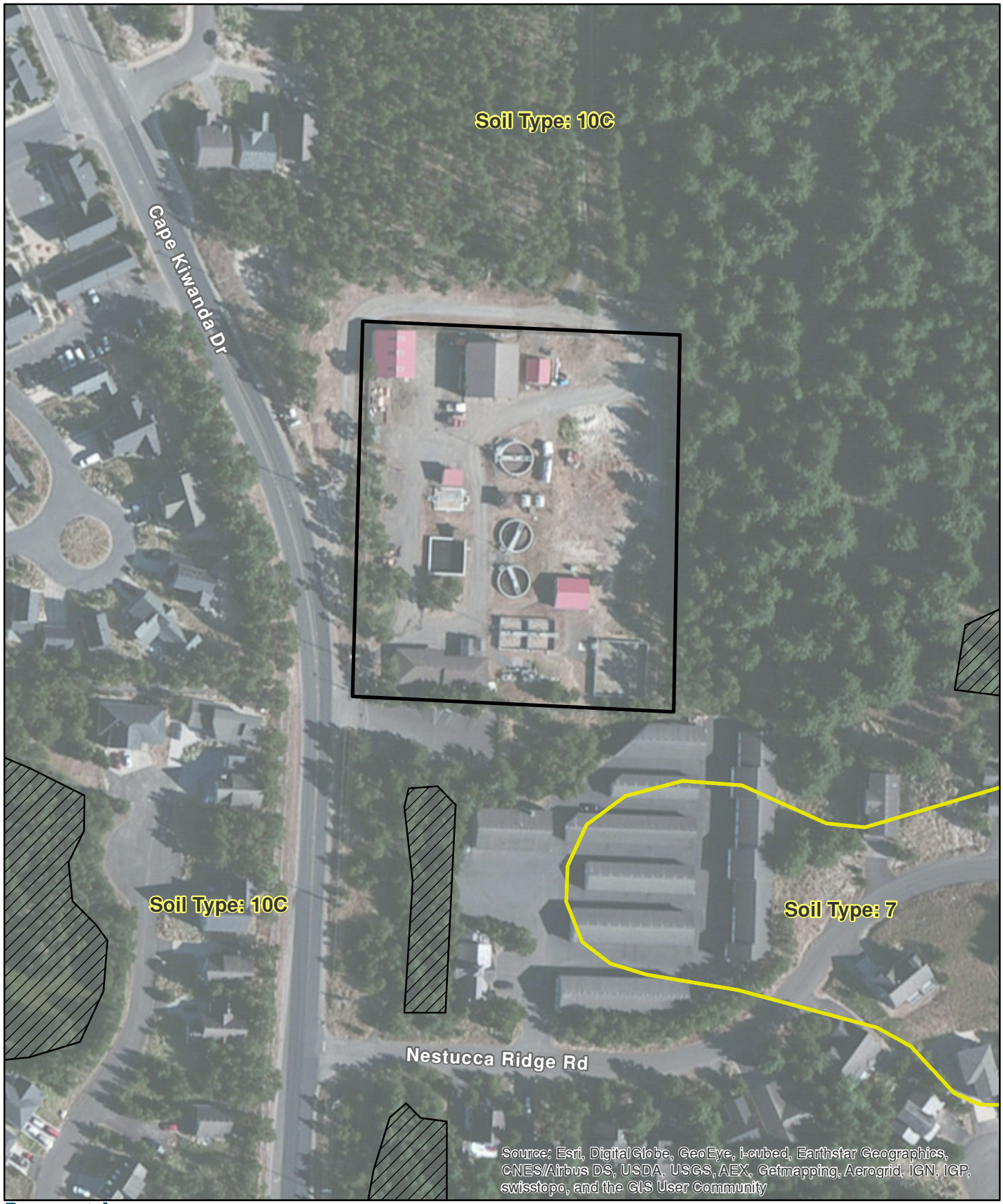
N

- **PCW-P** Pacific City/Woods Park Zone
- **PCW-R2** Pacific City/Woods Medium Density Residential
- **PCW-R3** Pacific City/Woods High Density Residential
- **F** (Forest)

Figure 2.

Pacific City Zoning Designations

PCJWSA Wastewater
Treatment Plant Upgrades



Parametrix Date: 10/1/2014 Document Path: P:\3300_PacificCity_WWTP\Fig3_PacificCity_SoilsWetlands.mxd

N

0 50 100

Feet

Study Area

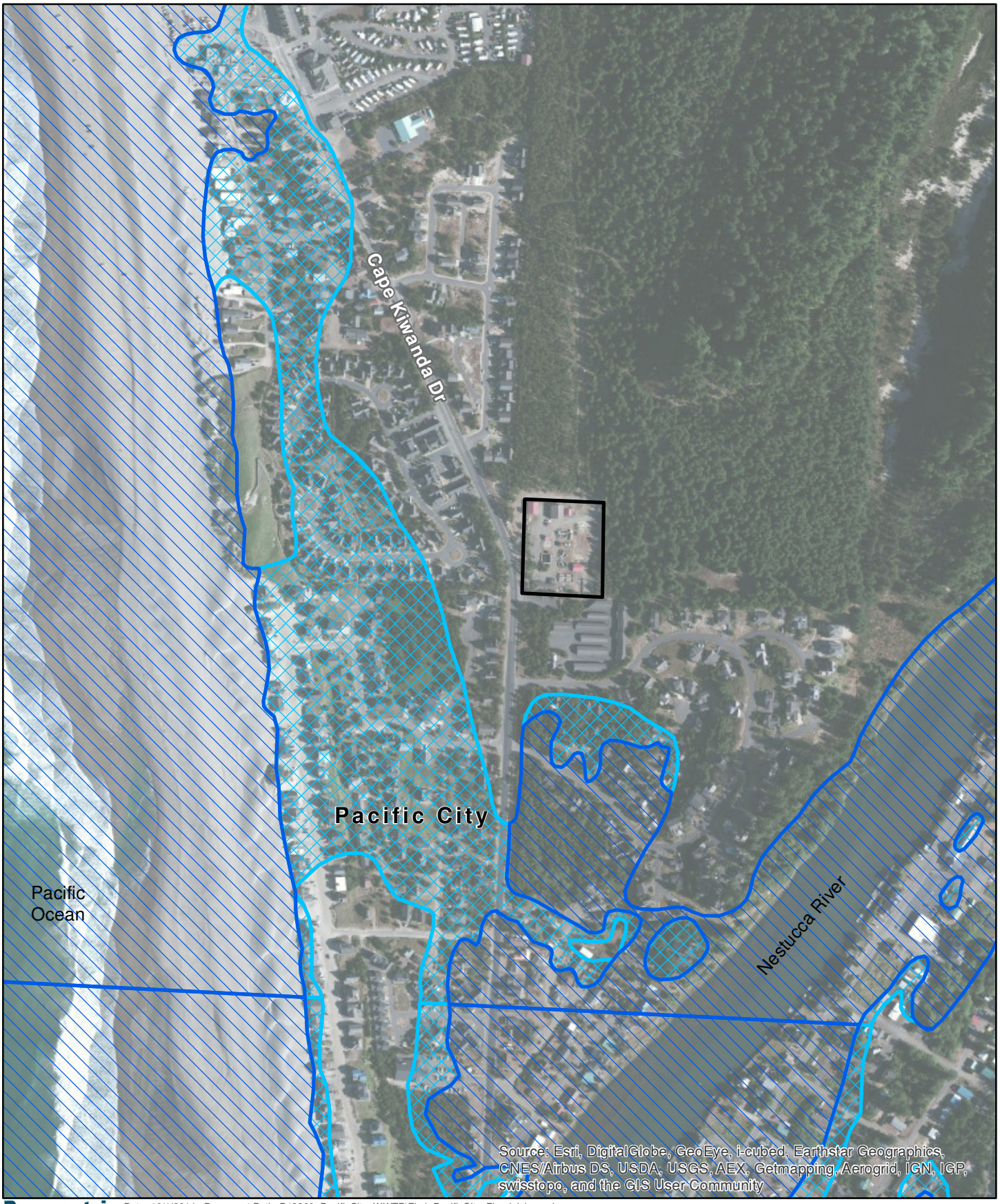
NWI Wetland

Soil Type 7: Waldport fine sand, thin surface, Dune Land

Soil Type 10C: Waldport fine sand, thin surface, 3 to 12 % slopes

Figure 3.
Soils and Wetlands

PCJWSA Wastewater Treatment Plant Upgrades



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N

0 250 500

Feet

Study Area

FEMA Floodplain (100-Year)

FEMA Floodplain (500-Year)

Figure 4.
Floodplain

PCJWSA Wastewater Treatment Plant Upgrades

EXHIBIT A

Findings of Archaeological Survey

STATE OF OREGON
CULTURAL RESOURCES SURVEY COVER

Please submit reports unbound.

Author(s) Name: Thomas E. Becker and Bill R. Roulette

Title of Report: Results of a Cultural Resources Study of the Proposed Pacific City Joint Water-Sanitary Authority Expansion Project Area, Pacific City, Tillamook County, Oregon
Applied Archaeological Research, Inc. Report No. 1382

Date: October 2, 2014 District/Contractor: Applied Archaeological Research, Inc.
Agency/Client: Parametrix, Inc. Agency Report Number:

County (ies): Tillamook Township: 4S, Range:10W Section: 19
Quad(s): 1985 Nestucca Bay, OR Project Acres: 1.3 Survey Acres: 1.3

CD Submitted? X Yes No Does this replace a draft? Yes X No
Project activity: monitoring Archaeological Permit No.: n/a
Field note location: Curation Location: Accession #:
Sites Found? Yes X No Prehistoric #: Historic #:
Historic Properties. Found? Yes X No Historic Property #:
TCP(s) found? Yes X No Isolates Found? Yes X No Isolate #:

Keywords: _____

SHPO Trinomial #: Temporary site #

_____ _____
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REPORT CHECK LIST

Report should contain the following items:

- Location, legal description (T,R,S) with USGS map
- Clear objectives and methods
- A summary of the results of the survey
- A report of where the survey records and data are stored
- A research design that:
  - Details survey objectives
  - Details specific methods
  - Details expected results
  - Details area surveyed including map(s) and legal location information
  - Details how results will feedback in the planning process (i.e., recommendations, future work)

Please be sure that any electronic version of a report submitted to Oregon SHPO has its figures, appendices, attachments, correspondence, graphic elements, etc., compiled into one single PDF file. Thank you!

RESULTS OF A CULTURAL RESOURCES STUDY OF THE PROPOSED PACIFIC CITY JOINT WATER-SANITARY AUTHORITY EXPANSION PROJECT AREA, PACIFIC CITY, TILLAMOOK COUNTY, OREGON

By
Thomas E. Becker, M.A., R.P.A.
And
Bill R. Roulette, M.A., R.P.A.

Prepared for
Parametrix, Inc.
Portland, Oregon

October 2, 2014

APPLIED ARCHAEOLOGICAL RESEARCH, INC. REPORT NO. 1382

APPLIED ARCHAEOLOGICAL RESEARCH, INC.
Cultural Resource Management and Historic Preservation

4001 NE Halsey Street, Suite 3 Portland, OR 97232 Phone (503) 281 9451 Fax (503) 281 9504

INTRODUCTION

The Pacific City Joint Water-Sanitary Authority (PCJWSA), located in Pacific City, Oregon, proposes to expand and upgrade its wastewater treatment plant. The United States Department of Agriculture - Rural Services group is the lead federal agency on the project, and requires the PCJWSA to comply with the cultural resources protection requirements of Section 106 of the National Historic Preservation Act of 1966, as amended, and its implementing regulations, 36 CFR 800. Under contract to Parametrix, the consulting firm providing engineering services to the PCJWSA, Applied Archaeological Research, Inc. (AAR) conducted a cultural resources study of the proposed project's area of potential effect (APE) to assist the PCJWSA in its compliance with the requirements of Section 106. This report presents the results of background research and archaeological reconnaissance survey designed to assess the likelihood that cultural resources are present within the project APE. AAR personnel involved in conducting the cultural resources study included Kendal McDonald, M.A., who performed document and record research at the Oregon State Historic Preservation Office (SHPO) and Tom Becker, M.A., RPA, who conducted background research related to the project, conducted the fieldwork, and is the primary author of the report. The survey was conducted on September 17, 2014. The project was under the technical supervision of Bill R. Roulette, M.A., RPA, who served as the Principal Investigator.

Project APE and Area Description

The project APE is located in Section 19, Township 4 South, Range 10 West, Willamette Meridian (Figure 1), in the Tillamook sub-basin of the North Coast basin, in the North Coast Region of Oregon. It is located in the northwestern part of Pacific City, between the Pacific Ocean and River Mile 2 of the Nestucca River, on the northern end of the sand spit extending south from Cape Kiwanda. From Cape Kiwanda, hills of the Coast Range rise to the east and northeast from the project area. The sand spit extends to the south. The project APE is located on a relatively flat area with elevations between 25-30 feet above mean sea level.

The property adjoining the project APE to the north and east are federally-owned lands managed by the U.S. Bureau of Land Management. The current APE was part of this BLM parcel (Caruso 1994), before it was transferred to the PCJWSA. The APE is bounded to the west by Cape Kiwanda Drive, and by a residential community to the south.

The proposed project would include new construction and upgrades within the existing PCJWSA wastewater treatment plant (Figure 2). It is an approximately 2.3-acre property. The majority of the current operations are located in its central and western parts. Most of the proposed construction activity would occur on the eastern third of the property, which is primarily undeveloped and has been used for staging and stockpiling (Figures 3 and 4). The APE defined for the current project encompasses approximately 1.3 acres. It includes the entire area to be developed for a new digester, clarifier, aeration basin, dewatering system, lime handling system, generator, grit system, and filters, as well as the necessary utility trenches. All proposed construction will occur within the existing property boundary. Project elements that require excavation are listed in Table 1 and depicted in Figure 2.

Conventions

By convention, in this report, measurements for common distances, elevations, and areas are provided in inches and feet without metric conversion. Measurements used in describing archaeological procedures, findings, and observations are in metric units without English unit equivalents. Commas are used between the thousands place and the hundreds place for numbers but not calendar dates or years before the present (B.P.).

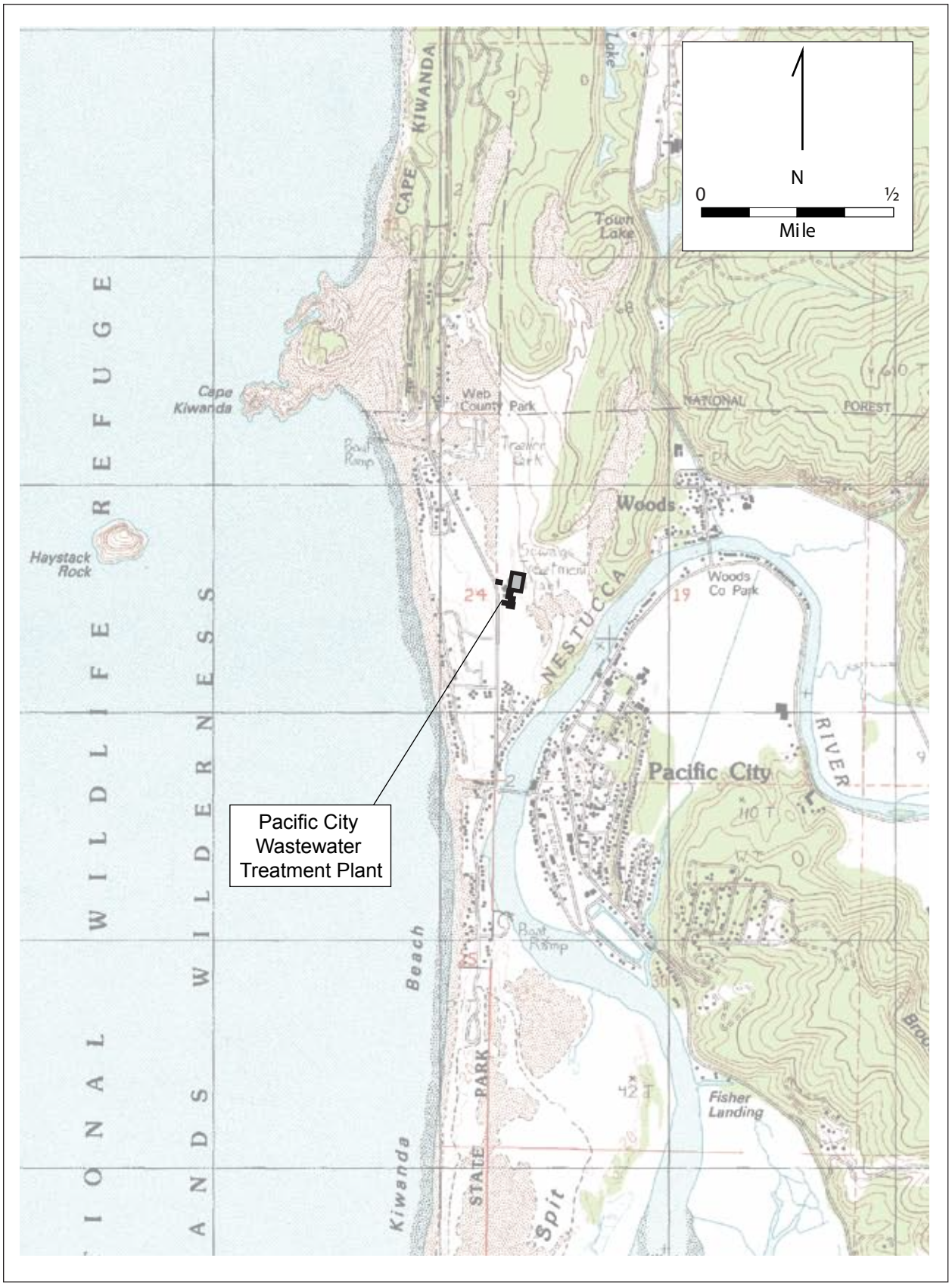

Figure 1. Location of the Pacific City Wastewater Treatment Plant Improvement APE as depicted on the USGS 1985 (Provisional Edition) Nestucca Bay, Oreg., 7.5-minute topographic quadrangle.

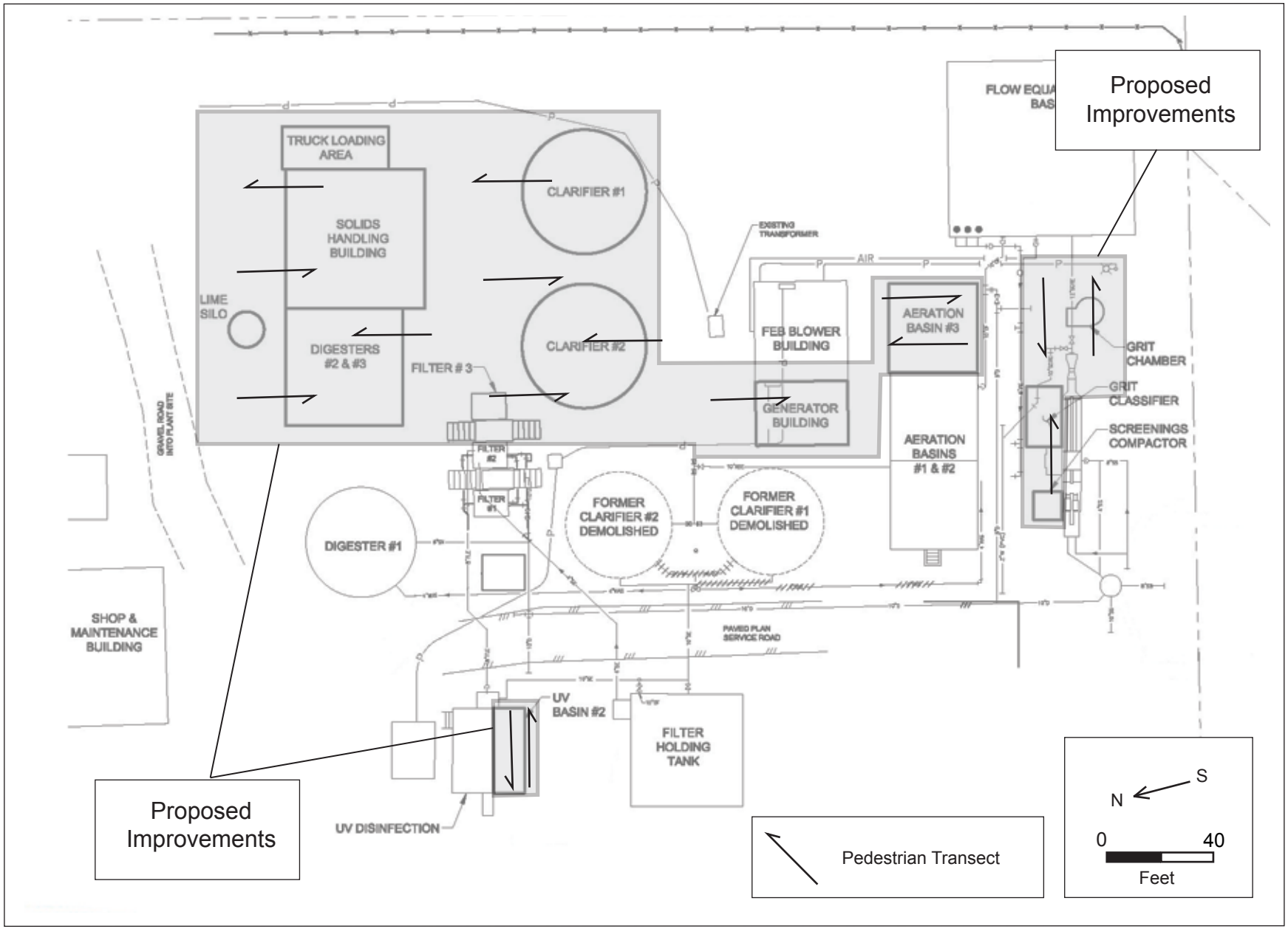

Figure 2. Configuration of the proposed improvement APE, including the exisitng compound, showing the location of pedestrian transects.

Figure 3. View of the APE looking southward from the northeast corner of the property.

Figure 4. View north of APE from the southeast corner. The wooded area in the upper right corner of the frame is on BLM land.

Table 1. Depths of proposed impacts within the project APE.

Proposed Construction	Dimensions (feet)	Estimated Depth (feet)
Screenings Compactor	10x10	2
Grit Classifier	12x19	2
Generator Building	20x28	2
Filter #3	8x10	2
Solids Handling Building	39.3x39.3	2
Lime Silo	11x11	3
Grit Chamber	12-foot diameter	10.2
Aeration Baasin #3	35x35	12.5
Digesters #2 & #3	43x43	12.5
Clarifier #1	45-foot diameter	15
Clarifier #2	45-foot diameter	15

ENVIRONMENTAL, ARCHAEOLOGICAL, AND CULTURAL OVERVIEW

Environmental Overview

The project APE is located approximately .3 mile inland from the Pacific Ocean, and .22 mile northwest of the Nestucca River. The Nestucca River originates approximately 53 miles northeast of the project area near the crest of the Coast Range and flows mostly west to southwest where it ultimately drains into Nestucca Bay and the Pacific Ocean. It drains an approximately 258-square-mile area (Barczak 1998). The current project area is situated in the center of the northern end of the sand spit, just south of Cape Kiwanda, where the river turns south along the spit before entering into Nestucca Bay.

The APE is in an ecotonal setting consisting of the transitional zone between the Pacific Ocean to the west, the Nestucca River to the east, uplands to the north and northeast, and the Nestucca sandspit to the south. A little more than .3 mile west is the Pacific littoral, which in Oregon is a long, narrow zone between the open ocean and the Coast Range. It is known for diverse and highly productive microenvironments (Franklin and Dyrness 1988). The coast itself has long sandy beaches punctuated by rocky bluffs and headlands as well as estuaries where the ocean and river mouths meet, such as Nestucca Bay, which is fed by both the Nestucca and the Little Nestucca rivers. Sediments deposited by northward flowing longshore currents have created a large spit across the mouth of the bay, with an opening at the south end through which the bay fills and drains with the tides. The Nestucca Bay Spit is a large but transient landform that is occasionally breached by ocean waves (Barczak 1998). To the north, east, and south, the bay is enclosed by low, steep hills and large floodplains created by the tributary rivers.

The Coast Range is a narrow belt of moderately high mountains and coastal headlands extending from the Columbia River on the north to the Middle Fork of the Coquille River on the south. The Coast Range has been described as "simply a big slab of sea floor raised high and dry, tilted ever so gently eastward, and broken up a bit by a few faults" (Alt and Hyndman 1992:71). Uplift of the sea floor began during the Miocene, a period of prolific volcanism that produced the lava flows of eastern Oregon as the ocean retreated to the west (Orr et al. 1992:169). During the subsequent Pliocene and Pleistocene epochs erosion shaped the mountains and rivers and streams cut drainages that give the range its characteristic dissected appearance.

The project area lies in an area that developed post-Pleistocene sea level stabilization, which Lyman (1991) suggests was around 6,500 plus/minus 1,000 years ago. Nestucca Bay is a drowned river estuary, initially formed nearly 9,000 years ago as sea level rose and submerged the mouths of the tributary rivers. The shape and configuration of the coastline has been influenced to an unknown extent

by tectonic activity. At least 11 earthquakes during the Holocene along the Oregon coast have resulted in differential subsidence, uplift, sedimentation, and erosion along the coast (Charland and Reckendorf 1998:5-14). The last large quake occurred approximately 300 years ago (Atwater et al. 2005).

The APE is within the Sitka spruce forest zone. Major tree species of this forest zone include Sitka spruce, western hemlock, Douglas-fir, western redcedar, and red alder (Franklin and Dyrness 1988). Understory vegetation is dense and includes a variety of shrubs, herbs, and ferns including sword fern, wood sorrel, red and evergreen huckleberry, salal, red elderberry, and western rhododendron (Franklin and Dyrness 1988). This forest zone extends inland from the coast several miles and along major river valleys to an elevation of approximately 500 feet. Some variation in forest composition occurs in relation to microenvironmental factors such that areas with high water tables (e.g., lowland valley floodplains) feature a prevalence of water-tolerant species such as red alder, big leaf maple, and black cottonwood. The current project lies in such a zone.

This vegetative zone supports a wide array of terrestrial mammals including deer and elk, coyote, black bear, mountain lion, bobcat, beaver, snowshoe hare, raccoon, and a wide variety of species in the *Mustelidae* family such as weasels, minks, martens, and skunks. Bird species include varieties of blue and ruffed grouse, mountain quail, and owls such as the great horned and long-eared owls (Bailey 1936). Additionally, at least three species of salmon, as well as numerous other species of fish, inhabit the Nestucca River drainage (Barczak 1998). Historically, the Nestucca Bay area did not have significant native shellfish populations (Starr 1979).

In a soil survey published in 1964 (Bowlsby and Swanson 1964), the soil mapped for the project APE was described as Active Dunes. This type of deposit consists of wind-drifted sand in the form of dunes, ridges, or hummocks. "Dunes are either bare of vegetation, or the growth is not dense enough to protect the sand and to prevent it from blowing. Consequently, the dunes are constantly shifting under the influence of strong ocean winds, and in some places, are advancing slowly over the forest" (Bowlsby and Swanson 1964:36). A geotechnical study conducted within the wastewater treatment plant in 1996 provides data on subsurface deposits present in the project area (AGRA 1996). The study included excavation of four bores in the southeast corner of the current project area. Analysis of the sediments from the bores showed a top layer 6 to 12 inches thick of dark brown, organic sandy topsoil that capped 30 feet of uniform, wet, light brown fine sand. The sand was poorly sorted and contained little finer-grained material. That is, there was no evidence for soil formation below the surface indicating a constant buildup of sand without significant period of interruption. The water table was encountered at 2 to 3 feet below surface.

The current soil survey for Tillamook County lists the soil mapped in the project area as Waldport fine sands, 3-12 percent slope (USDA 2014). This soil is found on dunes, foredunes, and in blowouts. The typical profile consists of 1 inch of decomposing organic material, overlying 2 inches of fine sands that comprise the A horizon. From 3 to 60 inches below surface are more fine sands that comprise the C horizon (USDA 2014).

Ethnographic Overview

Prior to Euroamerican contact, the project APE was within the homeland of the Nestucca Indians, a Salish-speaking people. The Nestucca occupied the region between Cape Lookout and Cascade Head, primarily living around Sand Lake, Nestucca Bay, and Neskowin.

The Nestucca were a subdivision of the Tillamook Indians. The Tillamook occupied the river valleys along the coast from Tillamook Head south to the Siletz River. Local groups, like the Nestucca, were mostly politically autonomous (Seaburg and Miller 1990).

Like other Tillamook groups, the Nestucca lived in permanent winter villages, dispersing in the spring, summer, and fall to more distant locations to gather and process resources for storage and later consumption. Winter villages were usually located at the mouths or confluences of major rivers, but also in estuaries and bays (Jacobs 2003:2; Seaburg and Miller 1990:561). Houses were rectangular, made of upright cedar plank walls and gabled roofs, and included both semi-subterranean and aboveground styles (Jacobs 2003:2; Seaburg and Miller 1990:561). House interiors usually featured a central fire pit and raised sleeping platforms along the sides (Seaburg and Miller 1990:561). Floors were covered with mats and goods were stored in baskets under the platforms or hung from the house rafters for smoking and drying. Besides houses, villages had sweat lodges, menstrual huts, and cemeteries.

Subsidiary residential sites were occupied seasonally from late spring to late autumn at fishing, hunting, and plant gathering sites. Structures were sometimes constructed at these locations, but were not as substantial as winter houses (Jacobs 2003:2-3). These secondary sites were the centers of resource procurement and processing and likely featured hearths, ovens, drying racks, and associated artifacts, depending on the specific resources and range of activities. Fish weirs and traps were often constructed to trap fish in areas of shallow water where they were easier to catch (Sauter and Johnson 1974:54). However, such subsidiary sites were considered to be open to the community, as well as to outsiders (Jacobs 2003, Sauter and Johnson 1974).

Several Nestucca villages and campsites are reported to have been located around Nestucca Bay. Villages were located on the western edge of Sand Lake, at Tierra del Mar, along the Nestucca River near the present towns of Woods and Pacific City, and near Neskowin, where Hawk and Slab creeks meet (Sauter and Johnson 1974:175-177). Stella Falls, located on the Little Nestucca River, was an especially productive fishing site due to the narrowing river and height of the falls (Sauter and Johnson 1974:175).

Fish, roots, berries, terrestrial and sea mammals, and shellfish formed the basis of the Nestucca subsistence (Jacobs 2003:75, 80-81; Seaburg and Miller 1990:562). Resources were taken when available and either consumed directly or processed and stored for future use. In the spring salmonberry sprouts were gathered and camas, huckleberries, and salal berries were collected and processed for storage during the early summer. Some roots such as fern, lily, and wild carrots were collected in the winter months (Jacobs 2003:80-81). Men hunted alone year round, and groups of men hunted together during the fall elk season. Bow and arrow, spear, traps, and pitfalls were used to capture and kill elk, deer, bear, beaver, muskrat, and other small mammals (Jacobs 2003:75). Sea mammals such as sea lion and seals were hunted and large amounts of shellfish gathered and dried. Fresh and saltwater fish were widely used and salmon was an important staple. Salmon were taken from August through December (Seaburg and Miller 1990:564).

Like other Tillamook peoples, Nestucca society had free and slave classes with a fluid ranking in the free class based on acquisition of spirit powers (Jacobs 2003:96). Each village had a headman, but leadership was often a looser, task related responsibility (Seaburg and Miller 1990:565) with knowledgeable individuals taking the lead in specific tasks.

Infectious diseases against which they had no resistance spread among the Nestucca and other Tillamook groups and other Indian communities along the Oregon coast, in the lower Columbia River Valley, and in the Willamette Valley beginning in the late eighteenth century. A smallpox outbreak occurred around 1775 and probably affected the entire coastal region (Boyd 1990:137). All groups lost at least a third of their members in this epidemic, which may have spread from a Spanish expedition ship (Boyd 1990:138). A second epidemic followed in 1801, spread from the Great Plains through the Columbia Plateau. Various other epidemics of measles or small pox or other infectious diseases occurred periodically between the 1820s and the 1860s. The cumulative effect of the epidemics was to reduce the population of the Tillamook from an estimated 4,320 in the early 1800s to 193 in 1854 (Boyd 1990:136, 146).

Treaties negotiated in 1851, but never ratified, led to the Tillamook ceding their traditional lands. However, no concerted effort was made by white settlers or the military to remove the Tillamook to either the Siletz Reservation, established in 1855, or to the Grand Ronde Reservation, established in 1858. The United States Congress disposed of land claim cases raised by the Tillamook in 1897 and 1912 and the courts dismissed a lands claim case in 1945. The Tillamook received awards from the Indian Claims Commission in 1958 and 1962 (Seaburg and Miller 1990:561).

Archaeological Context

After 100 years of archaeological research, the prehistory of the Pacific coast of Oregon and Washington remains poorly defined and understood (Lyman 1991:18, 76-77; Lyman and Ross 1988:104; Wessen 1990:412-413). It has only been in the past 20 years that attempts have been made to synthesize the coastal research and to integrate the prehistory of the area into the larger context of the Northwest Coast (Ames and Maschner 1999; Lyman 1991; Lyman and Ross 1988; Moss and Erlandson 1998), and only in the last 10 years that researchers have begun research to identify sites from the late Pleistocene/early Holocene (Hall and Davis 2002; Hall et al. 2003, 2005). The following overview uses the broad framework of Ames and Maschner (1999) supplemented by local chronologies and synthetic material, as appropriate.

Archaic (11,000-5500 B.P.)

Prior to 5,000 years ago, the Pacific coast was characterized by lower, and slowly rising, sea levels that hindered stable development of the productive estuarine environments attractive to hunting and gathering groups. Sites located along or close to ancient shorelines were likely inundated by the rising sea levels, leaving only the sites further inland to be found by archaeologists. The inundation of these sites hampers our ability to fully understand the settlement and subsistence patterns of the period. Although sites from this period have been found along other parts of the Northwest Coast (Ames and Maschner 1999; Lyman 1991), until recently few definitively Archaic period sites were known on the Washington or Oregon coasts. This in part reflects the unstable coastal environments linked to sea level rise, but it also likely reflects a narrow focus on the discovery of more recent shell midden sites at the expense of the non-inundated Archaic period sites that were located away from the water, and generally lack thick shell deposits (Lyman 1991).

The few known Archaic period sites, found at higher level landforms and mostly on the southern and central Northwest Coast (Ames and Maschner 1999:67), commonly contain leaf shaped, stemmed, and side notched projectile points, as well as scrapers, blades, and groundstone (Ross 1990:554). On the northern Oregon coast, components of the Youngs River Complex, comprised of shouldered and leaf shaped points, are found on high terraces near the mouth of the Columbia River (Ames and Maschner 1999:67; Minor 1983, 1984).

Early Pacific (5500-3500 B.P.)

The beginning of the Early Pacific period coincides roughly with cooler and wetter environmental conditions (Ames and Maschner 1999:83) and sea level stabilization along the Oregon coast (Lyman 1991:80). Archaeological sites from this period typically contain lanceolate projectile points and scrapers. Bone tools increase in frequency and diversity of forms compared to preceding period assemblages, but this may be in part a function of preservation (Lyman 1991:80). While a diverse suite of resources was used during this period, suggesting a continuation of the broad-spectrum foraging adaptation seen in the Archaic period, resources captured or harvested in the intertidal and coastal zones, including sea mammals, increased in importance. Lyman (1991:80) calls this period the early Littoral to emphasize the apparent increase in exploitation of coastal resources concomitant with sea level stabilization. Increased biological diversity and productivity related to sea level stabilization and the

development of estuaries was followed by increased sedentism by pre-contact populations and some increased logistical organization.

Middle Pacific (3500-1500 B.P.)

On the northern Northwest Coast, villages first appear during this period and at Oregon coastal sites shell middens become much larger than in the preceding period (Ames and Maschner 1999). At the same time, a variety of site types are recognized, suggesting increasing logistical organization of economic activities. More use of storage technology is evident, as is intensification of salmon in some areas (Ames and Maschner 1999:108). More types of bone and antler tools appear in assemblages, including unilaterally barbed harpoons and multipart tools such as the composite toggling harpoon (Ross 1990:555).

Late Pacific (1500-200 B.P.)

Modern climatic conditions were in place by 2000 B.P. On the Northwest Coast generally, the Native American lifeways seen at the time of European and American contact were fully in place by the beginning of this period. Settlement patterns seen archaeologically suggest a developed system of logistical movements with winter villages located around estuaries and a variety of field camps where economic resources were procured and processed in bulk. Faunal remains are highly variable in Late Pacific sites and a wide array of bone and flaked stone tools is found.

Previous Archaeology in the Project Vicinity

Based on a review of records obtained from the Oregon SHPO in Salem, the project area appears to have been previously examined for cultural resources but does not contain any recorded archaeological sites.

In 1994, Caruso (1994) conducted a pedestrian survey of an 80-acre parcel of BLM land. The parcel included 3 acres in its southwest corner that are described as having been leased to Pacific City for a sewage treatment plant. The 3 acres mentioned in the survey report may have included the current 1.3-acre APE. As the project report did not include a map showing the location or configuration of the surveyed area, it cannot be stated unequivocally that the current project area was surveyed at the time. In any case, no cultural resources were identified during the survey although ground surface visibility was poor and much of the area was described as impenetrable due to thick vegetation (Caruso 1994:2). It was recommended that the area be resurveyed as part of future projects.

In 2014, Greatorex (2014) surveyed 80 acres of BLM land that included much of the same area surveyed by Caruso in 1994. The current project APE does not appear to have been surveyed at that time. Shovel scrapes, consisting of squares 1 meter (m) on a side in which surface vegetation was removed to expose mineral soil, were excavated at either 10 to 15 or 20 to 25 m intervals (depending upon the topography) to search for archaeological deposits. None were observed. The author recommended "that prior to any excavation for building foundations, intense sub-surface testing be accomplished by Pacific City in the southern half of the property" (Greatorex 2014:4).

Swanson (1976) may have also surveyed part of the project APE, although based on maps and descriptions of surveyed areas included in the project report, her survey of the current project area cannot be confirmed. The cultural resource study was conducted for the Pacific City Sanitary District in advance of the installation of 59,000 feet of sewer pipeline and associated manholes, cleanouts, and four lift stations (Swanson 1976). No cultural deposits were identified during the study, but the area was identified as having a high probability to contain subsurface cultural material.

Aside from the BLM-managed lands, there has been relatively little archaeological research conducted in the area. The nearest recorded sites, 35TI25, 35TI26, and 35TI27, are located approximately a half mile east of the project area in the town of Woods and were recorded by Lloyd Collins more than 50 years ago during a survey of the Oregon coast (Collins 1953). As recorded, each site consists of a small shell midden. Site 35TI25 is the largest, described as 63 by 42 paces. It was observed to contain shell, fire-cracked rock (FCR), charcoal, animal bone, iron, and hammerstone fragments (Collins 1951a). Site 35TI26 is recorded as 10 by 20 paces in size. It was noted to contain shell, charcoal, animal bone, and an iron nail (Collins 1951b). Site 35TI27 is recorded as 10 by 10 paces in size and to include shell, animal bone, FCR, cut wood, and a bent iron rod (Collins 1951c).

Collins also recorded site 35TI28, which is located on the west side of the Nestucca River where it meets the northern base of Brooten Mountain. When recorded in 1951, the site was located under the "Dodge's Cabins," and little information is recorded other than the site consists of shell and charcoal, and is approximately 110 by 75 paces in size (Collins 1951d).

Although not corresponding to recorded archaeological sites, in her 1976 report Swanson (1976:6) mentions several general areas where archaeological deposits have been found including projectile points in the dunes around Cape Kiwanda, burials along Brooten Road, a midden atop Cape Kiwanda, and hand mauls found at Nestucca Spit.

Two other surveys have been conducted within one mile of the project APE. Tasa et al. (2003) conducted a pedestrian survey of approximately 80 acres at Cape Kiwanda State Park. The nearest part of the surveyed area is located .5 mile northwest of the project APE. No cultural resources were identified. Becker (2008) conducted a survey in the lower part of the Horn Creek valley where it joins the Nestucca River valley about 0.8 mile southwest of the project APE. The survey examined a linear route of where a new water line was to be installed. The study included the excavation of 73 shovel test probes (STPs), but no cultural resources were found.

Harris and Roulette (2013) conducted a pedestrian survey and excavated 12 STPs along a 1,500-foot long section of Resort Drive located approximately 1.5 miles southeast of the project APE. No cultural resources were identified.

Historical Background

The first Euroamericans on the northern Oregon coast may have been Spanish explorers (Ruby and Brown 1976:26-31). Captain Robert Gray, an American, and his ship *Columbia* were the first Euroamerican ship and crew to cross the bar at the mouth of Tillamook Bay in 1788. George Vancouver arrived later that same year, exploring the Columbia River to upstream of the Willamette River (Silverstein 1990:535). In 1805, Lewis and Clark reached the mouth of the Columbia, over wintering at Fort Clatsop, and traveling as far south as Seaside, Oregon. These initial visits helped to open the region to further exploration and to trade.

Most early Euroamericans on the northern Oregon coast were engaged in the fur trade. Traders exchanged guns, powder, shot, items of Euroamerican clothing, knives, beads, and tobacco, as well as metal implements such as copper and brass kettles for furs provided by native groups (Silverstein 1990:535). The coastal fur trade focused on sea otters and resulted in the near annihilation of those animals by the early 1830s. Thereafter, the focus shifted to inland mammals such as beaver (Cole and Darling 1990:131). With production of sea otter furs declining, ship-based, coastal trading moved to land-based posts at Astoria, Fort Vancouver, and in the Columbia Basin of eastern Oregon and Washington.

As more Euroamericans settled the Willamette Valley in the mid 1800s, many settlers came overland to the coast, following the Yamhill River drainage over the Coast Range into the Salmon River

or Nestucca River drainages, and then north up the coast to Tillamook. Indians living at the village at Pacific City used their canoes to ferry travelers across the river. Eventually a trail was established on the north side of the river that led upriver to Hebo, and could be used to bypass Cape Kiwanda for those heading north (Dicken 1971:35). In 1854, the Nestucca Bay area was bypassed completely when settlers cleared a trail from Tillamook to Hebo, and from Hebo over the coast range to Grand Ronde (Dicken 1971:33).

The town of Pacific City was first platted as Ocean Park in 1893 by Thomas Malaney, but was replatted in 1910 as Pacific City to avoid confusion with another Ocean Park in Washington. Beginning in the 1910s, Pacific City became a popular resort destination for people from the Willamette Valley. In fact, so many people from McMinnville owned second homes in Pacific City, that a section of the hill above town was known as McMinnville Heights (Boge 1979:135). Proximity to the Willamette Valley continued to make Pacific City a very popular vacation destination into the mid-century (Swanson 1976b).

Cartographic Research

Historical and modern-era maps dating from 1879 to 1985 were examined to trace the physical development of the project area. The earliest map was produced by the General Land Office (GLO) in 1879 and shows the Nestucca River in the same approximate location as at present. The map shows no structures or developments within or near to the project APE. Structures owned by T. Malaney and John Malaney are shown across the Nestucca River from the project APE (GLO 1879).

A real estate atlas from 1930 shows property ownership in the APE and vicinity and other municipal-level features but not developments on private lands. The atlas shows that the project APE was owned by the United States (Metsker 1930:40). In 1942 the Army Map Service (AMS) published a 15-minute topographic map of the region that contains the project APE (AMS 1942). The map was based on aerial photographs taken in 1937. The map shows no structures in or adjoining the project area.

The United States Geological Survey (USGS) published its Hebo, Oreg., 15-minute topographic quadrangle in 1955 (USGS 1955). The map was compiled based on aerial photographs taken in 1953. It shows the project area as undeveloped with structures concentrated in and around Woods and Pacific City. A 1985 7.5-minute USGS topographic quadrangle of the Nestucca Bay area shows the Sewage Treatment Plan in its current location (USGS 1985).

Summary of the Archaeological Potential of Project Lands

Based on the current configuration of the landscape, the project APE is located in an area situated between hills, a river, the ocean, and a sand spit. Such an ecotonal setting likely made the general area attractive to peoples that made their living hunting, gathering, and fishing. Based on the ethnographic data presented, the most likely pre-contact archaeological resources that could be encountered within the current project APE would be small-scale temporary camps or small activity loci representing resource processing. If present, pre-contact archaeological materials would likely include debris from stone tool manufacturing or maintenance, broken or discarded stone tools, and possibly FCR, charcoal, shell and other faunal remains. It is unlikely that the APE would contain a winter village site as they are known to have been primarily situated along bays and estuaries and at the confluence of major streams.

The above generalization is based on the current landscape configuration. Coastal areas are notoriously dynamic natural settings. Tectonic uplift and/or subsidence, fluctuating sea level, estuary drowning and bay and estuary in-siltation, among other factors, may or would have altered the configuration of many elements of the local landscape. A potential effect of different landscape configurations would be enhanced or decreased biological productivity of ecotones and adjoining areas, which in turn would have made any particular location more or less attractive through time.

Also, although the general area may have been attractive to pre-contact inhabitants of the area, data collected during a geotechnical study of the PCJWSA wastewater treatment plant that included the current project area (AGRA 1996) indicates that any evidence for such use could be buried more than 30 feet below dune sand, well below the vertical axis of the APE.

The historical overview and cartographic research suggest that the project APE has low potential to contain historic-era archaeological resources. Its location has always been rural and removed from population centers. The earliest development in the area appears to be the treatment plant itself, which is not old enough for any related deposits to be considered historical.

FIELD METHODS AND RESULTS

Archaeological investigations began with a pedestrian survey that employed transects spaced no more than 10 m apart, where possible (Figure 2). All exposures of mineral soil were closely inspected for the presence of artifacts and other indicators of archaeological resources, such as FCR or charcoal stained sediment. Mineral soil exposures were limited to small areas where surface vegetation had been disturbed, as well as several piles of dirt.

Ground surface visibility was approximately 5 percent, with most of the project APE developed, or covered with grasses or gravels. No artifacts or other archaeological material were observed during the pedestrian survey. Exposed soils generally consisted of sandy deposits which is consistent with the type of soil mapped in the area. Much of the expansion area appears to have been disturbed by construction and day-to-day operations, although much of the disturbance is likely limited to the near surface.

SUMMARY AND RECOMENDATIONS

This report has presented the results of a cultural resource study designed to locate historic properties within the defined APE and to assess the likelihood for such resources to be present. AAR conducted its study to assist the project funding agency in complying with Section 106 of the National Historic Preservation Act of 1966, as amended, and its implementing regulations, 36 CFR 800. The study included a record and literature review, and an archaeological reconnaissance survey.

The record and literature review showed that the current project APE may have been part of two previous surveys, but that no subsurface investigations have been conducted, and it contained no documented archaeological sites. No cultural resources were identified during AAR's pedestrian survey. Based on ethnographic and archaeological background, the project area is considered to have moderate or better potential to contain pre-contact archaeological resources. However, the best available evidence, obtained from a geotechnical report (AGRA 1996), suggests that archaeological resources, if present, may be buried beneath up to 30 feet of undifferentiated sands.

The prehistoric use of actively-forming sand dunes cannot be precluded and the time needed for 30 feet of sand to accumulate is not known. Studies of dune movement and formation elsewhere, especially on the Clatsop Plains along the northernmost part of the Oregon coast, indicate that once destabilization occurs, and depending upon local conditions, sands can move and accumulate at a rapid pace. On the Clatsop Plains devegetation of the native dune grass caused by cattle grazing, and the initiation of construction of the jetty at the mouth of the Columbia River up the coast from the Plains, caused the Clatsop Spit to grow .4 mile over a roughly 50 year period (Rankin 1983). Based on this example, it is at least possible that the 30-plus feet of sand that underlay the ground surface in the APE represents less than a century of sand accumulation. If this is the case, prehistoric archaeological deposits in the sands are not expected to be present within the sand matrix. The fact that ground water was encountered 2 to 3 feet below the surface ground is very curious and could indicate that the dune

landform in the APE formed in an area that was formally an inter-dune trough or even an open body of water. In any case, while the general area that contains the APE is considered to have at least moderate potential to contain archaeological resources, the specific project area appears to have lower potential.

For that reason, AAR recommends that no further archaeological investigations are necessary. This recommendation is made on the basis of the study described in this report. Despite the best evidence to the contrary, there is always potential for an inadvertent discovery to be made during project implementation. If during construction activities discolored soils, rocks, buried soil horizons, artifacts (prehistoric or historical), or cultural features are encountered, all activities should cease immediately and the Oregon SHPO should be promptly notified and Oregon Revised Statue 358.920 and 36 CFR 800.13 consulted to ensure compliance with applicable state and federal laws.

If during excavations human remains, funerary objects, sacred objects, and/or items of cultural patrimony are identified, all work will halt immediately. The Oregon SHPO, Tillamook County, affected tribes, and Parametrix representatives will be contacted. Procedures outlined under Oregon State law (ORS 97.740-760 and ORS 358.905-955) will be followed and work will not resume until mitigation measures have been agreed upon by all parties.

REFERENCES CITED

AGRA Earth & Environmental, Inc. (AGRA)
1996 *Geotechnical Engineering Study: Proposed Equalization Basin, Pacific City Sanitary District, Pacific City, Oregon*. AGRA Earth & Environmental, Inc., Portland, Oregon.

Alt, David D., and Donald W. Hyndman
1992 *Roadside Geology of Oregon*. Mountain Press Publishing Company, Missoula, Montana.

Ames, Kenneth M. and Herbert D. G. Maschner
1999 *Peoples of the Northwest Coast*. Thames and Hudson, London.

Army Map Service
1942 Nestucca Bay, Oreg. 15-minute topographic quadrangle. Electronic document, http://nationalmap.gov/historical/, accessed April 10, 2013.

Atwater, Brian F., Musumi-Rokkaku Satoko, Satake Kenji, Tsuji Yoshinobu, Ueda Kazue, and David K. Yamaguchi
2005 *The Orphan Tsunami of 1700: Japanese Clues to a Parent Earthquake in North America.* United States Geological Service, Reston, Virginia, and University of Washington Press, Seattle.

Barczak, Mary J.
1998 Nestucca-Neskowin Watershed Assessment. Coastal Watershed Resource Center, Tillamook, Oregon. Electronic document accessed May 19, 2008: Http://www.tbnep.org/docsccmp/Nestucca/Neskowin

Boge, Lila V. Cooper, editor
1979 *Tillamook Lest We Forget*. Tillamook County Pioneer Association, Tillamook, Oregon.

Bowlsby, Clyde C., and Richard C. Swanson
1964 *Soil Survey of the Tillamook Area*. USDA Soil Conservation Service, Salem.

Boyd, Robert T.
1990 *The Coming of the Spirit of Pestilence: Introduced Infectious Diseases and Population Decline among Northwest Coast Indians, 1774-1874.* UBC Press, Vancouver and Toronto, and University of Washington, Seattle and London.

Caruso, John
1994 *Cultural Resources Inventory Report, Pacific City 80 Land Parcel Exchange Proposal, Pre-project Survey*. Tillamook Resource Area, Salem BLM District, USDI Bureau of Land Management, Salem.

Charland, Jay and Frank Reckendorf
1998 Chapter 5: Sedimentation. In *Tillamook Bay National Estuary Project, Environmental Characterization: A Scientific and Technical Summary*. US Environmental Protection Agency.

Cole, Douglas and David Darling
1990 History of the Early Period. In *Northwest Coast*, edited by Wayne Suttles, pp. 119-134. Handbook of North American Indians, Volume 7, W. G. Sturtevant, general editor. Smithsonian Institution, Washington, D.C.

Collins, Lloyd R.
1951a Oregon Archaeological Survey Form for Site 35TI25. On file, Oregon State Historic Preservation Office, Salem.
1951b Oregon Archaeological Survey Form for Site 35TI26. On file, Oregon State Historic Preservation Office, Salem.
1951c Oregon Archaeological Survey Form for Site 35TI27. On file, Oregon State Historic Preservation Office, Salem
1951d Oregon Archaeological Survey Form for Site 35TI28. On file, Oregon State Historic Preservation Office, Salem.
1953 *Archaeological Survey of the Oregon Coast 1951-1952*. Manuscript on file at the Oregon State Historic Preservation Office, Salem.

Dicken, Samuel N.
1971 *Pioneer Trails of the Oregon Coast*. Oregon Historical Society, Portland.

Franklin Jerry. F. and C. T. Dyrness
1988 *Natural Vegetation of Oregon and Washington*. Second edition. Oregon State University Press, Corvallis, Oregon.

General Land Office (GLO)
1879 Plat of Survey, T4S, R10W, Willamette Meridian. Microfiche on file, US Bureau of Land Management, Oregon State Office, Portland.

Greatorex, Fred M.
2014 *Cultural Resource Inventory Report for PC 80 RMPP Lease*. USDI Bureau of Land Management, Salem District.

Hall, Roberta L., and Loren Davis
2002 Locating Sites of the Pleistocene-Holocene Transition on Oregon's Southern Coast. *CAHO* (27) 3/4:7-11.

Hall, Roberta L., Loren G. Davis, and Michele L. Punke
2003 A Late Pleistocene Site on Oregon's Southern Coast. *The Midden* 35(1):5-8.

Hall, Roberta, Loren G. Davis, Samuel Willis, and Matthew Fillmore
2005 Radiocarbon, Soil, and Artifact Chronologies for an Early Southern Oregon Coastal Site. *Radiocarbon* 47(3):383-394.

Jacobs, Elizabeth, D.
2003 *The Nehalem Tillamook*. Edited by William R. Seaburg, Oregon State University Press, Corvallis.

Lyman, R. Lee
1991 *Prehistory of the Oregon Coast*. Academic Press, San Diego, California.

Lyman, R. Lee and Richard E. Ross
1988 Oregon Coast Prehistory: A Critical History and a Model. *Northwest Anthropological Research Notes* 22:1,67-119.

Metsker Maps
1930 *Oregon, Tillamook County 1930.* Electronic document, http://beta.historicmapworks.com/Atlas/US/29644/Tillamook+County+1930/, accessed March 22, 2013.

Minor, Rick
1983 *Aboriginal Settlement and Subsistence at the Mouth of the Columbia River*. Unpublished Ph.D. Dissertation, Anthropology Department, University of Oregon, Eugene.
1984 An Early Complex at the Mouth of the Columbia River. *Northwest Anthropological Research Notes*, 18(1):1-22.

Moss, Madonna L. and Jon M. Erlandson
1998 Early Holocene Adaptations on the Southern Northwest Coast. *Journal of California and Great Basin Archaeology*, 20:1;13-25.

Orr, Elizabeth L., William N. Orr, and Ewart M. Baldwin
1992 *Geology of Oregon*. Kendall/Hunt Publishing, Dubuque, Iowa.

Rankin, D. K.
1983 *Holocene Geologic History of the Clatsop Plains Foredune Ridge Complex*. Unpublished Master's Thesis, Portland State University.

Ross, Richard E.
1990 Prehistory of the Oregon Coast. In *Northwest Coast*, edited by Wayne Suttles, pp. 554-559. Handbook of North American Indians, Volume 7, W. G. Sturtevant, general editor. Smithsonian Institution, Washington, D.C.

Ruby, Robert H. and John A. Brown
1976 *The Chinook Indians*. The University of Oklahoma Press, Norman.

Sauter, John, and Bruce Johnson
1974 *Tillamook Indians of the Oregon Coast*. Binfords & Mort, Portland, Oregon.

Seaburg, William R. and Jay Miller
1990 The Tillamook. In *Handbook of North American Indians*, edited by Wayne. P. Suttles. vol. Vol. 7. Smithsonian Institution, Washington, D. C.

Silverstein, Michael
1990 Chinookans of the Lower Columbia. In *Northwest Coast*, edited by Wayne Suttles, pp. 533-546. Handbook of North American Indians, Volume 7, W. G. Sturtevant, general editor. Smithsonian Institution, Washington, D.C.

Starr, Richard M.
1979 *Natural Resources of Nestucca Estuary*. Oregon Department of Fish and Wildlife, Portland.

Swanson, Cynthia R.
1976a *The Archaeological Reconnaissance of the Proposed Waste-Water Facilities at Pacific City, Oregon*. Department of Anthropology, Western Washington State College, Bellingham, Washington.
1976b *Archaeological Reconnaissance of the North Fork Nehalem, Nehalem, Miami, Kichis, Wilson, Trask, Nestucca and Little Nestucca Rivers, Stream Restoration Project*. Western Washington State College, Bellingham.

United States Geological Survey
1955 Hebo, Oreg., 15 minute topographic quadrangle. Map on file Oregon Historical Society, Portland.
1985 Nestucca Bay, Oreg., 7.5 minute topographic quadrangle. Map on file Oregon Historical Society, Portland.

USDA Soil Conservation Service
2014 *Web Soil Survey*. Available online at http://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx accessed September 29, 2014.

Wessen, Gary
1990 Prehistory of the Ocean Coast of Washington. In *Northwest Coast*, edited by Wayne Suttles, pp. 412-421. Handbook of North American Indians, Volume 7, W. G. Sturtevant, general editor. Smithsonian Institution, Washington, D.C.

EXHIBIT B

Determination of No Effect for ESA-listed Species

Parametrix
ENGINEERING . PLANNING . ENVIRONMENTAL SCIENCES

700 NE MULTNOMAH, SUITE 1000 | PORTLAND, OR 97232 | P 503.233.2400, 360.694.5020

TECHNICAL MEMORANDUM

DATE: October 2, 2014

TO: Drew Davis, USDA RD

FROM: Cyrus Bullock, Parametrix
William Hall, Parametrix

SUBJECT: DRAFT Statement of No Effect

CC:

PROJECT NUMBER: 276-3300-014 1401/102

PROJECT NAME: Pacific City Joint Water-Sanitary Authority
Wastewater Treatment Plant Upgrade

INTRODUCTION

The Pacific City Joint Water-Sanitary Authority (PCJWSA) owns and operates a wastewater treatment plant (WWTP) that serves approximately 1,000 full time residents and approximately 3,000 seasonal residents in the unincorporated communities of Pacific City and Woods. Both communities are located within Tillamook County, Oregon.

The PCJWSA plans to upgrade the WWTP by implementing selected projects from an existing Wastewater Master Plan (WWMP) improvement list. The proposed upgrades are anticipated to simplify operational requirements, meet discharge permit requirements, provide dependable treatment for the future, and minimize impacts to natural resources. The WWTP is located within the town of Pacific City, Oregon (Figure 1).

To construct these improvements, PCJWSA is receiving funding assistance from four organizations: the Oregon Department of Environmental Quality (DEQ), the Oregon Business Development Department of Infrastructure Finance Authority (IFA), the U.S. Department of Agriculture Rural Development (USDA-RD), and the Rural Community Assistance Corporation (RCAC).

Because the proposed project will be funded by USDA-RD, which is a federal entity, the PCJWSA is required to analyze the effects of its actions on species listed under the Endangered Species Act of 1973 as amended (ESA). This memorandum documents that the proposed project will have no effect upon species or critical habitat listed or designated under the ESA. Making a No Effect Determination is the appropriate conclusion when the proposed action will not affect a listed species or designated critical habitat.

PROJECT LOCATION AND SITE CHARACTERISTICS

The proposed project site is located in Pacific City, Oregon within an existing PCJWSA WWTP facility at 34005 Cape Kiwanda Drive. The facility is located approximately 0.25 miles northwest of the Nestucca River and approximately 0.30 miles east of the Pacific Ocean (Figure 1).

In order to fully assess the existing condition and potential for impact from the proposed project, Parametrix biologists reviewed available data sources and conducted a site visit on June 10, 2014. During the site visit, Parametrix biologists assessed habitat conditions within the project site.

Land use within the vicinity of the proposed project consists of residential development and small commercial buildings to the south and west, and forested land, mostly managed by the U.S. Forest Service, to the north and east.

The project site consists of existing buildings, storage tanks, gravel access roads, patches of grass/weeds that are regularly mowed, and scattered shore pines (*Pinus contorta* var. *contorta*) (Photographs 1 through 4).

Within the northeast portion of the project site, stormwater appears to collect in a small rivulet that flows between a gravel access road and a mowed area dominated by grass. From the rivulet, the stormwater discharges to a small, human-made, depressional area through a 4-inch pipe constructed beneath the gravel road turnout. The depressional area is approximately 400 square feet in area and is dominated by grass/weeds (Photographs 5 through 7).

According to the United States Fish and Wildlife Service (USFWS) National Wetlands Inventory, no wetlands or waters of the U.S. occur within the project site (USFWS 2014). Furthermore, according to the United States Department of Agriculture Natural Resources Conservation Service Web Soil Survey, hydric soils are not present within the project site (NRCS 2013). A Local Wetlands Inventory is not available for the project site.

Treated wastewater from the WWTP is discharged through Outfall 001 to the Nestucca River at river mile 1.5, approximately 0.5 miles south (off-site) of the project area (Figure 2). The outfall's associated 36-foot total length diffuser pipe is located approximately 180 feet off the west shore of the Nestucca River at a point where the river is approximately 350 feet wide. The diffuser is approximately 8-feet below low water level in the river. The Nestucca River is a low-gradient river that is tidally influenced within the vicinity of the outfall.

PROJECT DESCRIPTION

The proposed action is to upgrade the existing WWTP. Three engineering options approaches evaluated for upgrading the existing WWTP are listed below:

- Upgrading the existing activated sludge WWTP, in general as described in the 2005 WWMP.
- Converting the existing WWTP to a sequencing batch reactor plant (SBR).
- Converting the existing WWTP to a membrane bioreactor (MBR) plant.

For each option, flow and loading under current and future conditions were estimated to develop the size of treatment processes. The activated sludge option affects the largest footprint on the site, and is not significantly different in construction, operation, or long-term environmental effects from the other options. The activated sludge was used for the analysis in this environmental report. An overview of the improvements needed to implement the activated sludge option, and the approximate areas and volumes of excavation are described below.

- Headworks improvements. The current WWTP does not have grit removal equipment. A new grit tank, grit pump, grit classifier/washer, and screenings compactor are recommended. This involves shallow 2-foot excavation for installation of three concrete foundations on grade for some components and for the concrete grit tank excavation to a depth of 10 feet and total excavation volume of 67 cubic yards.

- Replacement of pumps in the flow equalization basin and discharge piping and valves. This involves 3-foot deep excavation for the new piping for a volume of approximately 15 cubic yards.
- Construction of a third concrete aeration basin encompassing an area of 625 square feet on the east side of the existing aeration basins. Replace existing mechanical aeration system with fine bubble diffusers and associated air piping, valves, and blowers. Raise the concrete walls in the two existing aeration basins. This involves 3-foot deep excavation for the air piping and 13-foot deep excavation for the third aeration basin for a total excavation of approximately 1,072 cubic yards.
- Construction of two new 35-foot diameter circular secondary clarifiers and supporting equipment such as sludge pumps, piping, valves, and flow meters. This involves 3-foot deep excavation for the piping and 15-foot deep excavation for the clarifiers for a total excavation of approximately 2,460 cubic yards.
- Filter Feed Holding Tank improvements would involve constructing a new sloped floor. No excavation is needed.
- Construction of third tertiary cloth media filter and associated piping and valves is needed to accommodate future flows and provide needed redundancy. The filter will be on an 8- by 12-foot concrete foundation on grade and requires 2-foot deep excavation of 6 cubic yards.
- Two ultraviolet (UV) light disinfection banks would be installed in an existing basin. No excavation is needed.
- Improvements to the existing aerobic digester consisting of new aeration system, two new blowers, and associated piping and valves. This involves 3-foot deep excavation for new piping for a volume of approximately 8 cubic yards.
- New aerobic digesters in a 1,089 square foot concrete tank, coarse bubble diffusers, blowers, pumps, piping, valves. The tank will have an excavation depth of 13 feet, and a total approximate excavation volume of 1,450 cubic yards.
- A new biosolids dewatering system housed in a new 35- by 40-foot building. The building would require 2-foot deep excavation for installation of a concrete foundation on grade and total excavation volume of 141 cubic yards.
- A new standby diesel generator and automatic transfer switch housed in an expansion of the existing blower building. The building would require 2-foot deep excavation over a 26- by 17-foot area for the concrete foundation on grade and total excavation of 42 cubic yards.
- Instruments and Controls will be provided on new equipment. Various electrical conduits would be installed in shallow trenches 2-feet deep for a total excavation volume of 15 cubic yards.

Construction is scheduled to begin in August 2015 and be completed in September 2016. No in-water work will occur during proposed project activities.

Construction equipment may include bulldozers, scrapers, excavators/backhoes, dump trucks, cement trucks, and front-loaders. General construction activities are described below:

- Sensitive Areas: No sensitive habitat areas or buffers are present within the project limits. Trees to be preserved will be identified and marked.
- Erosion Control: Appropriate temporary erosion and sediment control measures will be installed in all work areas prior to the initiation of ground disturbing construction activities.

- Clearing and Grubbing: Small areas of existing grasses/weeds will be cleared as well as the removal of up to three shore pines, each with a diameter at breast height (DBH) of less than 6-inches.
- Earthwork: Earthwork will include excavation of approximately 3,400 cubic yards of material (native soil and existing fill). Blasting or pile driving will not be required.
- Impervious Surfaces: A total of approximately 6,235 square feet of impervious surfaces will be constructed, none of which would be considered pollutant-generating, these include:
  - four concrete tanks totaling approximately 5,400 square feet
  - one 96 square foot concrete pad
  - two new buildings totaling 442 square feet
  - one silo on a 324 square foot concrete pad

Excavated material will remain on-site and/or transported to an approved upland facility.

ACTION AREA

An action area includes all areas to be affected directly and indirectly by the federal action and not merely the immediate area involved in the action. The terrestrial portion of the project's action area includes the existing WWTP facility and habitat within an approximately 1,991-foot radius. The aquatic portion of the action area occurs within the Nestucca River and is defined by a 10-foot Zone of Immediate Dilution from the point of discharge at Outfall 001. This action area is based upon the National Pollutant Discharge Elimination System (NPDES) regulatory mixing zone adopted for the outfall (Figure 2).

Construction-related noise is the primary factor establishing the terrestrial portion of the action area. Because the project is not located near a roadway with a high level of traffic volume and because Pacific City is a resort town, noise generated by population density per square mile was considered to be the baseline noise level within the project site. The population density for Pacific City ranges from 1,000 full time residents to approximately 3,000 seasonal residents within an approximately 2.7 square mile area, which equates to approximately 370 to 1,111 people per square mile. According to a 2006 Federal Transit Administration Transit assessment, noise generated by a population density of 300 to 1,000 people per square mile was calculated to be 45 dBA (FTA 2006). Ambient noise within the project site includes wind and surf; however, these are not considered to generally generate higher noise levels than baseline levels generated by population density.

The noisiest construction equipment anticipated for use in this project includes a dozer, which generates up to 82 dBA at 50 feet. The next noisiest equipment anticipated are an excavator and a cement pump truck, which generate up to 81 dBA each at 50 feet. Utilizing the rules for decibel addition, 3 dBA is added to the higher decibel value, resulting in a combined total noise level for all equipment of 85 dBA at 50 feet (WSDOT 2014). The standard reduction for point source (construction) noise over soft ground (i.e., ground that is not paved) is 7.5 dB per doubling of distance from the source. Based on the attenuation of point source noise from construction, noise levels will be elevated above pre-project ambient levels for a distance of just over 1,600 feet (Table 1). Mathematically, the distance that construction noise at 85 dBA would travel over soft ground to the assumed ambient noise level of 45 dBA is approximately 1,991 feet (Figure 2). This point represents the distance where construction noise is indistinguishable from background ambient noise.

Table 1. Terrestrial Noise Attenuation for PCJWSA Project

Distance from Noise Source (feet)	Noise from Equipment (dBA)a
50	85
100	77.5
200	70
400	62.5
800	55
1,600	47.5
3,200	40

a Assumes equipment point source noise of 84 dBA at 50 feet and a 7.5 dB reduction per doubling of distance.

SPECIES OCCURRENCE

Off-site data collection efforts involved a search and review of existing information related to fish and wildlife distribution and habitat within and surrounding the proposed project site. To determine species presence, existing data covering the project site were accessed from USFWS and National Marine Fisheries Service (NMFS) websites.[1] The species lists from these websites were most recently accessed in June 2014.

Furthermore, the Oregon Biodiversity Information Center (ORBIC) produced a database search on June 11, 2014 for rare, threatened and endangered plant and animal records for species that may occur within a two-mile radius of the proposed project. Two federally listed species returned from the database search: Oregon Coast (OC) coho salmon (*Oncorhynchus kisutch*) and Western snowy plover (*Charadrius alexandrinus nivosus*).

Federally listed species identified by USFWS, NMFS, and ORBIC that may be present within the project vicinity are listed in Table 2 and discussed below.

Table 2. Species Addressed

Species[a] *(Scientific Name)*	ESA Status	Critical Habitat Designated?	Effect of the Project
Marbled murrelet *(Brachyramphus marmoratus)*	Threatened	Yes; not present in project site	No Effect
Northern spotted owl *(Strix occidentalis caurina)*	Threatened	Yes; not present in project site	No Effect
Western snowy plover (*Charadrius alexandrinus nivosus*)	Threatened	Yes; not present in project site	No Effect
Short-tailed albatross (*Phoebastria* [=*Diomedea*] *albatrus*)	Endangered	No	No Effect

[1] http://ecos.fws.gov/ipac/wizard/chooseLocation!prepare.action;jsessionid=B1883E86D7611B82D7C645141CF2C282; http://www.westcoast.fisheries.noaa.gov/protected_species/species_list/species_lists.html

Species[a] *(Scientific Name)*	ESA Status	Critical Habitat Designated?	Effect of the Project
Coho salmon (Oregon Coast ESU) (*Oncorhynchus kisutch*)	Threatened	Yes; not present in project site	No Effect
Green sturgeon (Southern DPS) (*Acipenser medirostris)*	Threatened	Yes; not present in project site	No Effect

a ESU = Evolutionarily Significant Unit; DPS=Distinct Population Segment

Additionally, Parametrix biologists contacted Martin Nugent from the Oregon Department of Fish and Wildlife on June 17, 2014 to discuss habitat conditions, species presence, potential project impacts, and other project details, but a response to the query was not received.

Federally listed species that may occur within Tillamook County but are not located within the project vicinity, thus are not addressed in this document, include:

- Nelson's checker-mallow (*Sidalcea nelsoniana*)
- Oregon Silverspot butterfly (*Speyeria zerene hippolyta*)
- Green sea turtle (*Chelonia mydas*)
- Leatherback sea turtle (*Dermochelys coriacea*)
- Loggerhead sea turtle (*Caretta caretta*)
- Olive Ridley sea turtle (*Lepidochelys olivacea*)

The federally listed species addressed in this document are discussed in more detail below.

Marbled Murrelet

The marbled murrelet (*Brachyramphus marmoratus*) is a small seabird which nests in the coastal, old-growth forests of the Pacific Northwest, and feeds in pelagic offshore areas. Preferred nesting habitat consists of large trees with mossy, platform-like limbs in unfragmented stands of old growth forest. In Oregon, nesting stands are dominated by Douglas fir (*Pseudotsuga menziesii*) trees (USFWS 2011).

Wooded habitat adjacent to the project site is dominated by young pine trees. As a result of the young age classes and simplified habitat structure, the forested areas adjacent to the project site do not provide nesting habitat for marbled murrelets. In addition, human disturbance in and near the project site (i.e., existing facility, housing developments, the town of Pacific City) make the area unsuitable for marbled murrelets.

Northern Spotted Owl

Preferred nesting, roosting, and foraging habitat for northern spotted owls (*Strix occidentalis caurina*) typically consists of older forest stands with a mosaic of age classes and spatial distribution. Suitable forest stands include multi-layered canopies of several tree species of varying size and age, both standing and fallen dead trees, and open space among the lower branches to allow flight under the canopy. Northern spotted owls nest in cavities or on platforms in large trees and will use abandoned nests of other species. Forest stands with these attributes are usually at least 200 years old (USFWS 2014).

Wooded habitat adjacent to the project site is dominated by young pine trees. As a result of the young age classes and simplified habitat structure, the forested areas adjacent to the project site do not provide nesting habitat for northern spotted owl. In addition, human disturbance in and near the project site makes the area unsuitable for northern spotted owl.

Western Snowy Plover

The western snowy plover is a small shorebird that nests near tidal waters on the mainland coast, peninsulas, offshore islands, and adjacent bays and estuaries. The Pacific coast population of western snowy plover breeds on coastal beaches from southern Washington to southern Baja California, Mexico (USFWS 2013). Nest sites are in open, flat, sparsely vegetated beaches and sand spits above the high tide line. Western snowy plovers are known to exhibit site fidelity and return to the same breeding sites year after year. Plovers forage on invertebrates in the wet sand and among surf-cast kelp within the intertidal zone, in dry, sandy areas above the high tide, on salt pans, and along the edges of salt marshes, salt ponds, and lagoons. According to ORBIC data, western snowy plovers have been documented at Nestucca Spit State Park, approximately one mile south of Pacific City between the Pacific Ocean and Nestucca Bay (ORBIC 2014).

Short-Tailed Albatross

The short-tailed albatross (*Phoebastria* [=*Diomedea*] *albatrus*) was once found in large numbers in the North Pacific Ocean around the seas of Taiwan and Japan. Currently, the short-tailed albatross breeds mainly on two isolated islands in the Pacific Ocean, the Torishima and Minami-kojima Islands of Japan. A pelagic species for most of the year, the short-tailed albatross is occasionally sighted off the Pacific Coast of the United States (USFWS 2008).

Coho Salmon

The OC coho salmon was listed as threatened under the ESA on February 4, 2008 and retained is listing as a threatened species in June 2011. This ESU includes all naturally spawned populations of coho salmon originating from coastal streams south of the Columbia River and north of Cape Blanco, and also the progeny of one artificial propagation program (Cow Creek).

Coho salmon on the west coast of the contiguous United States and much of British Columbia spend approximately 18 months rearing in freshwater before beginning their migration to sea and another 18 months in the ocean before returning to spawn (Weitkamp et al. 1995).

Coho salmon typically enter freshwater streams beginning in late September or October with the onset of fall freshets and spawn from October to January. Spawning females prefer areas with flows generally ranging between 1 foot per second (fps) to 2 fps and gravels ranging from 1.5 inches to 5 inches in diameter. Spawning typically occurs in low-gradient (less than three percent) tributary streams at a water depth that averages approximately 7 inches (Sandercock 1991).

Following emergence, fry congregate in backwaters, quiet pool margins, and side channels in areas with overhanging vegetation, adequate cover, and food for rearing (Bjornn and Reiser 1991).

Green Sturgeon

The Southern Distinct Population Segment (DPS) of green sturgeon (*Acipenser medirostris*) includes coastal and Central Valley populations south of the Eel River in California, with the only known spawning population in the

Sacramento River (71 FR 17757, April 7, 2006). As adults, Southern DPS green sturgeon migrate seasonally along the West Coast, congregating in bays and estuaries in Washington, Oregon, and California during the summer and fall months. During winter and spring months they congregate off of northern Vancouver Island, British Columbia.

EFFECTS DETERMINATIONS

The project site is located outside the range or does not provide suitable habitat for the federally listed species shown within Table 1 above. Furthermore, during the proposed project:

- activities will occur within an existing facility and will have minimal impact to natural resources.
- no in-water work will be required.
- no jurisdictional wetlands or waters will be impacted.
- the distance where construction noise becomes indistinguishable from background (ambient) noise is less than the distance from the project site to suitable habitat for federally listed avian species.
- forested areas will not be disturbed; approximately three shore pines with DBHs of less than 6 inches may be removed.
- no changes will occur to the treated wastewater outfall (the outfall is sized for 1 MGD, the upgraded facility will not approach this flow amount), or any of the transmission lines to or from the WWTP.

Based on the above project description, the proposed project will have no effect on federally listed species or designated critical habitat, as discussed in more detail below:

Marbled Murrelet

Due to the project implementation's expected low levels of disturbance, the lack of species presence (according to ORBIC data, marbled murrelets have not been documented within two miles of the project site [ORBIC 2014]), and the lack of nesting habitat within two-miles of the project site, the proposed project will have no effect upon marbled murrelet.

Marbled Murrelet Critical Habitat

No critical habitat for marbled murrelet exists within five miles of the project site, and the project will not affect any of the primary constituent elements (PCEs) required for marbled murrelet survival. Therefore, the proposed project will have no effect upon marbled murrelet critical habitat.

Northern Spotted Owl

Due to the project implementation's expected low levels of disturbance to natural resources, the lack of species presence (according to ORBIC data, northern spotted owls have not been documented within two miles of the project site [ORBIC 2014]), and the lack of nesting habitat within two miles of the project site, the proposed project will have no effect upon northern spotted owls.

Northern Spotted Owl Critical Habitat

No critical habitat for northern spotted owls exists within three miles of the project site, and the project will not affect any of the PCEs required for northern spotted owl survival. Therefore, the proposed project will have no effect upon northern spotted owl critical habitat.

Western Snowy Plover

The project site does not contain suitable habitat for western snowy plovers, and project construction will have no impact on snowy plover habitat. Therefore, the proposed project will have no effect upon western snowy plovers.

Western Snowy Plover Critical Habitat

No critical habitat for western snowy plovers exists within 20 miles of the project site, and the project will not affect any of the PCEs required for western snowy plover survival. Therefore, the proposed project will have no effect upon western snowy plover critical habitat.

Short-Tailed Albatross

Based on a lack of short-tailed albatross presence within the project site (according to ORBIC data, short-tailed albatross have not been documented within two miles of the project site [ORBIC 2014]), and that project activities will have no impact on short-tailed albatross habitat, the proposed project will have no effect upon short-tailed albatross.

Short-Tailed Albatross Critical Habitat

Critical habitat has not been designated for the short-tailed albatross.

Coho Salmon

Because there will be no changes to the treated wastewater outfall, or in-water work within the Nestucca River, its tributaries, or any other associated waters or wetlands, and because NPDES water quality standards established for the WWTP are anticipated to be met, the proposed project will have no effect upon OC coho salmon.

Coho Salmon Critical Habitat

Critical habitat for OC coho salmon was designated on February 4, 2008. Critical habitat for OC coho salmon is not present within the project site, and the project will not affect any of the PCEs required for OC coho survival. Therefore, the proposed project will have no effect upon OC coho salmon critical habitat.

Green Sturgeon

Because there will be no changes to the treated wastewater outfall, or in-water work within the Nestucca River, its tributaries, or any other associated waters or wetlands, the proposed project will have no effect upon Southern DPS green sturgeon.

Green Sturgeon Critical Habitat

Critical habitat was designated for the green sturgeon Southern DPS on October 9, 2009 (74 FR 52300). The Nestucca River is not designated as critical habitat for green sturgeon, and the project will not affect any of the PCEs required for green sturgeon survival. Therefore, the proposed project will have no effect upon green sturgeon critical habitat.

Essential Fish Habitat Consultation

Essential Fish Habitat (EFH) is defined as "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity" 16 U.S.C. §1802(10). Because the proposed project will not impact waters, wetlands, or riparian areas, the project will not adversely affect EFH.

CONCLUSION

As described above, federally listed species or associated critical habitat will not be impacted during the proposed project; therefore, the proposed project will have no effect upon federally listed species or designated critical habitat and will not adversely affect EFH.

REFERENCES

Bjornn, T.C. and D.W. Reiser. 1991. Habitat Requirements of Salmonids in Streams – Influences of Forest and Rangeland Management on Salmonid Fishes and Their Habitats. Pp. 83-138. American Fisheries Society Special Publication #19.

Federal Transit Administration (FTA). 2006. Transit Noise and Vibration Impact Assessment Guidance FTA-VA-90-1003-06 May.

NRCS (Natural Resources Conservation Service). 2013. Web Soil Survey. Available at: http://websoilsurvey.nrcs.usda.gov/app/. Last Modified December 6, 2013. Accessed April May 22, 2014

ORBIC (Oregon Biodiversity Information Center). 2014. Data System Search for Rare, Threatened and Endangered Plants and Animal Records for PCJWSA.

Sandercock, F.K., 1991. Life History of Coho Salmon (*Oncorhynchus kisutch*). Pages 395-445 In: Groot, C., and L. Margolis (eds.). 1991. Pacific Salmon Life Histories. Vancouver, British Columbia: University of British Columbia Press.

USFWS (U.S. Fish and Wildlife Service). 2008. Species Fact Sheet, Short-Tailed Albatross (*Phoebastria albatrus*). Available at: http://www.fws.gov/oregonfwo/Species/Data/ShortTailedAlbatross/. Last Updated April 17, 2008. Accessed June 13, 2014.

USFWS. 2011. Species Fact Sheet, Marbled Murrelet (*Brachyramphus marmoratus*). Available at: http://www.fws.gov/oregonfwo/Species/Data/MarbledMurrelet/. Last Updated April 11, 2011. Accessed June 13, 2014.

USFWS. 2013. Species Fact Sheet, Western Snowy (Coastal) Plover (*Charadrius alexandrinus nivosus*). Available at: http://www.fws.gov/oregonfwo/Species/Data/WesternSnowyPlover/. Last Updated July 29, 2013. Accessed June 13, 2014.

USFWS. 2014. Species Fact Sheet, Northern Spotted Owl (*Strix occidentalis caurina*). Available at: http://www.fws.gov/oregonfwo/Species/Data/NorthernSpottedOwl/. Last Updated May 27, 2014. Accessed June 13, 2014.

USFWS. 2014. National Wetlands Inventory. Available at: http://www.fws.gov/wetlands/Data/Mapper.html. Last Updated May 7, 2014. Accessed May 22, 2014.

WSDOT (Washington State Department of Transportation). 2014. Biological Assessment Preparation – Advanced Training Manual Version 02-2014.

Weitkamp, L.L.A., T.C. Wainwright, G.J. Bryant, G.B. Milner, D.J. Teel, R.G. Kope, and R.S. Waples. 1995. Status Review of Coho Salmon from Washington, Oregon, and California. NOAA Technical Memorandum NMFS-NWFSC-24.

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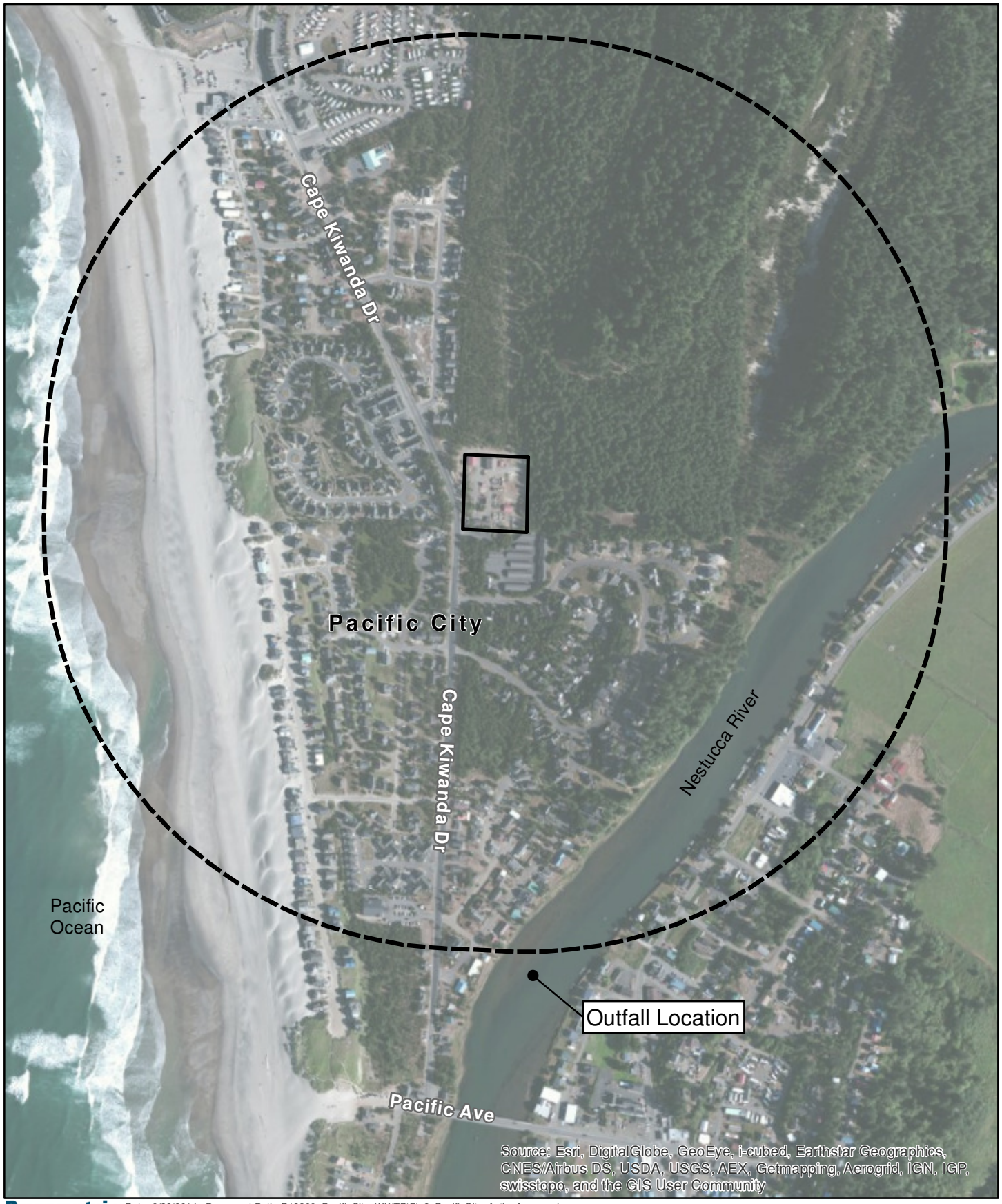
Figure 1.

PCJWSA Wastewater Treatment Plant Upgrades
Study Location and Vicinity Map



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Feet

Study Area

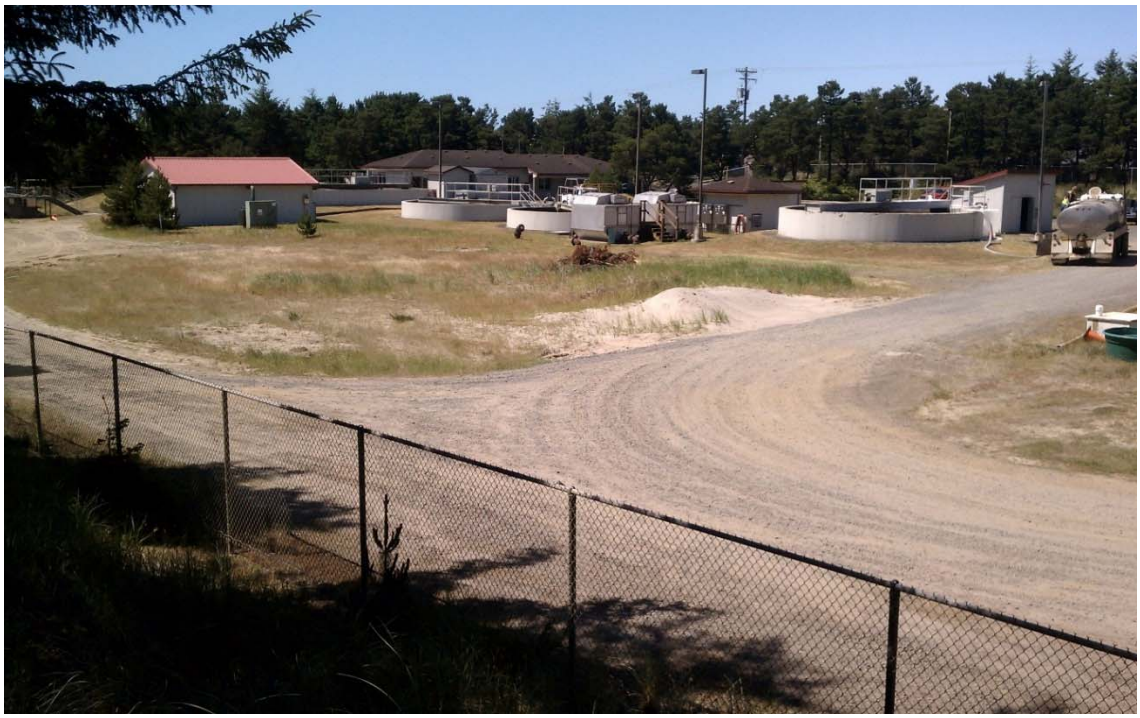
Action Area

Figure 2.
Action Area

PCJWSA Wastewater Treatment Plant Upgrades

Photograph 1. Project area; looking north from eastern boundary.

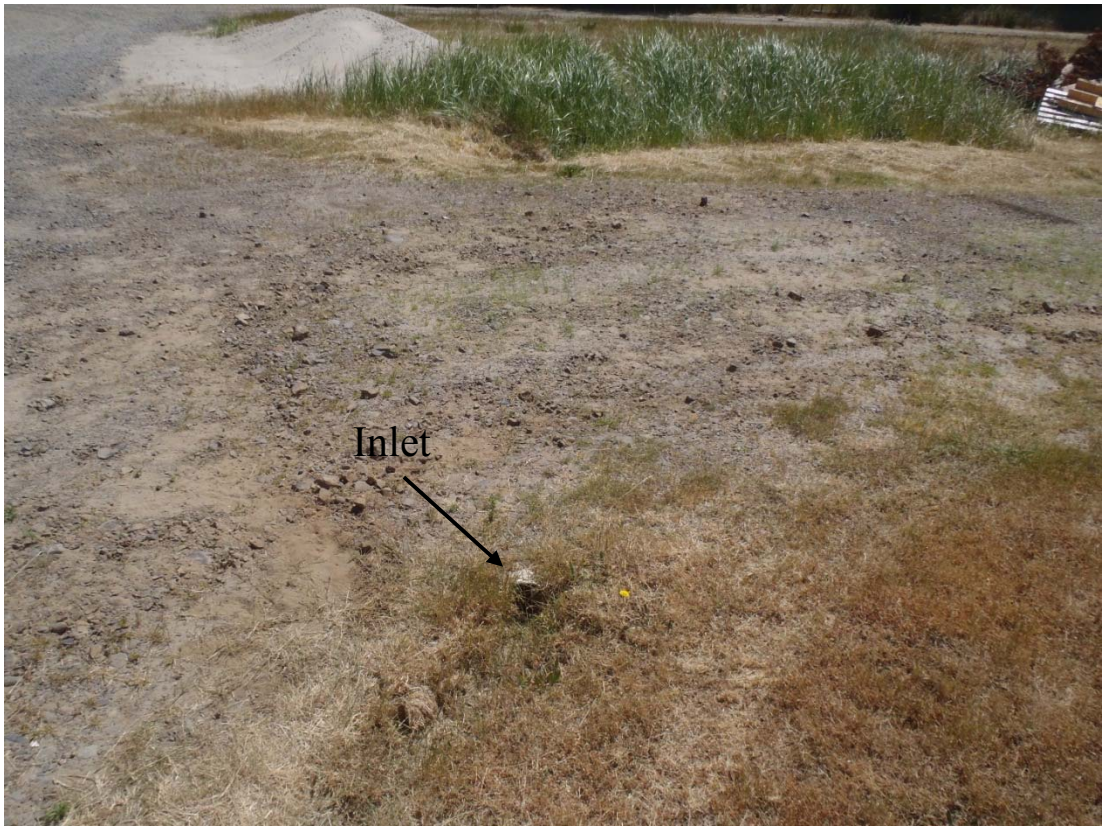
Photograph 2. Project area; looking northwest from eastern boundary.



Photograph 3. Project area; looking southwest from eastern boundary.

Photograph 4. Project area; looking south from northeast corner of site.

Photograph 5. Stormwater outlet; northeast portion of project site.



Photograph 6. Stormwater pipe.

Photograph 7. Stormwater inlet area.

EXHIBIT C

Coastal Zone Management Act Consistency Determination

COASTAL ZONE MANAGEMENT ACT CONSISTENCY DETERMINATION

For the Proposed Upgrade of the Existing Pacific City Joint Water-Sanitary Authority Wastewater Treatment Plant (WWTP) at Pacific City, Tillamook County, Oregon

Prepared June 17, 2014

INTRODUCTION

The Pacific City Joint Water-Sanitary Authority (PCJWSA) owns and operates the wastewater treatment plant (WWTP) that serves approximately 1,000 full time residents and up to approximately 3,000 seasonal residents in the unincorporated communities of Pacific City and Woods.

The WWTP has experienced permit violations and recently PCJWSA was fined by the Oregon Department of Environmental Quality (DEQ) for exceedances in water quality parameters of the National Pollutant Discharge Elimination System (NPDES) permit for total suspended solids (TSS), biochemical oxygen demand (BOD), and pH on several occasions in 2011, 2012, and 2013. The purpose of this proposal is to upgrade existing facilities to bring the facility into compliance for the water discharge permit.

PROJECT SITE DESCRIPTION AND HISTORY

The PCJWSA is located in Pacific City and serves a 2.7 square mile area that includes the unincorporated communities of Pacific City and Woods. It is located in the southern portion of Tillamook County at the mouth of the Nestucca River.

The site of the WWTP is owned by the PCJWSA. The Pacific City Sanitary District was organized in 1974. The Pacific City Water District was formed in 1959. The two offices were joined in 1998. The WWTP went into operation in 1970-1980 to resolve water quality issues in the Nestucca River and surrounding area due to failed and failing septic systems.

PROPOSED PROJECT

The proposed project is to upgrade the facility, as identified in the Environmental Report. The facility has experienced several water quality discharge violations due to the facility currently being at capacity. Additional treatment capacity is necessary to meet Clean Water Act discharge requirements as required by the NPDES permit.

JURISDICTION AND CONSISTENCY REQUIREMENTS

The Coastal Zone Management Act of 1972 (CZMA) was passed by Congress to encourage coastal states to develop and implement coastal zone management plans. In Oregon, this law is implemented through the Oregon Coastal Management Program (OCMP). The Land Conservation and Development Commission (LCDC) oversees the OCMP. The enforceable policies include (1) statewide planning goals, (2) applicable comprehensive plans, and (3) state agencies with permitting authority.

CONSISTENCY REVIEW

In the State of Oregon, compliance with the applicable state-approved Comprehensive Plan ensures consistency with the CZMA. The Tillamook County Comprehensive Plan was originally approved in 1982 and has undergone updates to several sections since. The section

applicable is the Urban Unincorporated Community of Pacific City and Woods, which was updated in 1999.

The Statewide Planning Goals must also be reviewed. Statewide Planning Goals 1, 2, 3, 7, 11, 12 and 14 are met through compliance with the Tillamook County Comprehensive Plan. Under Goal 14, Urbanization, Pacific City and Woods are listed as Urban Unincorporated Communities and development is subject to the Pacific City/Woods Community Plan as amended in 1999.

Per the Tillamook County Comprehensive Plan, Pacific City is a "rural development" that meets the intent of several state-wide goals. Tillamook County characterizes a rural development as having the following:

> Individual or small community sewage disposal systems and enough land to operate them properly, wells or small community water system, sufficient land to accommodate storm water runoff from pavement and roads. (Comprehensive Plan page 2-20).

The Pacific City Joint Water-Sewer Authority is the subject of Policy 4 of the Pacific City Community Plan. This Policy states that the PCJWSA is an important feature in the community and the County and PCJWSA shall work collaboratively to assure that the water and sewer service is available for current and future development. Under the Community Plan, the County established a Community Growth Boundary (CGB), which is limited by the PCJWSA service area and also limits the PCJWSA service area.

The DEQ reviews and approves development and operation of WWTP including issuance of the NPDES permit. The outfall is located in the Nestucca River about 1.5 miles upstream of Nestucca Bay. The discharge is within a portion of the river that is tidally influenced. Compliance with the discharge limits of the NPDES permit is required for the WWTP to remain in regulatory compliance.

STATEMENT OF CONSISTENCY

Based upon the above evaluation, PCJSWA has determined that the proposed action to upgrade the WWTP to meet NPDES discharge requirements is consistent with the OCMP.

EXHIBIT D

Initiation of Section 106 Process with Confederated Tribes of the Grand Ronde

Parametrix
ENGINEERING . PLANNING . ENVIRONMENTAL SCIENCES

4660 KITSAP WAY, SUITE A | BREMERTON, WA 98312 | P 360.377.0014

Date: August 27, 2014

Project Number: 14-0939

To: Confederated Tribes of Grand Ronde

9615 Grand Ronde Road
Grand Ronde, OR 97347
ATTN: David Harrelson
david.harrelson@grandronde.org

From: Jennifer Lundberg, CEP, Parametrix, Inc.

Subject: Initiation of Section 106 Review Process

Project Name Pacific City Wastewater Treatment Plant Improvement Project

Our client, the Pacific City Joint Sanitary and Water Authority, has applied to the USDA Rural Development for federal financial assistance and we have been authorized by that Agency to initiate the consultation process required under Section 106 of the National Historic Preservation Act (NHPA) (see attached authorization). Section 106 of the NHPA requires federal agencies to take into account the effects of their undertakings on historic properties.

You have been identified as a possible consulting party under 36 CFR Part 800, Section 800.2(c). Therefore, we provide you with the attached information regarding their proposed project and respectfully request your comments with regard to the potential for the project to impact historic properties. Specifically, we would appreciate any comments you may have on the following issues:

- The proposed project;
- The described area of potential effect (APE);
- The potential effects of the undertaking on any historic property we have thus far identified;
- Information on other historic properties which might be present and could be effected by the proposed project, including properties which have religious or cultural significance to one or more Indian Tribes;
- Any additional parties we should consider consulting; and
- Any other comments or information related to historic preservation which you believe are relevant to the proposed project's Section 106 review.

Please be as specific as you can with any comments or information. Since this review is time sensitive and must adhere to the provisions in 36 CFR Part 800, we request that you submit comments within 30 days from receipt of this letter.

Please be aware that the project owner, PCJSWA, has elected to conduct a pre-construction survey and is currently in the process of contracting a registered professional archaeologist. This survey will include an existing information research and a reconnaissance level cultural resources survey by an archaeologist. Our initial review indicates no known historic or pre-historic archaeological resources.

Any comments received from your office will be incorporated into the final project design submitted to USDA Rural Development for review and approval, including a copy of your reply to our inquiry. Assuming no additional Historic Property or Tribal issues are identified, a final letter with the USDA "finding of effects" will be sent by the State Environmental Coordinator for your comment.

If you have any questions regarding this letter please contact Jennifer Lundberg, 4660 Kitsap Way, Ste A, Bremerton, WA 98312, jlundberg@parametrix.com, or 360-265-1582 or you may contact Rural Development directly by calling Charlotte Rollier, State Environmental Coordinator, at (503) 414-3356.

Sincerely,

Jennifer Lundberg, CEP
Planner

Attachments:

- Oregon SHPO consultation letter
- USDA-RD Instructions letter
- APE and Project Description

United States Department of Agriculture
Rural Development
Oregon State Office

Section 106 Consultation Authorization and Instructions to Applicant

DATE: November 17th, 2008

TO: Parametrix, Inc.
C/O Tom Nielsen and Jennifer Lundberg
700 NE Multnomah, Ste 1000
Portland, OR 97232

FROM: USDA Rural Development
1201 NE Lloyd Boulevard, Suite 801
Portland, OR 97232-1274

SUBJECT: Initiating Consultations under the Section 106 Process

In order for Rural Development to make a decision on your application, an environmental review must first be completed. Among other items, this environmental review includes an analysis of the potential for your proposed project to impact sites that are listed, or eligible for listing, on the National Register of Historic Places. This analysis is required by Section 106 of the National Historic Preservation Act (NHPA) and its implementing regulations located in the 36 CFR Part 800. NHPA requires Rural Development to work closely with the State Historic Preservation Office (SHPO), the Tribal Historic Preservation Officer(s), or tribal cultural resource protection programs, and other consulting parties to take into account the effects of your project on historic properties, and to attempt to find ways to avoid, minimize, or mitigate adverse effects, to the extent practicable.

Receipt of this letter from Rural Development authorizes you to initiate consultation under the Section 106 process. Please proceed as follows:

1. Review the attached letter (Attachment 1) and the required supporting documentation (Attachment 2).

2. Send the completed letter (Attachment 1) and the supporting documentation (contained in Attachment 2) to each of the consulting parties on the supplied contact list (retain a dated copy of each letter for your records).

3. Include a copy of this Authorization/Instructions document with your letter to the SHPO, the THPO, or applicable tribal cultural resource contacts. *

5. Allow 30 days for receipt of comments. Incorporate any comments received into the environmental information/report (depending on Rural Development program) being prepared as part of your application to Rural Development, and attach copies of each letter you sent out, with comments received, to the environmental information/report.

   To assist you in completing this process your Rural Development representative will:

   - Answer any questions you have about completing the letter and the supporting documentation;
   - Assist you in a preliminary description of the area of potential effects (APE); **
   - Assist you in developing a preliminary list of the consulting parties.

   The initiation of consultation is the first step in the Section 106 process. This authorization permits you, as an applicant (or, by proxy, the applicant's consultant), to initiate this consultation process and to assist Rural Development in collecting and evaluating information to facilitate timely compliance with Section 106 requirements. Rural Development remains legally responsible for making all formal "determinations and findings" under the Section 106 process.

   Please be aware that some proposals require the services of a professional consultant. For example, an archeological survey may be needed before the Section 106 process can be concluded. Your Rural Development representative can provide you further guidance, if there is a need for such services. As an applicant, you are still responsible for the requirements of this letter, even though you have hired a consultant to assist you.

   This authorization to initiate consultation under the Section 106 process does not constitute Rural Development approval of your request for financial assistance. All costs incurred by the applicant, in compliance with the Section 106 process, are incurred at the applicant's risk.

   Do not take any actions which might have an adverse effect on historic property or cultural resources until the Section 106 review process is completed. Section 110(k) of the National Historic Preservation Act **may prohibit** federal agencies from providing federal financial assistance to any applicant who "... with intent to avoid the requirements of Section 106, has intentionally significantly adversely affected a historic property..."

   Please contact your Rural Development representative should you have any questions.

Charlotte Rollier
State Environmental Coordinator

Attachments (2)

* The Tribal Historic Preservation Officer, or THPO, has assumed the role of the SHPO when projects are to be located on tribal-owned lands. When this is the case, the THPO will review and comment on the proposed project and SHPO does not need to be contacted. There are only two THPOs in Oregon: Carey Miller for the Confederated Tribes of the Umatilla and Robert Brunoe (acting THPO) for the Confederated Tribes of the Warm Springs. For projects other than those located on Umatilla or Warm Springs tribal lands (or where the tribe has no designated THPO to review projects proposed to be located on their lands), consultation letters should be addressed to the tribal cultural resource contacts. See www.leg.state.or.us/cis for a complete list of key tribal cultural resource contacts.

** The area of potential effects (APE) is defined by 36 CFR Part 800, Section 800.16(d) as follows: "Area of potential effects means the geographic area or areas within which an undertaking may directly or indirectly cause changes in the character or use of historic properties, if any such properties exist. The area of potential effects is influenced by the scale and nature of an undertaking and may be different for different kinds of effects caused by the undertaking."

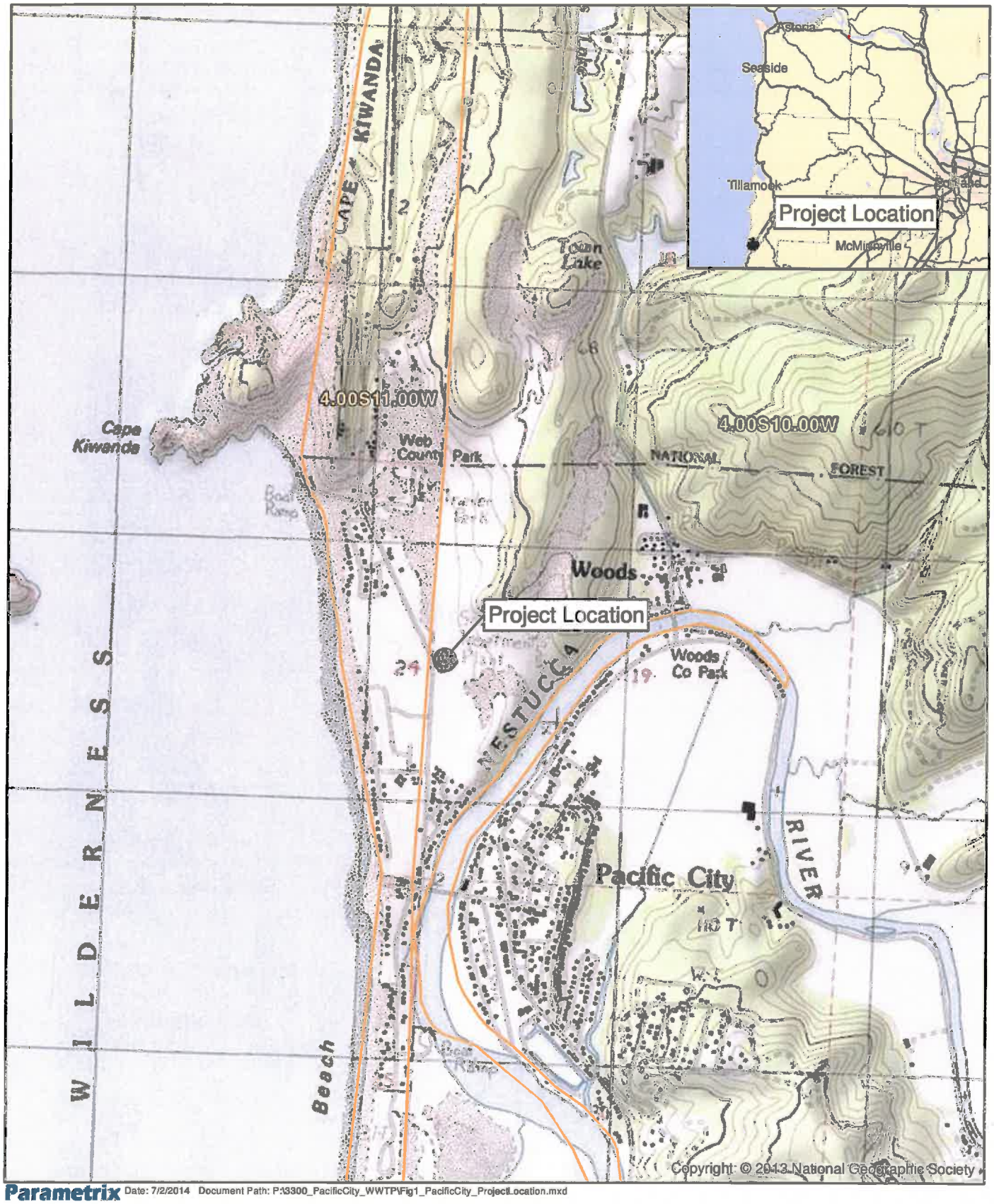


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Figure 1.

PCJWSA Wastewater Treatment Plant Upgrades
Study Location and Vicinity Map

Google earth

feet 200
meters 60

— = property boundary

16 = clarifier

16B = digester

15 = generator

7 = grit system

5 = aeration basin

13 = filters

16a + 16c = dewatering & lime

Supporting Documentation to be Submitted by Applicant to Consulting Parties*

1. A copy of the Authorization/Instructions to Applicant dated and completed by Rural Development.

   Included.

2. Detailed description of the proposed project, including related activities to be carried out in conjunction with the project, and the status of property acquisition, if applicable.

   The Pacific City Joint Water-Sanitary Authority (PCJWSA) owns and operates the wastewater treatment plant (WWTP) that serves approximately 1,000 full time residents and up to approximately 3,000 seasonal residents in the unincorporated communities of Pacific City and Woods.

   The WWTP has experienced permit violations and recently PCJWSA was fined by the Department of Environmental Quality (DEQ) for exceedances in water quality parameters of the National Pollutant Discharge Elimination System (NDPES) permit for total suspended solids (TSS), biochemical oxygen demand (BOD), and pH on several occasions in 2011, 2012, and 2013. The purpose of this proposal is to upgrade existing facilities to bring the facility into compliance with the water discharge permit.

   Below is a listing of the proposed activities to upgrade the existing wastewater treatment plant serving the communities of Pacific City and Woods. The numbers correspond to the attached site plan numbers for locations of proposed structures. Minor changes in site layout may occur as design progresses, however, all project elements will remain within the APE boundaries as shown. The list also provides estimated excavation amounts. Total excavation is not expected to exceed 3,500 cubic yards. Except as noted, structures will be placed at grade with minimal grading required to ensure a flat surface. All proposed work occurs within the existing wastewater treatment plant boundaries so no acquisition is required. No upgrades to the outfall or transmission lines are required.

   5. Activated Sludge Diffused Aeration System. Replace mechanical aeration system with a fine bubble diffused aeration system. Provide three new blowers and associated air piping. **No excavation or new concrete structures.**
   7. Clarifier Improvements. Provide a new larger scum beach. Provide a new concrete scum collection box, a new pump, and piping to route scum to the digester. Provide full diameter skimmers. Provide new return/waste sludge pumps, a flow meter, and modify sludge pump piping and valves. **No excavation or new concrete structures.**

8. Grit System. Provide a 2 mgd vortex type grit removal system with air lift in a concrete basin. Provide a grit classifier and storage hopper. **Involves excavation of approximately 60 cubic yards and construction of 2 concrete tanks that will be vertically stacked – one with 8-ft diameter (64 sf) and the other with 4-ft (20 sf) diameter.**

11. Aerobic Digester Aeration Improvements. Replace existing aeration system and blowers with a new coarse bubble aeration system and two 20-hp blowers. **No excavation or new concrete structures.**

13. Expand Tertiary Filters. Add third filter to allow firm treatment capacity of 2 mgd. **Involves construction of an approxmiately 120-sf concrete pad.**

15. WWTP Standby Generator. Provide a new 500 kW/625 kVA standby generator capable of running the electrical load of the entire WWTP. Provide 800 ampere automatic transfer switch. **Involves construction of 500-sf building expansion on a slab on grade.**

16. Biosolids Dewatering System. Conduct predesign evaluation to select the most cost effective dewatering technology. For the purposes of costing for this CIP Update, a belt filter press was assumed. **No excavation or new concrete structures.**

16A. Dewatering System. Provide a 0.7 meter, 230 pound per hour belt filter press with a lobe type solids feed pump, access platform of FRP grating, polymer feed system, and a lime storage hopper. House the system in a 26' x 20' block building with a metal roof. Provide a 40 cubic yard roll off container. **Involves construction of new 520-sf building on a slab on grade.**

16B. Second Aerobic Digester. Construct a second new aerobic digester, 50-foot diameter, 12-foot deep with a coarse bubble aeration system, two 50 hp blowers, and 100 gpm decant pump. Enclose digester an FRP cover and collect and route foul air with an FRP fan and buried FRP ducts. **Involves excavation of approximately 1,200 cubic yards and construction of a 50-ft diameter concrete tank (2290 sf).**

16C. Lime Handling System. Construct modular system for lime application contained in a 12' diameter 34' high 1,000 cubic foot silo, bin vibrator, slurry screw feeder, 750 gallon slurry mix tank, two centrifugal slurry pumps, and NEMA 4 enclosure. Mounted on a 18' x 18' concrete foundation. **Involves construction of a 12-ft diameter silo (113 sf) and 324-sf slab on grade.**

17. Third Clarifier & RAS/WAS sludge pump. Construct a third clarifier. **Involves excavation of 2,200 cubic yards and construction of a 60-ft diameter concrete tank (3019 sf).**

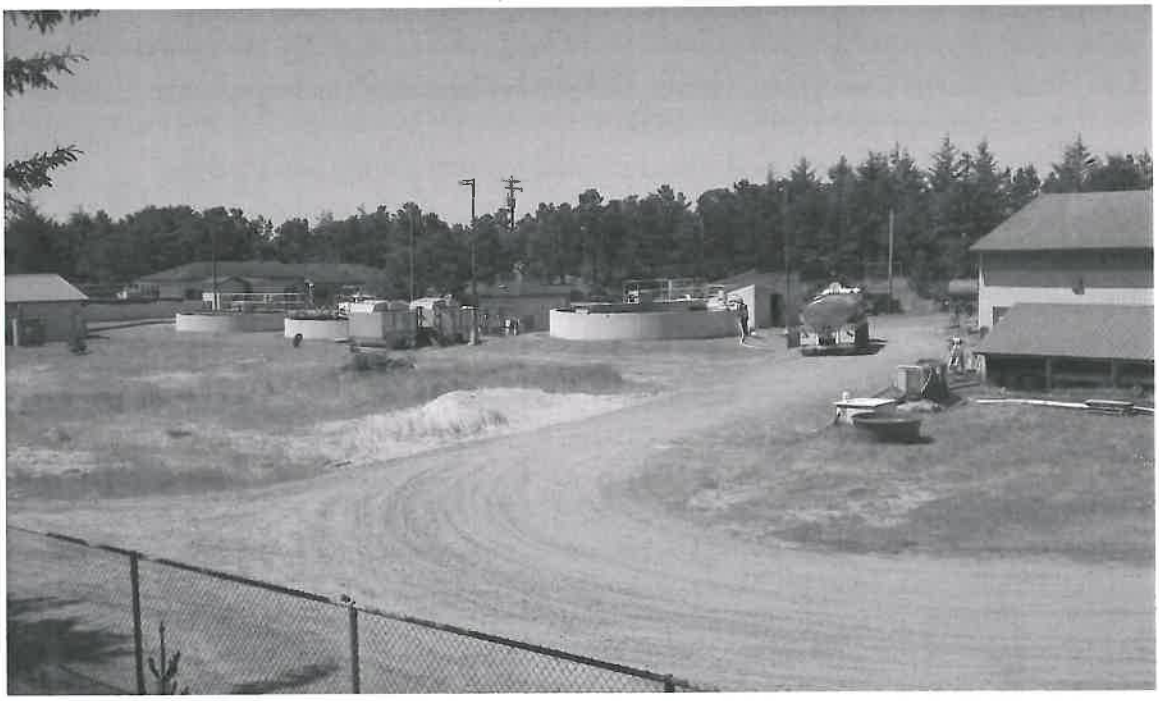
3. Describe all federal, state and community involvement in the project, including identification of the specific Rural Development program from which you have requested financial assistance. If there are other federal, state or community agencies involved, specify the agency and the type of assistance requested (for example: financial, permit, license).

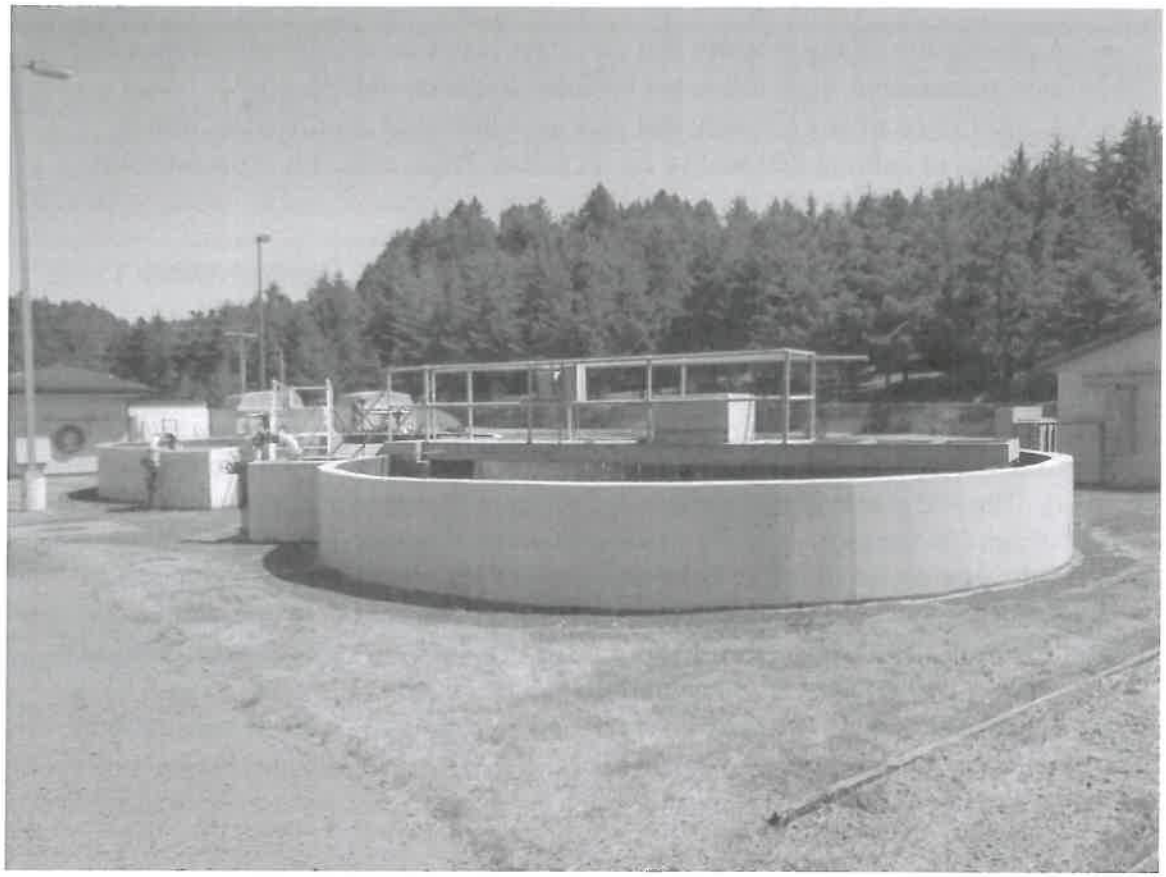
- Rural Development – Oregon is providing a loan for permitting, design and construction.
- PCJSWA is self funding portions of the project.

4. Provide the following information regarding the proposed project site(s):

   - Describe the size (acres), terrain, and present land uses (including current zoning designations) of the project site(s);
   - Describe the adjacent land uses, including current zoning designations;
   - A map with the boundaries of the project site(s) clearly marked, preferably a U.S. Geological Survey (USGS) 7.5 quadrangle map (digital maps are fine: try http://terraserver.microsoft.com (free public access); and
   - Photos of the site(s) and adjacent properties with clear description of the location the photo was taken from (e.g. photo taken from proposed building site) and the orientation of the camera when the photo was taken (e.g. northeast looking towards adjacent state forest lands).

   The proposed project is located on a relatively flat terrace of 3.2 acres above the Pacific Ocean. The site is currently a wastewater treatment plant and zoned Pacific City/Woods Park Zone (PCW-P). The lot to the north of the WWTP is zoned PCW-P and is currently forested. The property to the east is the Siuslaw National Forest and is forested. To the northwest is PCW-R3 and the remainder is PCW-R2, high density and medium density residential, respectively. The uses west of the facility are residential and the use to the south is mini storage.





5. Provide a written description of the proposed boundaries of the project's area of potential effect (APE), supplemented by a clearly marked map showing the APE and project site footprint.

   The APE is defined as the existing property boundary of the wastewater treatment plant.

6. Describe any **efforts** (research, surveys, etc.) that have been made, or are in progress, to identify and evaluate properties (including structures and archaeological resources) within the proposed APE and are listed or eligible for listing on the National Register of Historic Places.

   Parametrix reviewed the available online information for historic properties through the Oregon Historic Sites Database website. Consultation with the Oregon SHPO was completed.

7. Describe any **results** from the efforts outlined in item 6. Such results may include:

   - A description of historic properties found and a discussion of their current status (listed, eligible for listing or in need of further evaluation);

- A description of any property that may have historical significance from a State or local perspective, even if it is not National Register-eligible; and
- A description of any property that may have historical significance from a religious or cultural perspective for an Indian Tribe, even if it is not National Register-eligible.

Two properties were identified on the Oregon Historic Sites Database within 1 mile of the project; only one site was eligible for listing on the National Register of Historic Places. Cape Kiwanda is a park/plaza area located at the end of Beach Rd and approximately 1 mile northwest of the WWTP. Its historic name was Sand Cape. The site is listed in the Tillamook County Comprehensive Plan as being significant to the County for its association with travel and recreation (Tillamook Comprehensive Plan). The site is also identified as a dory launching site, which is of cultural significance to the area. The original construction occurred circa 1910 with an update possibly constructed in 1972. The site is eligible and a contributing element for a potentially eligible site for listing on the National Register of Historic Places. The site will not be directly impacted by the proposed action. There are no indirect impacts including visual impacts of the view from and to the park because there will be no noticeable changes to the view of or to the park. Negligible indirect construction impacts may occur due to the visual impact of construction vehicles but noise is not expected to impact park activities.

No other sites, historic or pre-historic, were identified in the project.

8. If your research has progressed far enough, state your expectation regarding USDA's "finding(s)" regarding the project's impact on identified historic properties within the APE and explain why. State your expected USDA determination as "no affect, may affect or will affect" along with any proposed mitigation measures identified to date to minimize the projects impact within the APE.

   Based on current information regarding historic and pre-historic use of the site as well as the minimal amount of shallow excavation proposed, PCS&WA anticipates an USDA determination of may affect due to the limited existing data regarding the site and the project lying "within an area generally perceived to have a high probability for possessing archaeological sites and/or buried human remains" (Oregon SHPO letter dated July 7, 2014). PCJSWA is currently contracting with a registered professional archaeologist to provide a pre-construction reconnaissance level survey.

9. Provide a list of other parties or agencies currently being consulted regarding the proposed project's potential impacts within the APE.

   Parametrix has initiated consultation with the Confederated Tribes of the Grand Ronde and the Confederated Tribes of Siletz Indians. Consultation has been completed with the Oregon SHPO.

10. List any other information pertinent to this project which would be helpful in understanding the project and its potential for impacts to historic property.

N/A

Oregon
John A. Kitzhaber, MD, Governor

Parks and Recreation Department
State Historic Preservation Office
725 Summer St NE, Ste C
Salem, OR 97301-1266
(503) 986-0671
Fax (503) 986-0793
www.oregonheritage.org

Nature HISTORY Discovery

July 7, 2014

Ms. Jennifer Lundberg
Parametrix
4660 Kitsap Wy STE A
Bremerton, WA 98312-2357

RE: SHPO Case No. 14-0939
Pacific City Wastewater Treatment Plan Improvement Proj
FOE/improvement to existing wastewater treatement plant
Parametrix/USDA RD/Pacific City JS&WA
4S 10W 19, Pacific City, Tillamook County

Dear Ms. Lundberg:

Our office recently received a request to review your application for the project referenced above. In checking our statewide archaeological database, it appears that there have been few surveys completed near the proposed project area and visibility was always quite poor. However, the project area lies within an area generally perceived to have a high probability for possessing archaeological sites and/or buried human remains and archaeological sites have been reported.

In the absence of sufficient knowledge to predict the location of cultural resources within the project area, extreme caution is recommended during project related ground disturbing activities. Under state law (ORS 358.905 and ORS 97.74) archaeological sites, objects and human remains are protected on both state public and private lands in Oregon. If archaeological objects or sites are discovered during construction, all activities should cease immediately until a professional archaeologist can evaluate the discovery. If you have not already done so, be sure to consult with all appropriate Indian tribes regarding your proposed project. If the project has a federal nexus (i.e., federal funding, permitting, or oversight) please coordinate with the appropriate lead federal agency representative regarding compliance with Section 106 of the National Historic Preservation Act (NHPA).

If you have any questions about the above comments or would like additional information, please feel free to contact our office at your convenience. In order to help us track your project accurately, please reference the SHPO case number above in all correspondence.

Sincerely,

Dennis Griffin, Ph.D., RPA
State Archaeologist
(503) 986-0674
dennis.griffin@oregon.gov

B2. Response to USDA Comments

Parametrix
ENGINEERING . PLANNING . ENVIRONMENTAL SCIENCES

700 NE MULTNOMAH, SUITE 1000 | PORTLAND, OR 97232 | P 503.233.2400, 360.694.5020

December 9, 2014

Janice Roderick
1835 Black Lake Boulevard SW, Suite B
Olympia, WA 98512

Re: PCJWSA Environmental Report - Responses to USDA Comments

Dear Janice:

Thank you for providing the U.S. Department of Agriculture's (USDA) input regarding the proposed project in a letter dated October 28, 2014. This letter provided comments on the Environmental Report for the Pacific City, Oregon Wastewater Treatment Facility Improvement project proposed by the Pacific City Joint Water-Sanitary Authority (PCJWSA). Per our conversation on November 21, 2014, we are providing responses to those comments and requested supplemental information in this letter.

The USDA comment letter is attached and individual comments and responses are listed below:

Comment #1: Current level of assessment – Environmental Report

Response: No action required by PCJWSA or Parametrix.

Comment #2: A civil rights impact analysis should be completed as a part of the environmental review documents. Please submit the CRIA for review.

Response: To be completed by USDA loan specialist. No action required by PCJWSA or Parametrix.

Comment #3: Four alternatives are considered in the report with one being the No-Action alternative. The activated sludge process was used for the environmental report analysis. The environmental report should have more detail as to why the activated sludge process was determined to be the most desirable process. This may be detailed in the engineering report but the environmental should be a stand-alone document.

Response: The activated sludge process and sequencing batch reactor (SBR) are those most feasible for construction out of the four alternatives identified. The activated sludge process option was selected for analysis in the Environmental Report because it affects a slightly larger footprint and has a slightly higher construction disturbance than the others; but all four have no significant differences in terms of individual or cumulative impacts overall. Because the activated sludge alternative with a larger footprint and greater construction impact is shown in the Environmental Report to meet the classification of a Categorical Exclusion (CE), then the SBR and other alternatives, with slightly less construction impact, would meet the classification of a CE.

Comment #4: There are three parks located within ½ mile from the treatment site. There is no documentation that the parks were contacted for comments. Although it is mentioned that the benefits of the upgrade are positive, it is unknown traffic/noise could impact the parks during construction.

Response: Woods County Park, Webb County Park, and Bob Straub State Park are all approximately 0.5 mile from the WWTP. Woods County Park is a very small, 12-site campground for RVs and tents abutting the intersection of Resort Drive, Brooten Road, and Ferry Street east of the WWTP. Webb County Park is a 38-site campground for RVs and tents located north of the WWTP. Bob Straub State Park is a day use park located south of the WWTP.

The parks are not located on the same road as the project site, the roadways within Pacific City are often used by logging trucks, and numerous residential and commercial complexes are being constructed within Pacific City, resulting in increased level of ambient noise not related to this project near the parks.

As described in the No Effect document (Exhibit B of the Environmental Report), the noisiest construction equipment anticipated for use during the proposed project are a dozer, an excavator, and a cement pump truck. Mathematically, the distance that construction noise is anticipated to travel from the project site is approximately 1,991 feet. This point represents the distance where construction noise is indistinguishable from background ambient noise. Each of the three parks; Woods County Park, Webb County Park, and Bob Straub State Park, are all further than 1,991 feet from the project area.

Comment #5: The project location is on the current wastewater treatment facility site. The project will not convert prime farmland or forestland. No further action needed.

Response: No action required by PCJWSA or Parametrix.

Comment #6: The project will not impact any Wild and Scenic Rivers, National Parks or National/State wildlife refuges. No further action needed.

Response: No action required by PCJWSA or Parametrix.

Comment #7: It is stated the project is not within the 100-year floodplain area. A FEMA map should be included in the report.

Response: Please see attached FIRMette map (Figure 1).

Comment #8: The project does not affect any wetlands area. Oregon has county mapping of wetlands areas. Please provide a wetlands map of the area showing the area to verify lack of wetlands near the treatment plant location.

Response: Local Wetland Inventory maps for Pacific City or county wetland maps for Tillamook County are not available. Figure 3 within the Preliminary Environmental Report contains a GIS-generated soils and wetlands map, developed from the National Wetland Inventory, which shows no wetlands within the project area.

Comment #9: The applicant has reviewed the species for effect. The list includes Marbled Murrelet, Northern spotted owl, Western Snowy plover, Short-Tailed Albatross, Coho salmon, Green sturgeon. There is no in-water working being completed so there has been a determination of No Effect for Coho salmon and Green sturgeon. A letter to US Fish and Wildlife and US National Marine Fisheries Service should be sent requesting comments on the proposed project. These are not documented in the environmental report.

Response: Off-site data collection efforts involved a search and review of existing information related to fish and wildlife distribution and habitat within and surrounding the proposed project site. To determine species presence, existing data covering the project site were accessed from US Fish and Wildlife Service (USFWS) and National Marine

Fisheries Service (NMFS) websites. A wildlife biologist also characterized the habitat in and near the WWTP site as not suitable for listed wildlife species.

As described in the No Effect document (Exhibit B of the Environmental Report), federally listed species or associated critical habitat will not be impacted during the proposed project; therefore, the proposed project will have no effect upon federally listed species or designated critical habitat and will not adversely affect Essential Fish Habitat. As a result of a no effect determination, further consultation with USFWS or NMFS is not required. Per request, please see the attached map showing marbled murrelet and spotted owl critical habitat and any recent spotted owl survey results (Figure 2).

Comment #10: The environmental report has some documentation dated 2008 instructing the applicant to contact the Tribes regarding their comments. A letter also was received from the Oregon State Archeologist in July 2014 stating that if the project has a federal nexus, please coordinate with the appropriate lead agency regarding Section 106 of the NHPA. There is discussion that more recent letters have been sent but they are not included in the environmental documentation.

Based on the information in the environmental review and in support of RD guidance, Tribal letters and the cultural report should be sent from RD to the Grande Ronde Tribe and the Siletz Tribe requesting comments on the project. RD cannot delegate the responsibility unless there is agreement by the Tribe to do so (per RD memo dated 7/16/2009 from Mark Plank and Richard Davis). Also a letter to the State Historic Preservation Office should be sent by RD with the results of the cultural report, outlining actions taken to comply with Section 106 and RD's decision whether Historic/Cultural properties are affected.

Response: No action required by PCJWSA or Parametrix.

Comment #11: Water quality is addressed in the report. The project is to improve the water quality standards for the effluent of the treatment plant. A letter from Oregon's Department of Environmental Quality should be included in the report concurring with the improvements.

Response: Please see attached letter dated November 14, 2014 from the Oregon Department of Environmental Quality (DEQ). In summary, the letter states the following:

- The department [DEQ] agrees with the conclusions of the report.
- Because the treatment plant is near its capacity, and time is of the essence, DEQ recommends to keep moving forward with the project and proceed with arrangements to finance the project.
- To continue with the choice of treatment desired and prepare design documents.

Comment #12: The project is within a county governed by the Coastal Zone Management Act. Correspondence (letter or e-mail) from Oregon Department of Land Conservation and Development should be included that they concur that the proposed project meets the Coastal Zone Management Act Program.

Response: Please see attached letter dated July 3, 2014 from the Oregon Department of Land Conservation and Development stating that "If the federal nexus is limited to providing project funding, DLCD does not object to the federal funding under CZMA authority, provided the applicant receives and complies with the conditions of all necessary local, state, and federal permits". The proposed project is currently and will continue to comply with the conditions of all necessary local, state, and federal permits.

Comment #13: Air quality is addressed in the report. A letter should be sent to Oregon's Department of Environmental Quality Air Quality Program requesting comments on the project and any mitigation needed during construction.

Response: The project area is not within a nonattainment or maintenance area; therefore, a letter to DEQ is not required (USDA 2008). Please see the Oregon Nonattainment/Maintenance Status for Each County by Year for all Criteria Pollutants, located:

http://www.epa.gov/oaqps001/greenbk/anayo_or.html

Comment #14: Social Economic/Environmental Justice Issues are addressed in the report. The improvements will be at the same location as the current facility. The project appears to not have a disproportionate impact on minority or low-income populations.

Response: No action required by PCJWSA or Parametrix.

I hope the above responses adequately address your comments. Please feel free to contact me at (503) 416-6193 or whall@parametrix.com if you have any additional questions or comments.

Sincerely,

Parametrix

WE Hall

William Hall

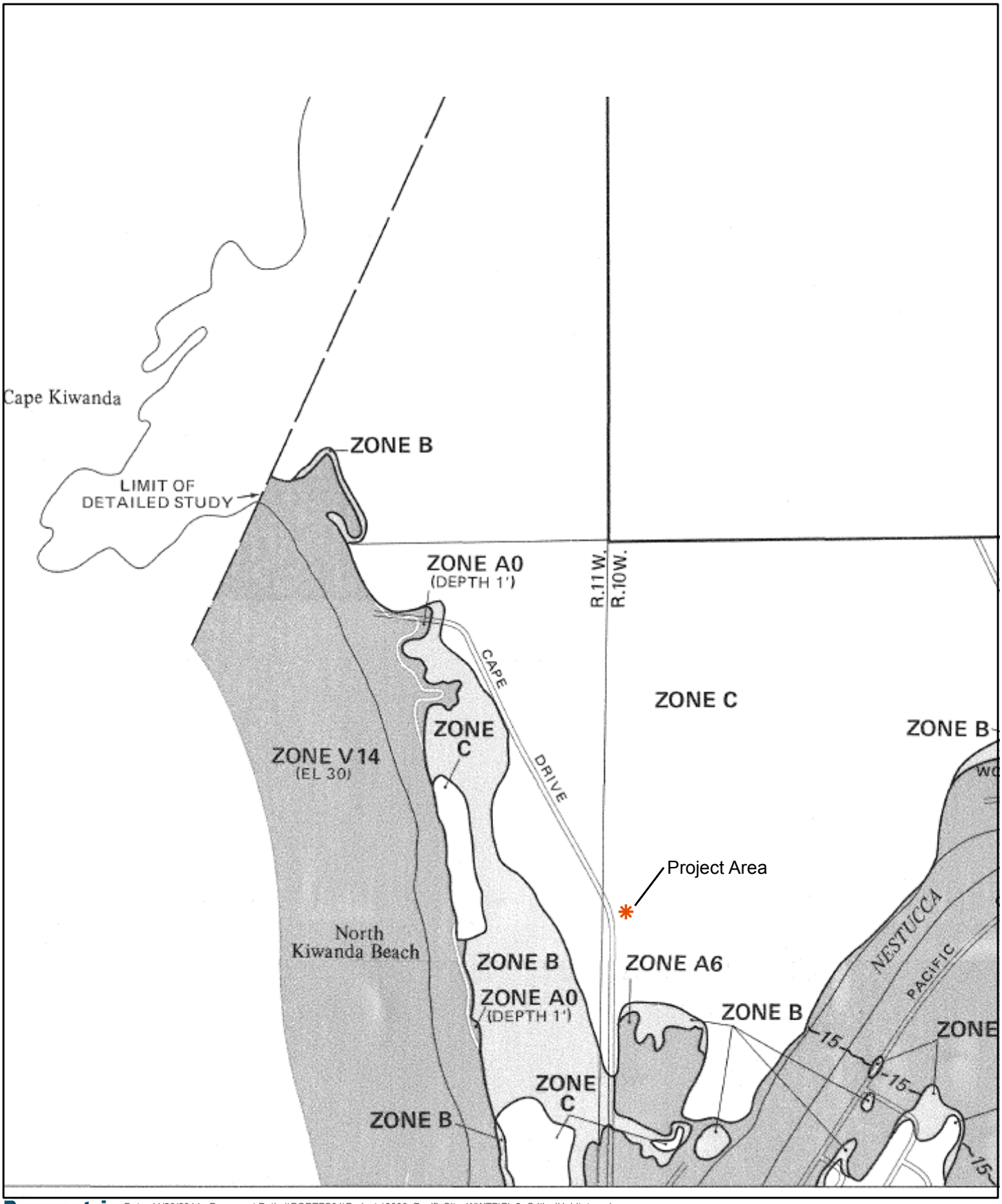
Senior Scientist

CC:

Tony Owen – Pacific City Joint Water-Sanitary Authority
Tom Nielsen - Parametrix

REFERENCES:

USDA (U.S. Department of Agriculture). 2008. Guide for Preparing the Environmental Report for Water and Environmental Program Proposals. RUS Bulletin 1794A-602, Version 1.2, Revised: March 2008.



Parametrix Date: 11/26/2014 Document Path: \\PORTFS01\Projects\3300_PacificCity_WWTP\Fig2_CriticalHabitat.mxd

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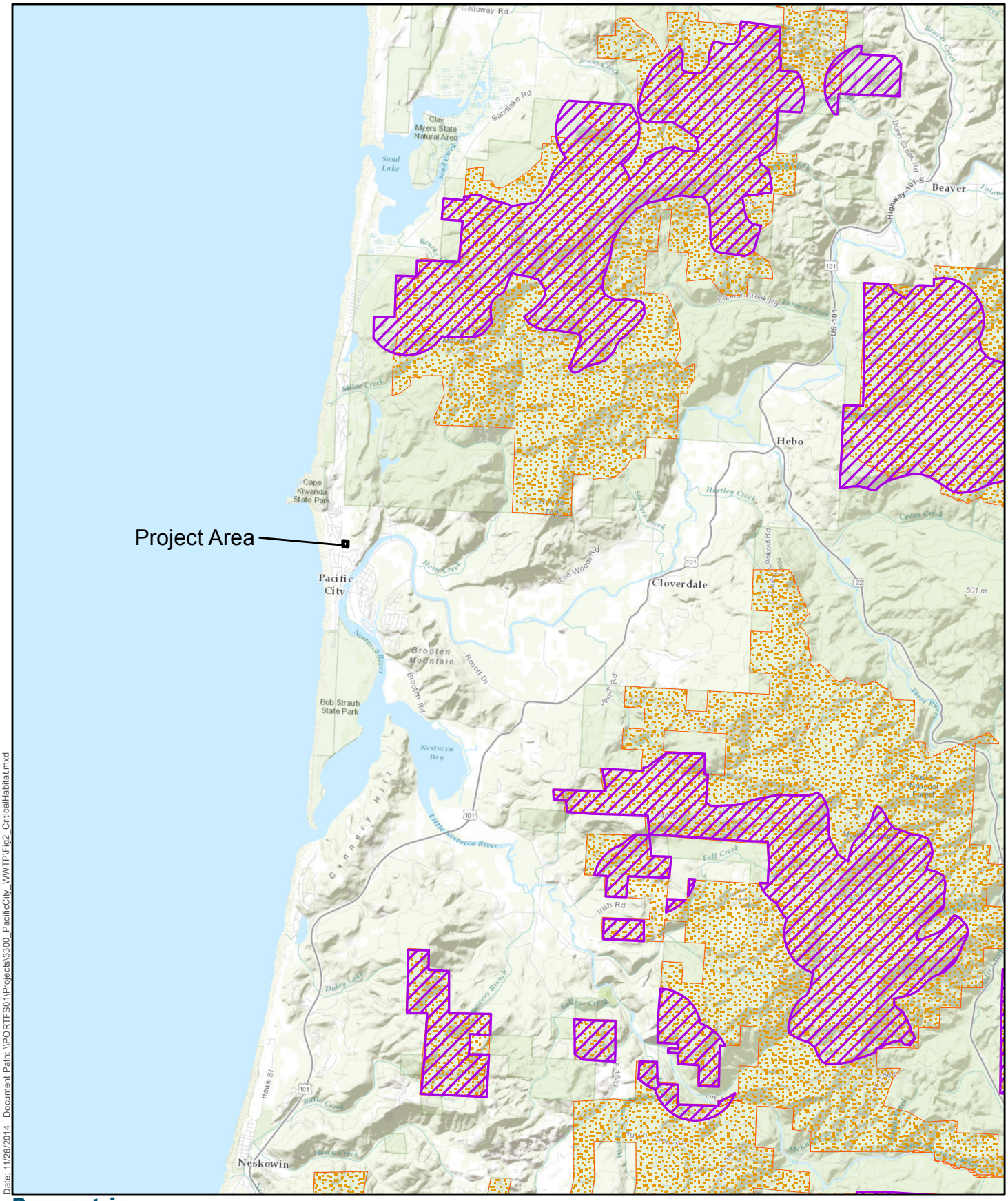
Not to Scale

Figure 1.
PCJWSA Firmette

PCJWSA Wastewater
Treatment Plant Upgrades



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Parametrix

N

0 2

Miles

Study Area

Critical Habitat

Marbled murrelet

Northern spotted owl

Figure 2.
Wildlife Critical Habitat Locations

PCJWSA Wastewater Treatment Plant Upgrades

United States Department of Agriculture
Rural Development
Washington State Office

October 28, 2014

SUBJECT: Environmental Report for Pacific City, Oregon
Wastewater Treatment Facility Improvements

TO: Rachel Reister, CP Specialist
Portland, Oregon

The environmental information submitted has been reviewed with the following items noted. Pacific City Joint Water-Sanitary Authority is planning to construct new wastewater treatment facilities on the existing treatment plant site. The City has been experiencing permit violations and fines.

Review Comments

1. Current level of assessment –Environmental Report.

2. A civil rights impact analysis should be completed as a part of the environmental review documents. **Please submit the CRIA for review**.

3. Four alternatives are considered in the report with one being the No-Action alternative. The activated sludge process was used for the environmental report analysis. **The environmental report should have more detail as to why the activated sludge process was determined to be the most desirable process. This may be detailed in the engineering report but the environmental should be a stand-alone document.**

4. There are three parks located within ½ mile from the treatment plant site. **There is no documentation that the parks were contacted for comments. Although it is mentioned that the benefits of the upgrade are positive, it is unknown traffic/noise could impact the parks during construction.**

5. The project location is on the current wastewater treatment facility site. The project will not convert prime farmland or forestland. No further action needed.

6. The project will not impact any Wild and Scenic Rivers, National Parks or National/State wildlife refuges. No further action needed.

7. It is stated that the project is not within the 100-year floodplain area. **A FEMA map should be included in the report.**

8. The project does not affect any wetlands area. **Oregon has county mapping of wetlands areas. Please provide a wetlands map of the area showing the area to verify lack of wetlands near the treatment plant location.**

9. The applicant has reviewed the species for effect. The list includes Marbled Murrelet, Northern spotted owl, Western Snowy plover, Short-Tailed Albatross, Coho salmon, Green sturgeon. There is no in-water working being completed so there has been a determination of No Effect for Coho salmon and Green sturgeon. **A letter to US Fish and Wildlife and US National Marine Fisheries Service should be sent requesting comments on the proposed project. These are not documented in the environmental report.**

10. The environmental report has some documentation dated 2008 instructing the applicant to contact the Tribes regarding their comments. A letter also was received from the Oregon State Archeologist in July 2014 stating that if the project has a federal nexus, please coordinate with the appropriate lead agency regarding Section 106 of the NHPA. There is discussion that more recent letters have been sent but they are not included in the environmental documentation.

    Based on the information in the environmental review and in support of RD guidance, Tribal letters and the cultural report should be sent from RD to the Grande Ronde Tribe and the Siletz Tribe requesting comments on the project. RD cannot delegate the responsibility unless there is agreement by the Tribe to do so (per RD memo dated 7/16/2009 from Mark Plank and Richard Davis). Also a letter to the State Historic Preservation Office should be sent by RD with the results of the cultural report, outlining actions taken to comply with Section 106 and RD's decision whether Historic/Cultural properties are affected.

11. Water quality is addressed in the report. The project is to improve the water quality standards for the effluent of the treatment plant. **A letter from Oregon's Department of Environmental Quality should be included in the report concurring with the improvements.**

12. The project is within a county governed by the Coastal Zone Management Act. **Correspondence (letter or e-mail) from Oregon Department of Land Conservation and Development should be included that they concur that the proposed project meets the Coastal Zone Management Act Program.**

13. Air quality is addressed in the report. **A letter should be sent to Oregon's Department of Environmental Quality Air Quality Program requesting comments on the project and any mitigation needed during construction.**

14. Social Economic/Environmental Justice Issues are addressed in the report. The improvements will be at the same location as the current facility. The project appears to not have a disproportionate impact on minority or low-income populations.

DRAFT Mitigation Measures (may change pending final review of environmental)

Mitigation measures recommended are reasonable and follow regulatory agencies direction to minimize adverse comments and concerns. Mitigation measures must appear in the LOC, or other financing instruments which offer RD's commitment for this project. In addition, please send a

copy of the mitigation measures to the engineer or other representatives of the applicant, to help ensure that these measures are incorporated into the project development plans as appropriate.

1. Construction activities will be scheduled to reduce traffic, dust and noise impacts in residential areas.

2. Construction activities will use best practices for prevention of stormwater runoff during construction.

3. An Unanticipated Discovery Plan (UDP) must be "in place" before construction. If earth disturbing activities during project construction uncover cultural materials such as shell midden, faunal remains, stone tools, human remains), all work shall cease and the UDP plan outlined in the cultural resource report will be followed. Applicable laws pertaining to archaeological resources are required to be followed.

4. If earth disturbing activities during any area of the project uncover human remains, all work shall cease immediately and the area around the discovery shall be secured. The Oregon SHPO, Tillamook County, affected tribes, funding agencies and the applicant shall be immediately notified. Procedures outlined under Oregon State law (ORS 97.740 and ORS 358.905.955) will be followed and work will not resume until mitigation measures have been agreed upon by all parties.

Janice Roderick
State Environmental Coordinator

Oregon
John A. Kitzhaber, MD, Governor

Department of Environmental Quality
Northwest Region
2020 SW 4th Ave, Suite 400
Portland, OR 97201
(503) 229-5263
FAX (503) 229-6945
TTY 711

November 14, 2014

COPY

Tony Owen
Pacific City Joint Water-Sanitary Authority
Box 520
Pacific City, OR 97135

Re: WQ-Pacific City
Approval of Preliminary Engineering Report Wastewater Treatment Plant Upgrade
File 66100
PCJWSA, Tillamook County

Dear Mr. Owen:

The Department of Environmental Quality (Department) has reviewed of the above referenced document received in our Portland Office in October 9, 2014 as prepared by Thomas Nielsen PE, of Parametrix of Portland, OR.

The Department agrees with the conclusions of the report. A Sequencing Batch Reactor (SBR) would be most likely the least expensive alternative choice for an upgrade of the wastewater treatment plant. An SBR would produce a high quality, biologically nutrient-reduced effluent, low in nitrogen containing constituents. Although there are no specific rules for nutrient reduction proposed, there are several possible that may be imposed in the future. Also, an SBR also allows the facility to grow in increments, with the addition of SBR basins, as flows increase.

Something else for PCJWA to be aware of is the outfall in the Nestucca River. The tidal influence and seasonal fluctuations can create unstable and possibly poor mixing at times. The fact that the highest WWTP influent flow levels occur during the lowest river flows (July and August) demands that the WWTP perform to a high level of treatment and stability. A detailed mixing zone study will likely be required as part of a renewed permit..

One change coming with the 2016 permit renewal will be the monitoring of effluent bacteria to enterococcus and fecal coliform from the current ecoli.

Time is of the essence. The treatment plant is near its capacity and regularly has difficulty meeting the permit. Keep moving forward. Proceed with arranging financing for the project.

Continue with the choice of treatment desired and design documents. Technical review fees will be applied at that point.

INQUIRIES

If there is anything I can do to assist in the treatment choice questions and future needs, please don't hesitate to contact me. I can be reached at (503) 229-5310. I may emailed at pinney.mike@deq.state.or.us.

We appreciate the City's many efforts to comply with our water quality regulations and endeavor to assist you through the process.

Respectfully,

Michael L. Pinney PE
Senior Environmental Engineer
Northwest Region Water Quality

Cc : Thomas Nielson PE, Parametrix, 700 NE Multnomah, Ste.1000, Portland Or., 97232-4110
Tiffany Yelton-Bram, NWR-WQ
Randy Baily, NWR-WQ

Oregon
John A. Kitzhaber, MD, Governor

Oregon Coastal Management Program
Department of Land Conservation and Development
635 Capitol Street, Suite 150
Salem, Oregon 97301-2540
Phone (503) 373-0050
FAX (503) 378-6033
http://www.oregon.gov/LCD/OCMP

Electronic Delivery

July 3, 2014

Ms. Jennifer Lundberg
Parametrix

Project:	Pacific City Wastewater Treatment Plant
Location:	Pacific City, Tillamook County
Federal Assistance:	USDA Rural Development

Dear Ms. Lundberg,

Thank you for your consistency determination request related to funding for the Pacific City wastewater treatment plant. The Department of Land Conservation and Development (DLCD) is the state's designated coastal zone management agency, and conducts consistency reviews to ensure that federal activities and funding for projects affecting any coastal use or resource are consistent with the enforceable policies of the Oregon Coastal Management Program (OCMP). To be consistent with the enforceable policies of the OCMP, proposed activities must be consistent with: 1) the statewide planning goals; 2) the applicable acknowledged city or county comprehensive plan and implementing regulations; and 3) selected state authorities (e.g. those governing removal-fill, water quality, and fish & wildlife protections).

This project is located in Oregon's coastal zone and may affect coastal resources. If the federal nexus is limited to providing project funding DLCD does not object to the federal funding under our CZMA authority, provided the applicant receives and complies with the conditions of all necessary local, state, and federal permits. If the project will require a federal license or permit, such as one from the U.S. Army Corps of Engineers, DLCD will conduct a full consistency review as part of the permitting phase.

If you have any questions about the federal consistency review process or the coastal management program, please contact me at 503-934-0029 or by e-mail at: *juna.hickner@state.or.us*.

Sincerely,

/s/

Juna Hickner, Coastal State-Federal Relations Coordinator

Cc: Patrick Wingard, DLCD

William Hall

From: Roderick, Janice - RD, Olympia, WA <Janice.Roderick@wa.usda.gov>
Sent: Friday, January 23, 2015 1:30 PM
To: William Hall
Cc: Reister, Rachel - RD, Portland, OR
Subject: RE: Oregon Pacific City - PCJWSA WWTP Upgrade

I completed my review and sent it back to Oregon. You might want to check with your contact there. The person I sent my review to was in Portland and her name is Rachel Reister.

Janice Roderick

From: William Hall [mailto:WHall@parametrix.com]
Sent: Friday, January 23, 2015 1:12 PM
To: Roderick, Janice - RD, Olympia, WA
Subject: RE: Oregon Pacific City - PCJWSA WWTP Upgrade

Janice,

Did you have any questions regarding our submittal on the PCJWSA environmental report? I assume everything was OK, and things are moving along, but wanted to confirm.

Thank you!

Bill

From: William Hall
Sent: Tuesday, December 09, 2014 5:01 PM
To: 'Roderick, Janice - RD, Olympia, WA'; Tom Nielsen
Cc: Tony Owen (towen@pcjwsa.com)
Subject: RE: Oregon Pacific City - PCJWSA WWTP Upgrade

Janice,

Thanks for letting us know about the SHPO concurrence. If you get a chance, could we get a copy for the project files?

Also, attached are the responses to your comments. If any response requires any clarification, please don't hesitate to contact me.

Thanks!

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