Oregon International Port of Coos Bay

North Spit Regional Wastewater Treatment Facility Plan

SUBMITTED AS FINAL

March 14, 2013

Prepared for:

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March 14, 2013

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Subject: Terminating the North Spit Wastewater Facilities Plan, Coos Bay

Dear Bob:

The intent of this letter is to formalize the termination of the Facilities Plan undertaken by the Oregon International Port of Coos Bay, for which SRF funding was obtained. There is consensus among the regional entities that the development of a regional domestic wastewater and/or regional biosolids treatment facility on the North Spit will not be undertaken within the next five years. Per my discussions with you, since facilities plans have a typical life of five years for planning construction, the DEQ will not require a stamped and finalized facilities plan. However, we understand the DEQ wishes to obtain copies of the work completed to this point. The plan deviates mainly from DEQ's guidelines in the planning horizon, which is less than 20-years (plan developed based on year 2027 flows and loads). It also deviates in the diversity and extent of complete alternatives evaluated, as only one full complete alternative was developed and estimated, instead of three. The following work has been completed:

- Draft Facilities Plan including:
    1. Introduction, Purpose and Needs
    2. Study Area description;
    3. Regional Flows and loads based on North Bend and City of Coos Bay Projections, to year 2027;
    4. Existing North Spit facilities description;
    5. Development of one complete wastewater treatment alternative for the full regional flows, assuming common wall construction and piles, located within the existing Aerated Stabilization Basins;
    6. High level feasibility evaluation and discussion various regional biosolids treatment alternatives;
    7. Cost estimates for alternatives above
    8. Financial analysis (rate and $/gal) of full regional plant to combined serviced areas;

9. Financial analysis of a “Phase 1” option, which would consist of installing a pump station and pipeline to simply convey treated secondary effluent from Coos Bay Plant No.2 to the North Spit Outfall and not implement any treatment scenario on the North Spit.

§ Appendices:

Appendix A: NPDES Permit No. 101499

Appendix B: Regional Conveyance Evaluation

Appendix C: Land Use Compatibility Statement and Permitting Analysis

Appendix D: Environmental Species

Appendix E: Potential Funding Sources

Appendix F: Water Quality Analysis

Appendix G: Detailed Financial Analysis

Appendix H: Cost Estimates

These documents are submitted to DEQ as “Drafts – Submitted as Finals” and are not intended for implementation without revisions by a Professional Engineer, nor are they intended to lead to construction in their current draft form.

Nonetheless, we believe the information provided is useful to the DEQ and regional entities for a discussion of long term discharge planning in the Coos Bay Area. Because the documents are not meeting the requirements of the DEQ for facilities planning nor intended for direct implementation, they are not stamped by a professional engineer.

Please let me know if you have questions or comments or if we can provide additional information.

Sincerely,

HDR ENGINEERING, INC.

Muriel Gueissaz-Teufel, PE, BCEE
Project Manager

CC: Elise Hamner, Oregon International Port of Coos Bay
File 102.160292.04/03

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Acronyms and Abbreviations

ASB	aeration stabilization basin
BOD	biochemical oxygen demand
cf	cubic feet
DEQ	Department of Environmental Quality
DOGAMI	Department of Geology and Mineral Industries
DSC	debt service coverage
DSL	distribution system losses
gpd	gallons per day
gpm	gallons per minute
HRT	Hydraulic Residence Time
mg	million gallons
mgd	million gallons per day
MLSS	mixed liquor suspended solids
NPDES	National Pollutant Discharge Elimination System
O&M	Operations and Maintenance
ORS	Oregon Revised Statute
OUR	Oxygen Uptake Rate
Port	Oregon International Port of Coos Bay
RAS	return activated sludge
SRT	solids retention time
TSS	total suspended solids
VSS	volatile suspended solids
WAS	waste-activated sludge
WWTF	Wastewater Treatment Facility
WWTP	Wastewater Treatment Plant

1.0 Introduction, Purpose and Need

1.1 Introduction

Communities in the Coos Bay area currently discharge treated domestic wastewater effluent to the Coos Bay Estuary. The Estuary lies in the South Coast basin along Oregon's Pacific shoreline and has numerous beneficial uses impacted by water quality, including shellfish harvesting. Shellfish harvesting is a critical economic driver in the Coos Bay area. The Coos Bay communities face large investments in wastewater infrastructure due to aging infrastructure, growth, and increasingly more stringent Estuary discharge requirements.

The Oregon International Port of Coos Bay (Port) is interested in the expansion of the shellfish industry to diversify county employment opportunities; it is believed that in the long term, there would be benefits to that industry from minimizing wastewater effluent discharges to the Estuary. Consequently in 2011, the Port acquired the former Weyerhaeuser mill property on the North Spit and its associated 30-inch ocean outfall. With the assumption that the site and outfall could be used as a means to move existing domestic effluent discharges from the Estuary to the Ocean, the Port sought State Revolving Funds to evaluate long-term regional options for domestic wastewater treatment and discharge from the former Weyerhaeuser mill site (North Spit Site). This report summarizes these finding following the requirements of a Facilities Plan.

1.2 Purpose and Need

The purpose of this North Spit Wastewater Treatment Facilities Plan is to develop a framework for long-term wastewater regionalization plans in the Coos Bay area, specifically focusing on treating flows and loads from the cities of North Bend and Coos Bay, the largest regional domestic wastewater contributors. Because the Port does not currently own nor operate domestic wastewater treatment facilities, the overall goal of the plan is not directly driven by infrastructure or growth needs, but by an opportunity to evaluate regional water quality benefits, infrastructure, and economic development benefits at a conceptual level.

At the onset of the project, the Port was interested in evaluating both full regionalization of wastewater treatment on the North Spit, while also developing a more focused evaluation of regional biosolids treatment which would be independent from the wastewater treatment scenario. These two large concepts were developed in this plan, using available information from regional contributors and engineering knowledge.

Prior to implementing regionalization of wastewater treatment, the design assumptions for flows and loads will need to be revised along with the latest comprehensive

collection systems master plans for each city and/or agency. For this plan, the available projections were last updated by each agency to the year 2027. Because of its high-level conceptual basis, this plan was developed to that year (2027) rather than extrapolating to year 2032 to meet the 20-year planning period required by the Oregon Department of Environmental Quality. It is understood that many discussions between the partners and additional planning would be required prior to implementation and permitting by the DEQ.

2.0 Study Area Characteristics

The development of lasting wastewater plans for the Coos Bay area as a whole requires consideration of both environmental and socioeconomic characteristics. This section of the facilities plan summarizes and defines the study area and its environmental characteristics such as soils and geology, climate, environmentally sensitive areas, and the socioeconomic environment.

2.1 Study Area

The Coos Bay area lies on the south central Oregon coast in Coos County, bordered by the communities of Coos Bay, Charleston, North Bend, and Bunker Hill. The Coos Bay area is in the South Coast Basin, which includes both the Coos Estuary and the Pacific Ocean within territorial limits, i.e. within 3 miles of the coast line of the State of Oregon (ORS 468B.005 (10)). The North Spit site is a mostly industrial property located across the Estuary and is bounded on the north by the Siuslaw National Forest, Coos Bay to the south and east, and the Pacific Ocean to the west. Three main wastewater treatment plants currently serve the population within the Coos Bay area. All three plants are municipal conventional activated sludge plants that provide secondary treatment (no nitrification or nutrient removal) and use chlorine for disinfection. The plant capacities are similar and are in the range of 2 to 3 million gallons per day (mgd) average flows, with peaks up to 10 to 15 mgd. The current combined annual average domestic wastewater flows for the area approximate 6 mgd, with peak wet weather flows at about 30 mgd.

Figure 2-1 illustrates the location of the Coos Bay, North Spit, and main service areas covered by both the City of Coos Bay and the City of North Bend.

Figure 2-1: Vicinity Map and Study Area

2.1.1 City of Coos Bay

Information from the City's current facilities plans were used as a source of information (West Yost and Associates, 2007 and 2008). The eastern part of Coos Bay is in the Coaledo basin, which is a small area of low hills. Because of gravity, these hills divide the City's service area almost evenly into two primary basins, each served by its own wastewater treatment plant (WWTP). WWTP No. 1 treats wastewater from the eastern area of the hills, while WWTP No. 2 treats wastewater from the western area. Together these two treatment plants serve the City of Coos Bay, Charleston Sanitary District, and Bunker Hill Sanitary District. The service area covered by WWTP Nos. 1 and 2 within city limits is approximately 6,213 acres. Coos Bay Wastewater Treatment Plant No. 1 discharges to a military exclusion area within the north reach of the Estuary, while Coos Bay Wastewater Treatment Plant No. 2 discharges directly to an unrestricted area within the southwest shore of the Estuary.

2.1.2 City of North Bend

The City of North Bend operates one wastewater plant, the North Bend Sewage Treatment Plant. Little information was made available from the City of North Bend for this report. From the city's publicly available information, the treatment facility receives primarily domestic wastewater from residential and commercial sources from a population of approximately 9,700. The city of North Bend developed the existing plant site in 1954 with an EPA grant as a primary plant and added secondary treatment (complete mix activated sludge with surface aerators) in 1972. The facility was upgraded in 1990 and construction completed on February 1991 to treat the maximum dry weather monthly average of 2.2 mgd. The design-year instantaneous peak hydraulic flow is 9.3 mgd.

The North Bend Sewage Treatment Plant currently discharges in the Coos Bay Estuary.

2.1.3 Other Districts

Both the Charleston Sanitary District and Bunker Hill Sanitary District, to the south, are currently served by the City of Coos Bay Wastewater Treatment Plant Nos. 1 and 2. Their wastewater contributions are assumed to be incorporated within the ones developed for the City of Coos Bay.

2.1.4 North Spit

The North Spit site evaluated for regional wastewater treatment facilities includes decommissioned industrial wastewater treatment lagoons, a small outfall pump station, and a 30-inch outfall with diffusers. The outfall and diffusers extend about 4,800 feet off-shore and were originally constructed to discharge up to 10 mgd of effluent from the mill's industrial wastewater treatment lagoons. The former mill's treatment lagoons were decommissioned in 1996 and the area has been since restored as wetlands, while

a 30-acre aeration stabilization basin (ASB) in the northeast corner of the site remains functional. Figure 2-2 illustrates the North Spit Site.

Figure 2-2: Aerial Photograph of North Spit (former Weyerhaeuser Properties)
The main mill is to the far right in the image, and the former lagoon and ASB are to the far left (picture date 5/3/2006)

The industrial National Pollutant Discharge Elimination System (NPDES) discharge permit has been maintained and is still valid (See Appendix A) A small amount of groundwater is periodically pumped through the outfall to exercise the diffusers.

It should be noted that the North Spit facilities are not physically connected to the Cities of Coos Bay or North Bend, and do not currently treat or discharge domestic wastewater through the ocean outfall.

2.2 Soils and Geology

The soils and geology of the study area and site impact the assumptions used for the geotechnical characteristics of the site, for example if structures need to be put on piles due to unstable soils, or if large amount of dewatering may be required during construction. This information and ensuing assumption for the project should be confirmed during implementation via geotechnical investigations of the actual site. Soils and geological characteristics of the basin area can explain the potential for infiltration and inflow in the wastewater conveyance system, as well as the pumping requirements to convey the wastewater. The following provides the main geological characteristics of the study area and site.

2.2.1 Coos Bay-North Bend Areas

The Coos Bay area is underlain with bedrock, clayey and silty material, sandstone, and marine terraces. Minable coal deposits can be found in the sandstone layer. There are no significant beaches in Coos Bay. Stabilized dunes, mountainous areas, and filled land generally characterize the City's geology. Hills separate the two main drainage basins in Coos Bay.

The hills separating the Coos Bay drainage basins will require added conveyance and pumping to bring wastewater from the east Coos Bay drainage basin serviced by WWTP No. 2. Conveyance considerations would fall into conveyance master planning should wastewater treatment or discharge through the North Spit outfall be implemented; however, conceptual layouts and evaluations have been made and are available in Appendix B.

2.2.2 North Spit Site

The site is located on post-Eocene age deposits consisting predominantly of unconsolidated fine- to medium-grained sand. These sand dune deposits are estimated to be approximately 70 to 120-feet thick in the subject property area. The sand dune deposits are underlain by the Eocene to Oligocene age Bastendorf and Coaledo formations that are bedrock, which consist mainly of shales, siltstones, and sandstones that may be exposed in outcrops in the hills to the east.

Materials encountered in subsurface explorations consist primarily of fine-grained sands with some organics and silts. The depth to groundwater is approximately 5 to 10 feet below ground surface, and the flow direction of shallow groundwater is toward the southeast, south, and southwest from the north and central portions of the subject property (CH2M Hill 1996a). Shallow groundwater flow velocity is approximately 0.2 feet per day at a hydraulic gradient of 0.008 feet per feet (Delta Environmental Consultants 2004).

The elevation of the North Spit site varies from sea level to approximately 20 feet above mean sea level with a generally flat surface topography and a gentle slope to the south and southeast toward Coos Bay (Landau Associates, 2007).

For facilities planning and design, no correction factors will be required for high elevations; however, relatively shallow groundwater is present with unstable soils, and construction costs will assume piles construction.

2.3 Permitting and Land Use Compatibility

Land use and development patterns can affect the location of sewage treatment facilities. The location of residential, commercial, and industrial development dictates the placement and cost of trunk sewers. Because the facility as planned does not yet exist, a regulatory compliance review for a Waste Water Treatment Facility was completed as part of this project. The evaluation was completed based on the following activities likely to be associated with this project:

- Operations/maintenance/control building that could require domestic water and septic disposal.
- Installation of electrical collection, transmission and interconnection facilities in county or state right of way.
- Discharges of materials to air and/or water.
- Management, storage, and/or disposal of hazardous wastes.

A memorandum was prepared which can be found in Appendix B. The memorandum outlines the permits and regulatory clearances that would be anticipated for the approval, construction, and operation for this project, as well as the potential risks and timelines associated with the permit/approval processes as the project would move toward implementation. The evaluation was prepared consistent with the conclusions provided in the Land Use Compatibility Statement which was requested at the onset of this project for the North Spit property. The statement can be found in Appendix C.

From the Land Use Compatibility Statement, the planned facility is not currently compatible with the comprehensive plan and the Port would have to demonstrate

compliance with a number of applicable policies and conditions, after which the planning department would be able to issue a zoning clearance for the project. A few notable comments from the Land Use Compatibility Statement include:

- Per Coos County Zoning and Land Development Ordinance, a sewage treatment plant such as the one proposed falls under "High-Intensity Facilities".
- The project lies in the following Coos Bay Estuary Management Plan shoreland units:
  - 3-Water Dependent Shoreland (3-WD)
  - 4- Conservation Shoreland (4-CS)

2.3.1 Tsunami Zone

Coos Bay is at risk from tsunamis that originate from both local and distant sources.

The Coos County Natural Hazards Mitigation Plan[1] ranked the county's vulnerability to tsunamis as moderate, meaning 1 to 10 percent of the population or regional assets could be impacted by a tsunami event. The Oregon DOGAMI collaborated with the Oregon Graduate Institute and the National Oceanic and Atmospheric Administration to create tsunami inundation maps for several areas along the Oregon Coast. The maps depict the expected inundation for tsunamis produced by a magnitude 8.8 to 8.9 undersea earthquake. The tsunami hazard maps were produced to help implement Senate Bill 379 (SB 379), which was passed by the 1995 regular session of the Oregon Legislature. SB 379, implemented as Oregon Revised Statutes (ORS) 455.446 and 455.447, and Oregon Administrative Rules (OAR) 632-005, limits construction of new essential facilities and special occupancy structures in tsunami flooding zones.

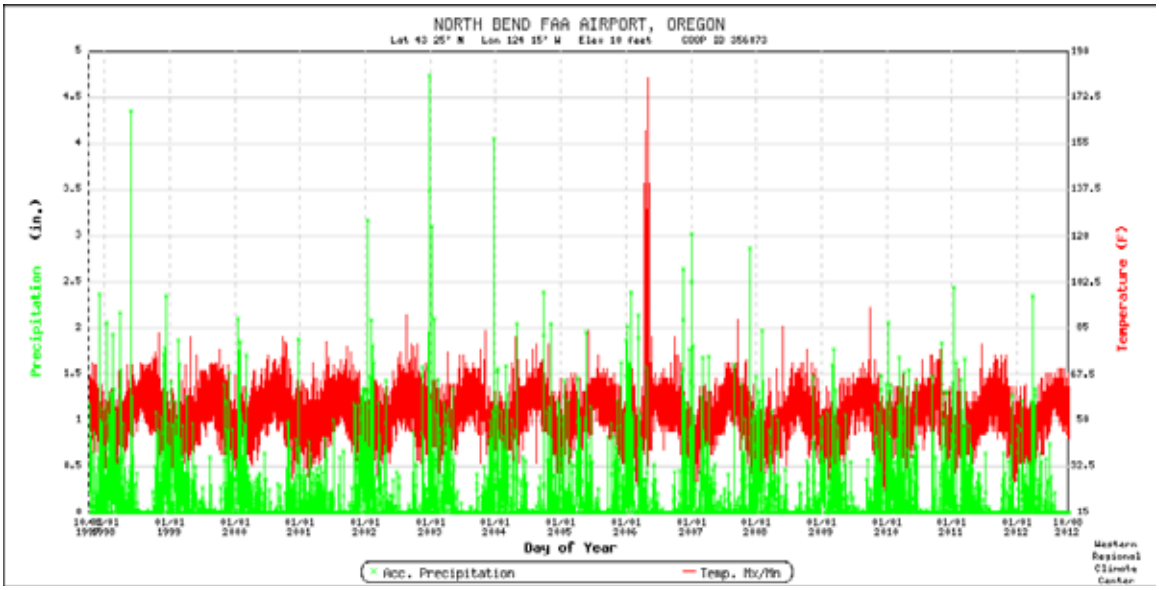
Wastewater Treatment facilities do not fall under the definition of essential facilities or special occupancy structures defined in ORS 455.447 and therefore do not appear to be subject to State or County construction limitations due to Tsunami hazard.

2.4 Climate

Climate patterns have an important impact on the design of wastewater treatment facilities where precipitation, wind, and storm patterns can have substantial impacts on the basis of design criteria and the associated size and costs of conveyance systems and treatment facilities, especially where a lot of infiltration and inflow is present. Temperature patterns mainly influence building mechanical equipment capacities and sizing, and the performance and sizing of the wastewater biological treatment systems.

[1] The plan can be found at http://www.co.coos.or.us/Portals/0/Emergency%20Management/Coos%20County%20NHMP_Final_062110.pdf

Stretching along Oregon's Pacific border, the Coos Bay area coastal zone is characterized by wet winters, relatively dry summers, and mild temperatures throughout the year. The weather station located in North Bend logs monthly average temperatures and precipitation. The average monthly low is 39°F and the average monthly high is 67°F. The city of Coos Bay receives an average annual precipitation of about 60 inches. A record of daily precipitations and temperatures was extracted from the Western Regional Climate Center and is shown in Figure 2-3.



Source: Western Regional Climate Center (www.wrcc.dri.edu)

Figure 2-3: Historical Daily Precipitation and Temperature in the Coos Bay Area (1997-2012 period of record)

Note that the records from the Western Regional Climate Center could not be screened for anomalies, such as the temperature highs shown for March 2006. Ignoring these points, the moderating influence of the Pacific Ocean is apparent in Figure 2-3 with only about 15 degrees difference between the mean temperatures during the winter/cold season and the summer/warm season. Extreme temperatures are usually not experienced in the area. During the period of 1997 to 2012, annual average precipitation totaled approximately 60 inches of rain, with a daily maximum up to 4.74 inches. Daily average precipitation for the years 1998 to 2012 are summarized in Table 2-1.

Table 2-1: Daily Average Precipitations in the Coos Bay Area (1998-2012)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Cumulative
1998	0.48	0.45	0.31	0.10	0.30	0.03	0.00	0.00	0.01	0.16	0.58	0.31	82.6
1999	0.31	0.43	0.22	0.09	0.13	0.04	0.01	0.03	0.00	0.11	0.34	0.18	56.4
2000	0.45	0.38	0.10	0.09	0.10	0.06	0.01	0.02	0.02	0.15	0.11	0.18	50.4
2001	0310	0.12	0.12	0.12	0.05	0.09	0.02	0.03	0.01	0.14	0.34	0.49	49.7
2002	0.52	0.15	0.22	0.15	0.05	0.05	0.00	0.01	0.05	0.02	0.22	0.70	65.3
2003	0.33	0.15	0.32	0.35	0.06	0.00	0.00	0.00	0.04	0.06	0.26	0.54	65.0
2004	0.38	0.36	0.13	0.17	0.09	0.06	0.00	0.03	0.17	0.24	0.11	0.29	62.0
2005	0.25	0.12	0.21	0.24	0.20	0.11	0.03	0.00	0.06	0.14	0.31	0.41	63.0
2006	0.62	0.20	0.34	0.13	0.06	0.03	0.00	0.00	0.04	0.03	0.60	0.45	76.3
2007	0.20	0.33	0.21	0.11	0.05	0.04	0.03	0.06	0.08	0.16	0.24	0.40	57.3
2008	0.46	0.10	0.25	0.19	0.02	0.04	0.00	0.04	0.00	0.08	0.20	0.30	51.4
2009	0.13	0.26	0.28	0.09	0.09	0.04	0.00	0.01	0.05	0.19	0.24	0.23	48.9
2010	0.31	0.24	0.29	0.21	0.14	0.14	0.00	0.05	0.08	0.15	0.25	0.34	65.7
2011	0.12	0.22	0.30	0.17	0.09	0.04	0.00	0.00	0.01	0.09	0.18	0.09	39.8
2012	0.16	0.11	0.40	0.14	0.05	0.11	0.01	N/A	N/A	N/A	N/A	N/A	N/A
											Annual Average		59.6
											Daily Maximum		4.74

*Source: Western Regional Climate Center (*www.wrcc.dri.edu*)*

2.5 Environmentally Sensitive Areas

The implementation of the Endangered Species Act for marine and anadromous species (i.e., species that live their adult lives in the ocean but move into freshwater streams to reproduce or spawn, such as pacific salmon and steelhead) falls under the responsibility of National Oceanic and Atmospheric Administration's National Marine Fisheries. For the South Coast basin, the Chinook, Coho, chum, and steelhead species are currently listed as endangered, while green sturgeon is listed as a "Species of Concern." At time of implementation, it should be verified if these species are present and/or would be impacted by the Ocean outfall with the anticipated discharges.

Environmental mapping could not be found for the North Spit site, however the former lagoons, the deflation plain, and shore are sought after by the birding community, where over 220 species of birds have been reported for the site(Appendix D),. While this plan was not developed with large input from the environmental community, it is currently based on preserving the wetlands and minimizing the footprint of the facilities. The final configuration and layout should be developed with input of the community using the surroundings of the site.

2.6 Socioeconomic Environment

Local employment market conditions and characteristics have an influence on the flows and loads of wastewater treatment streams, as does population growth. With this, employment and economics in the study area provide constraints and limits to the expanse and funding available to meet the treatment needs. This section reviews socio-economic conditions in the Coos Bay/North Bend/Charleston area, which represents approximately 52 percent of the Coos County population. Over the past century, the area's economy has been largely based on commercial fishing, timber harvest/wood products manufacturing and maritime trade. Due to declines in fishing and timber harvests, coupled with technology advances, employment in those industries has declined. However, average annual wages in all three of those sectors remain the highest paying employment in the County.

Population has held steady, but the area has seen a demographic shift with an influx of retirees, with people older than 65 representing 22 percent of the population. The economy has transitioned into more tourism, service and health care-based industries. Bay Area Hospital is the county's largest employer. As the south Oregon coast's designated regional acute care facility, the facility has attracted and expanded the cluster of satellite medical services in Coos Bay.

Median income can be used as an indicator of the strength of the region's economic stability. According to the U.S. Census Bureau from 2007-11, the median household income in Coos Bay was $36,751 and in North Bend, $41, 402. That compares to Coos County at $37,789, and $49,850 for Oregon. That national media income was $52,762, meaning local median income is $15,000 below the national median income.

These socioeconomic factors are used to evaluate relative impacts to the ratepayers who ultimately finance the projects, the financial viability of the infrastructure project and to identify the need and opportunity for outside funding.

3.0 Existing Wastewater Facilities

3.1 Operational overview

The Port has acquired the former Weyerhaeuser mill site on the North Spit. The property covers the original 270-acre wastewater treatment, which includes the 40-acre Aerated Stabilization Basin (ASB) constructed in 1990. The aerators have since been removed and the basins are unaerated. Presently, the ASB is treating only stormwater and leachate from the industrial landfill. The ASB effluent is pumped to a 30-inch Pacific Ocean outfall, which operates under an industrial NPDES permit (see Appendix A). Figure 2-1 earlier in this report shows the area and property acquired by the Port, as well as the location of the former Weyerhaeuser WWTP relative to the neighboring Coos Bay and North Bend.

The facility does not currently treat domestic wastewater. The only wastewater the ASB currently treats is landfill leachate. The leachate is pumped to the north and south settling basins and then flows into the ASB prior to being discharged through Outfall 001 to the Pacific Ocean. Since January 2000, the average leachate flow rate is roughly 13,300 gallons per day (gpd). 2001 and 2002 flow data demonstrated that the flow increases dramatically during the winter months ranging from 20,000 gpd to a high of 180,000 gpd. Some stormwater enters into the system as well.

Fresh water from the Coos Bay North Bend Water Board is pumped from nearby reservoirs at a rate of about 300,000 gpd through the system to maintain enough flow through the outfall diffuser to prevent it from being buried in sand. Future flow rate of fresh water may vary based on system requirements.

3.2 Wastewater Treatment System

The existing facilities include decommissioned industrial wastewater treatment lagoons, a small outfall pump station, and a 30-inch outfall with diffusers. The outfall and diffusers extend about 4,800 feet off-shore and were originally constructed to discharge up to 10 mgd of effluent from the mill's industrial wastewater treatment lagoons. The former mill's treatment lagoons were decommissioned in 1996 and the area has been since restored as wetlands, while a 30-acre aeration stabilization basin (ASB) in the northeast corner of the site remains functional. Figure 2-2 illustrates the North Spit Site.

3.2.1 Settling Basins

Two settling basins were used to treat the mill's effluent waste by removing settleable particulate material. Accumulated solids were removed on a 1- to 2-year cycle to maintain the necessary treatment efficiency. Currently, the settling basins are used to treat landfill leachate which is sent to the ASB and then discharged via the Ocean outfall. Groundwater and leachate monitoring in the vicinity of the settling basins takes

place twice a year as dictated by the solid waste permit. Results from the 2006 sampling event show that only low concentrations of metals were detected.

3.2.2 Aerated Stabilization Basin, Former Lagoon, and Ocean Outfall

The former lagoon area covers approximately 240 acres. Management of the mill's effluent by evaporation and infiltration from the lagoon continued until 1972, when Outfall 001 was constructed approximately 1 mile off-shore. Outfall 001 was constructed due to natural sealing of the lagoon bottom, which restricted wastewater infiltration and discharge. The 30-acre ASB was constructed within the northeast corner of the lagoon in 1991 to provide aeration prior to effluent discharge to the remainder of the lagoon. Discharge to the lagoon ceased in February 1996 when a bypass line was installed from the northwest corner of the ASB leading directly to Outfall 001. This 18-inch line was installed as part of the interim treatment plan required by the Mutual Agreement Order between Weyerhaeuser and the DEQ dated February 27, 1995. With the discharge from the ASB no longer going to the lagoon but directly to Outfall 001, the lagoon has subsequently become wildlife wetland habitat. Approximately 300,000 gallons of untreated water from the Coos Bay North Bend Water Board are pumped daily through Outfall 001 in order to prevent it from silting in and to preserve the wetland habitat created. Eight groundwater monitoring wells located in the vicinity of the settling basins and the ASB and former lagoon are sampled annually for various field and geochemical parameters and metals. Groundwater monitoring results from 2006 showed that only low concentrations of metals were detected. Analytical results for sludge samples collected from the former lagoon in 1993 show that the residual solids would not be a long-term source of groundwater contamination; for that reason, sludge removal was not anticipated to be necessary (CH2M Hill 1993). An ecological risk assessment was also conducted for the former lagoon in 1996. The results of the ecological risk assessment showed there was no unacceptable risk for each receptor exposure scenario evaluated (CH2M Hill 1996b).

3.2.3 Pump Station

The existing effluent pump station was designed to pump between 3,100 to 4,500 gallons per minute (gpm) (4.5 mgd to 7.0 mgd) from the detention pond to the discharge manhole (manhole rim elevation is 22 feet) located at the upstream end of the outlet pipe. A pumping head of 24 feet was required to discharge design flows to the manhole under estimated 12-foot-high tide ocean levels. Depending on the tide level, during the discharging, water level in the discharge manhole may fluctuate. A physical evaluation of the existing pump station was not made, as it was assumed that it needed replacement due to age.

3.2.4 Ocean Outfall

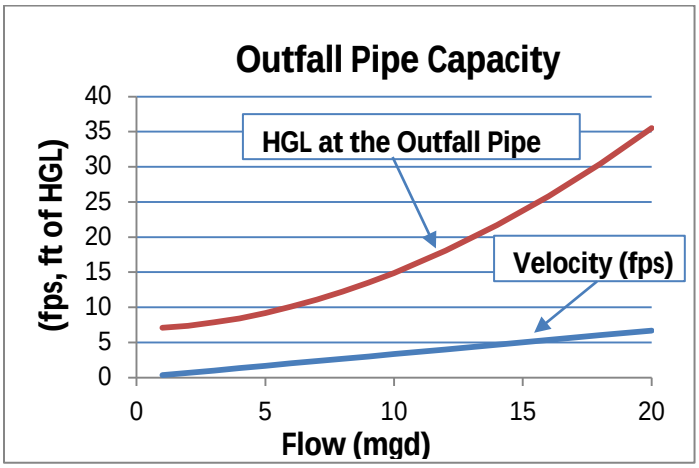
The Oregon DEQ's 2004 Evaluation Report provides the following description of the outfall:

The outfall consists of a 30-inch-diameter concrete-coated, epoxy-lined steel pipe that extends approximately 4,760 feet off-shore from the pumping station at the wastewater treatment lagoon on the North Spit. At a depth of 61.4 feet below mean lower low water, the outfall pipe is connected to a Y-shaped (bifurcated) diffuser. From the outfall/diffuser junction structure, each diffuser arm consists of a 252-foot-long, 20-inch-diameter pipe with sixteen 3-inch ports arranged on alternating sides of the diffuser. The diffuser arms are separated by an angle of 150 degrees. The diffuser has a history of diffuser ports being buried in sand. There is seasonal and long-term movement of sand in the location of the outfall. The diffuser was originally designed for a higher effluent flow rate (10 mgd), which would create a port velocity of about 10 feet per second. This would have likely kept the diffuser ports from being buried. The actual flow rates that were discharged when the plant was in production were approximately 3 to 4 mgd, which equates to a port velocity of about 3 feet per second. This was not a high enough exit velocity to prevent sand deposition, resulting in many of the ports at the ends of the diffuser arms being buried in the sand. Currently there is about 2 mgd flowing through the outfall.

Further evaluation of original plans and reports show that the old pump station was designed to pump between 3100 to 4500 gpm (4.5 MGD to 7.0 MGD) from the detention pond to the discharge manhole (Manhole Rim Elevation 22 ft) located at the upstream end of the outlet pipe. A pumping head of 24 feet was required to discharge design flows to the manhole under estimated 12 ft high tide ocean levels. Depending on the tide level, during the discharging, water level in the discharge manhole may fluctuate. Outfall pipe invert elevation at the existing discharge manhole is 7 ft above the sea level.

3.2.4.1 Capacity of the Existing Outfall Line

It is estimated that the existing outfall pipe may experience reduction in design capacities, due to aging, increasing in roughness, accumulation of sediment, plugging of diffuser pipes, etc. The existing capacity shall be determined by pumping water to discharge manhole, measuring flow, and water levels in the ocean and discharge manhole. It is estimated that under the high tide levels of 12 ft, the existing structure may have capacity of approximately 11 to 12 MGD. This capacity may be further increased by increasing the height of discharge manhole. With water level at the upgraded discharge manhole at 25 ft , the discharge capacity will be approximately 15 MGD or at water level of 35 ft the capacity may increase to a maximum of 20 MGD assuming maximum pipe velocity of 6.70 fps and frictional head loss



of 6.0 feet/1000 feet (C=110).

As plans to discharge domestic wastewater from the outfall get implemented, the DEQ may require additional inspections or testing of the diffusers as part of the permitting process.

3.3 Receiving Stream Water Quality and Effluent Permitting

The former Weyerhaeuser mill site's wastewater treatment system operates under NPDES Permit no. 101499, issued by the Department of Environmental Quality's (DEQ's) Water Quality Division (see Appendix A). A number of reports have been submitted to DEQ in support of the NPDES permit. The groundwater monitoring program required by the NPDES permit uses monitoring wells in the vicinity of the settling basins, ASB, and deflation plain (see Figure 2-2).

A detailed analysis was completed to identify water quality discharge requirements related to the ocean outfall, which forms the basis of planning for the level and type of treatment likely required for domestic discharge. A secondary objective of the analysis was to compare wastewater discharge requirements for the Coos Estuary and the Pacific Ocean, as a way to evaluate potential regulatory benefits from phasing out Estuary discharges in favor of an ocean discharge.

Final determination of discharge permit conditions requires formal application to Oregon DEQ for the renewal of the NPDES permit, pending completion of facilities planning, and environmental studies, including a public review process, to establish effluent discharge limits. A complete characterization of the effluent would be required for chemical constituents. An update to the effluent mixing zone study could be a requirement that accompanies processing of the permit application. Environmental impact analyses may be required to assess the potential impact on natural resources, aquatic life and human health.

From a discharge standpoint, the main conclusion of the analysis is that the Pacific Ocean is not water quality limited in this area and there are no known adverse water quality impacts associated with this discharge.

Further, it appears unlikely that ammonia limits be required for the Ocean discharge from the North Spit, while temperature, bacteria, and chlorine residual standards are expected to be met with standard treatment facilities based on the characteristics of the receiving water body (the Pacific Ocean). While a mixing zone exemption may be allocated for the deep ocean outfall bacteria criterion, this first planning stage assumes that the standard needs to be met at the end of the pipe. This should be revisited and discussed with DEQ as planning progresses. Table 3-1 lists anticipated permit limits which forms the basis of planning for this plan.

Table 3-1: Anticipated NPDES Permit Requirements for North Spit/Weyerhaeuser Pacific Discharge Based on Reference Discharges

TSS/ BOD year round mg/L	Bacteria		pH	BOD/TSS Removal	Chlorine Residual mg/L	NH3 mg/L-N	Thermal Mkcals/d
	Fecal per 100 ml	Enterococci per 100 ml					
30/50	14	135	6-9	85%	0.21	-	-

Based on these assumptions and comparing with other Coos Estuary discharges, the main advantage of an ocean outfall may be the avoidance of effluent limits for ammonia nitrogen; nitrogen being an “all or nothing” type of treatment, it typically requires significant upgrade and/or expansion of existing facilities. In the long term, an ocean outfall offers the benefit of high receiving water dilution, which is less likely to result in a reasonable potential for exceedence of water quality standards. Mixing zones and dilution is likely to remain a challenge for Coos Estuary discharges because of the particulars of the water body and its shellfishing activities. After the recent adoption of the most stringent toxics criteria in the nation, these concerns are expected to remain over the long term. TMDLs on the basin may add to the burden of additional treatment requirements for the Estuary dischargers, but the Pacific Ocean may also be subjected to the allocations since it is part of the basin. More difficult to demonstrate may be to quantify the environmental and economical benefits of taking municipal discharges (all or partial, depending on peaking factors) out of the Estuary to the ocean where cooler temperatures and greater dilution are expected to alleviate shellfishing impacts from wastewater discharges.

The full technical memorandum is presented in Appendix F.

4.0 Design Flows and Loadings

4.1 Wastewater Flows and Loads

For this plan, it was assumed that the area that a regional WWTP would serve includes the areas currently serviced by Coos Bay WWTP Nos. 1 and 2 and the North Bend WWTP (Figure 2-1). The future projected flows and loads for Coos Bay were taken from the 2008 Facility Plan for Coos Bay WWTP No. 1 and the 2007 Facility Plan for Coos Bay WWTP No. 2 (West Yost and Associates, 2007 and 2008). No recent facility plan was available for the City of North Bend. The current (at the time of the facility plan) and future flows and loads were estimated based on 2010 census numbers for Coos Bay (15,697) and North Bend (9,695) and the assumption that the two service areas are similar in composition. The current (at the time of the facility plans)average dry weather flow for Coos Bay is 2.5 mgd, resulting in 1.6 mgd for North Bend. The maximum month and peak day flows were determined using the Annual Average to Maximum Month and Annual Average to Peak Hour ratios used for the North Bend facility design.

Flows and loads data were taken from existing Facilities Plans for the City of Coos Bay, and extrapolated for North Bend, as there was no planning document available. Table 4-1 through Table 4-6 provide the individual plans data.

Table 4-1: Coos Bay WWTP 1 Facility Plan Wastewater Flows (mgd)

Flow Parameter	Current*	2027
Average dry weather flow	1.6	1.9
Average wet weather flow	3.2	3.7
Annual average flow	2.4	2.8
Maximum month dry weather flow	2.9	3.4
Maximum month wet weather flow	5.5	6.4
Peak day flow	10	11.7
Peak wet weather flow	15	20

* at the time of the facility plan 2007/08

Table 4-2: Coos Bay WWTP 1 Facility Plan Influent Loads (lb/d)

	BOD		TSS	
Parameter	**Current**	**2027**	**Current***	**2027**
Average	2,500	2,700	3,200	3,400
Maximum/month	3,200	3,500	4,400	4,800
Peak day	5,300	5,900	9,400	9,900

** Loads are based on information provided at the time of the facility plan (2007/2008)*

Table 4-3: Coos Bay WWTP 1 Facility Plan Wastewater Flows (mgd)

Flow Parameter	Current*	2027
Average dry weather flow	0.9	1
Average wet weather flow	1.6	1.9
Annual average flow	1.3	1.4
Maximum month dry weather flow	1.2	1.4
Maximum month wet weather flow	2.3	2.4
Peak day flow	4.5	5.5
Peak wet weather flow	7	8.6

** Flows are based on information provided at the time of the facility plan (2007/2008)*

Table 4-4: Coos Bay WWTP 1 Facility Plan Influent Loads (lb/d)

	BOD		TSS	
Parameter	**Current**	**2027**	**Current***	**2027**
Average	1,800	2,200	2,000	2,500
Maximum/month	2,205	2,700	3,100	4,000
Peak day	4,100	4,700	6,800	6,800

** Loads are based on information provided at the time of the facility plan (2007/2008)*

Table 4-5: North Bend Extrapolated Influent Flows (mgd)

Flow Parameter	Current*	2027
Average dry weather flow	1.6	1.9
Average wet weather flow	2.3	2.7
Annual average flow	2.0	2.3
Maximum month dry weather flow	2.6	3.0
Maximum month wet weather flow	3.6	4.1
Peak day flow	6.9	8.1
Peak wet weather flow	8.3	11.0

** Flows are based on information provided at the time of the facility plan (2007/2008)*

Table 4-6: North Bend Extrapolated Influent Loads (lb/d)

	BOD		TSS	
Parameter	**Current**	**2027**	**Current***	**2027**
Average	2,500	2,700	3,200	3,400
Maximum/month	2,069	2,263	2,844	3,103
Peak day	3,675	4,091	6,517	6,864

** Loads are based on information provided at the time of the facility plan (2007/2008)*

Table 4-7 summarizes the combined design flows and loads for the regional WWTP that would serve Coos Bay and North Bend. Using combined flow projections for the to Cities, the regional peak hour flow would be 39.6 mgd in year 2027. The design temperature is not specifically mentioned in the facility plans, but is assumed to be 54°F, which is consistent with wastewater temperatures in the northwest.

Table 4-7: Design Wastewater Flows and Loads for 2027 (from available Facilities Planning Data for Coos Bay and North Bend)

Parameter	Unit	Average	Maximum Month	Peak Day
Flow	mgd	6.5	12.9	25.3
BOD	lb/d	7,600	8,500	14,700
TSS	lb/d	9,300	11,950	23,600
BOD	mg/L	140	79	70
TSS	mg/L	172	111	112

BOD = biochemical oxygen demand

TSS = total suspended solids

A more detailed breakdown of these combined flows and loads, necessary for the design of various unit processes, are provided in Table 4-8 and Table 4-9 . For the design of the regional WWTP, the relevant values are wet weather maximum month (sizing of the biologic treatment), annual average (estimating operation cost), and the peak hour flow (hydraulic capacity).

Table 4-8: Combined Wastewater Flows - Detailed (mgd)

Flow Parameter	Current*	2027
Average dry weather flow	4.1	4.8
Average wet weather flow	7.1	8.3
Annual average flow	5.7	6.5
Maximum month dry weather flow	6.7	7.8
Maximum month wet weather flow	11.4	12.9
Peak day flow	21.4	25.3
Peak wet weather flow	30.3	39.6

** Flows are based on information provided at the time of the facility plan (2007/2008)*

Table 4-9: Combined Wastewater Loads - Detailed (lb/d)

	Influent BOD		Influent TSS	
Parameter	**Current**	**2027**	**Current***	**2027**
Average	6,800	7,600	8,400	9,300
Maximum/month	7,500	8,500	10,350	11,950
Peak day	13,100	14,700	22,750	23,600

** Loads are based on information provided at the time of the facility plan (2007/2008)*

4.2 Biosolids Flows and Loads

In addition to the regional WWTP, a regional biosolids management facility is also being considered for the North Spit site. This is for the case where wastewater treatment would continue at the existing wastewater treatment facilities in Coos Bay and North Bend, while biosolids would be hauled and treated at a regional facility on the North Spit. This section summarizes the biosolids flows and loads generated at the existing three treatment facilities: Coos Bay WWTP Nos. 1 and 2, and the North Bend WWTP.

Unlike influent flows and loads, predicting the sludge loads is more difficult and less precise because it depends on the performance of different unit processes. Therefore, specific assumptions had to be made with regard to the performance of primary clarifiers, secondary treatment, and digestion.

Should a regional biosolids management facility be constructed, future expansion of digester capacity at the existing Coos Bay facilities may not be necessary if decreasing digester performance at those sites is would be acceptable: from Coos Bay WWTP Nos. 1 and 2 (partially) digested sludge could be hauled to the regional biosolids management facility. From North Bend, a blend of primary (PSL) and waste-activated sludge (WAS) could be hauled to the regional facility. The aerobic digesters and sludge storage lagoon at North Bend could potentially be decommissioned.

Table 4-10 shows the assumed regional solids load estimates based on the following assumptions for wastewater treatment:

- Primary clarifier TSS removal rate: 60%
- Secondary treatment yield: 1 lb TSS/lb BOD removed
- Anaerobic digester volatile suspended solids (VSS) reduction: 40% (due to undersized digesters once loadings increase)
- The digested sludge has a total solids content of at least 2%
- The WAS/PSL mix has a total solids content of at least 2%

Table 4-10: Solids Flows and Loads to Regional Biosolids Facility for 2027

	Influent	Primary Effluent	WAS	PSL	Total Solids Transfer to Regional Facility		
	TSS	TSS	TSS	TSS	TSS	VSS	Flow
Units	lb/d	lb/d	lb/d	lb/d	lb/d	lb/d	gal/day
Average							
Coos Bay WWTP 1	2,700	1,080	2,210	2,180	2,180	1,680	13,100
Coos Bay WWTP 2	2,200	880	1,630	1,660	1,660	1,280	10,000
NB	2,700	1,080	3,400	-	3,400	2,890	20,400
Total					7,230	5,850	43,400
Maximum Month							
CooBay WWTP 1	3,500	1,400	3,120	2,990	2,990	2,310	18,000
Coos Bay WWTP 2	2,700	1,080	2,600	2,430	2,430	1,880	14,600
North Bend	2,850	1,140	3,110	-	3,110	2,640	18,700
Total					**8,520**	**6,820**	**51,100**

The sludge volumes presented in Table 4-10 represent the worse case scenario. The hauled sludge volume could be substantially decreased by additional thickening at existing facilities in North Bend and Coos Bay, prior to hauling to the North Spit.

5.0 Basis of Planning

Basis of planning information can be found in other sections of this report, including geotechnical basis for cost estimates in Section 2.0, flows and loads and treatment goals in Section 4.0, and cost estimating basis as shown in Appendix H.

6.0 Alternatives Development

6.1 Overview

Two alternatives were developed to establish planning level cost estimates for a regional WWTP and a regional solids processing facility.

For the regional Wastewater facility, the following general assumptions were made:

- To develop the baseline long –term plan, the regional facility would receive all wastewater for Coos Bay and North Bend, which means a second outfall would ultimately be required for all peak flows to be discharged to the Pacific Ocean
- The facility would be constructed in the northeast corner of the existing lagoon to not disrupt the wetlands
- The facility would require construction on piles because of the assumed poor soils conditions
- Conveyance to the new facility (e.g. across the Coos Bay Estuary) is not included in the costs
- Flows and loads do not include potential future contributions from new industries, which were evaluated separately for feasibility
- Only secondary treatment levels will be required based on preliminary evaluation of water quality characteristics and the regulatory outlook for the current outfall location. Accordingly, and based on current best practices, only conventional secondary treatment process was considered for the general feasibility of a new regional treatment plant.

The regional biosolids treatment plant was developed based on the following assumptions:

- The facility would receive digested solids from both Coos Bay treatment plants and North Bend, which both have digestion facilities.
- The transferred digested sludge would have a solids content of at least 2 percent.
- Dewatering would be added to the regional facility, and liquid returns from dewatering would be discharged to the aerated stabilization basin
- Additional anaerobic digester/sludge storage volume would ultimately be required and provided at the North Spit
- Solids processing for a future regional wastewater treatment plant would be provided

6.2 Regional WWTP

Like most facilities in the Northwest, the dry weather average to peak flow ratio at the regional WWTP is projected to be very high at nearly 1 to 8. These extreme wet-weather flows are infrequent but command significant infrastructure when carried through primary and secondary treatment. High rate primary treatment downstream of the headworks is therefore recommended to treat flows in excess of 5 times the average flow (>23 mgd), in order to reduce the cost of the main treatment train. It should be noted that this scenario where all flows would be treated at the North Spit site and discharged to the Ocean was analyzed to provide the "worst-case" baseline for cost planning. With existing outfalls to the Coos Bay Estuary, it may be that the DEQ would allow periodic treated peak wet weather flow discharges to the Estuary. This would minimize construction costs and maximize existing infrastructure use.

Wastewater treatment facilities with design flows over 1 mgd are typically mechanical plants with preliminary and secondary treatment. Once flows exceed approximately 5 mgd, primary clarification and anaerobic digestion become economically beneficial. Given the available site and anticipated treatment requirements, conventional activated sludge would be the most cost efficient secondary treatment option as there are no drivers to implement advanced technologies. While not required, the addition of primary clarification reduces the secondary treatment operational and construction cost. Primary and secondary solids would be stabilized using anaerobic digestion that produces a Class B biosolids. In addition, the regional treatment facility would also include grit removal, screening, and chlorine-based disinfection.

The process design is illustrated in Figure 6-1 and can be implemented to provide ample flexibility to upgrade/convert both the liquid and solids treatment to meet higher standards in the future.

The following paragraphs discuss in greater details the assumptions and concepts for each wastewater treatment unit process evaluated. The unique geological and groundwater conditions at the site favor a design with a minimal number of individual structures, wall-to-wall construction of unit processes (i.e., clarifiers and aeration basins), and supporting facilities placed on top of the reactor basins. This has been taken into account in the unit processes selection.

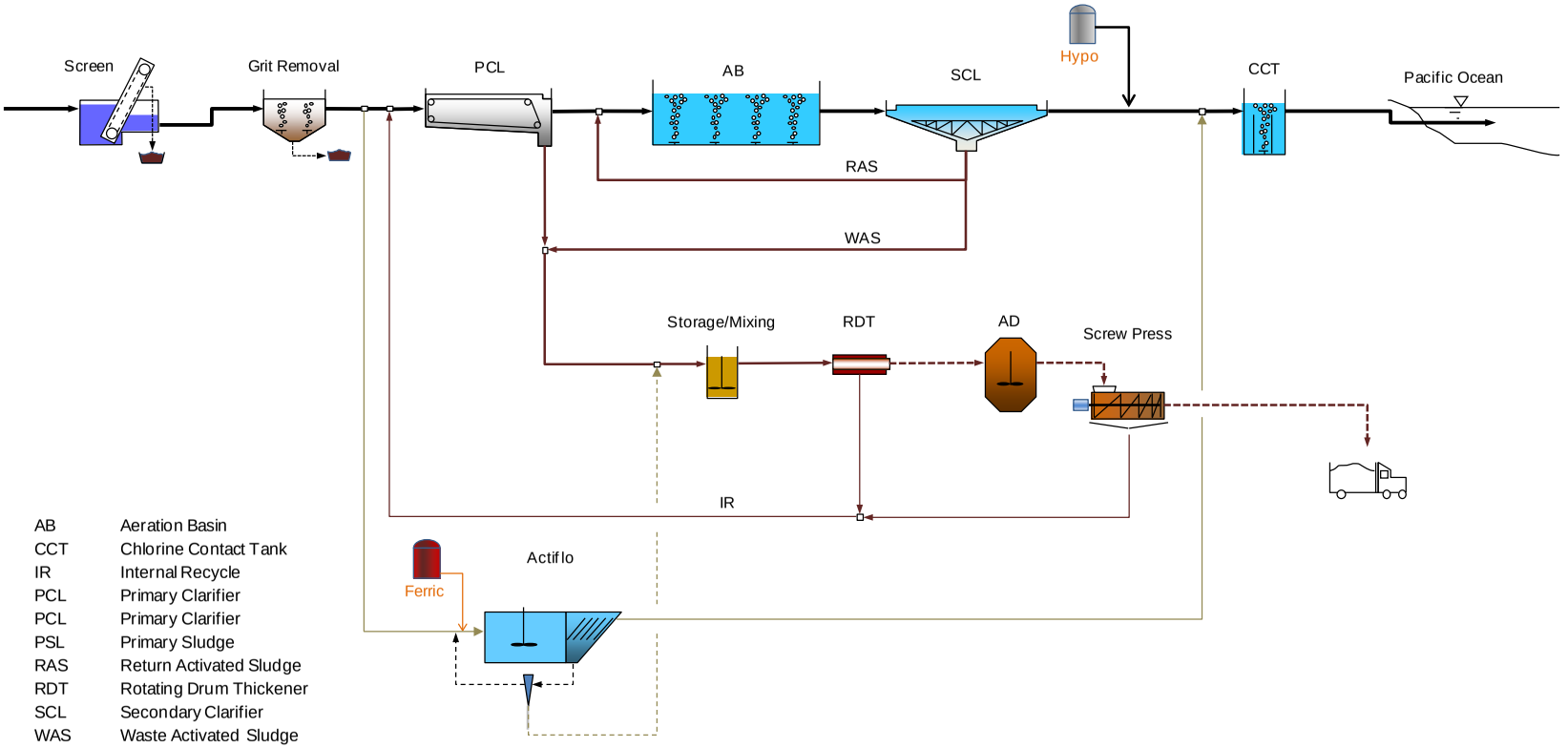


Figure 6-1: Regional North Spit WWTP Process Schematic

6.2.1 Liquid Stream Treatment

6.2.1.1 Influent Screening

Current best practice for influent screening provides at a minimum fine screening (<10 mm) using, bar, perforated plates (Figure 6-2: Perforated Plate Screen), or rotating drum screens (Figure 6-3), which minimized the foul air volume and reduces housekeeping. These types of screens also produce a relatively consistent head loss. For the Port's regional WWTP, two perforated plate screens with a hydraulic capacity of 25 mgd each were assumed for their reliability and efficiency. An emergency bypass channel would be provided and equipped with a ½-inch manually cleaned bar screen. The influent screening design criteria are summarized in Table 6-1.

Figure 6-2: Perforated Plate Screen

Figure 6-3: Rotating Drum Screen

Table 6-1: Influent Screening Design Criteria

Parameter	Value
Number of Screens	2
Type	Perforated Plate
Opening (mm)	10
Hydraulic capacity each (hr)	25

6.2.1.2 Grit Removal

Grit includes sand, gravel, cinder, or other heavy solid materials that are "heavier" (higher specific gravity) than organic biodegradable solids in the raw wastewater. Grit also includes eggshells, bone chips, seeds, coffee grounds, and large organic particles, such as food waste. Removal of grit prevents unnecessary abrasion and wear of mechanical equipment, grit deposition in pipelines and channels, and accumulation of grit in anaerobic digesters and aeration basins.

Grit can be removed either from the screened influent or at facilities with primary clarification from primary sludge. Grit removal from primary sludge has the smallest footprint and is largely enclosed. Both vortex and aerated grit removal systems provide consistent removal efficiency over a wide flow range. Aerated grit removal (Figure 6-4) provides the added benefit of saturating the influent with dissolved oxygen, which reduces the odor emission from primary clarification. Aerated grit chambers are typically designed to remove particles of 70 mesh (0.21 mm) or larger.

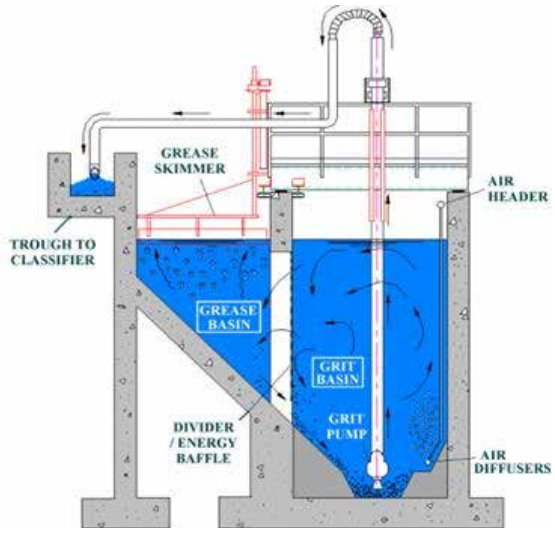


Figure 6-4: Example of Aerated Grit removal System with Integrated Grease Removal

Figure 6-5: Example of Grit Washing System (Huber)

For this plan, two aerated grit removal tanks with a hydraulic capacity of 25 mgd each were selected for layout and cost estimating. They would be located downstream of the influent screens and equipped with a grit washing system. Air to the grit removal tanks would be provided by the central low pressure air system. The grit removal design parameters are summarized in Table 6-2. The total grit tank volume required for projected flows is approximately 140,000 gallons.

The removed grit should be washed (Figure 6-5) such that residual organic material is removed and returned to the treatment process. Well washed grit can be reused as construction material and this could be evaluated at time of implementation.

Table 6-2: Grit Removal Design Criteria

Parameter	Value
Number of Units	2
Type	Aerated Tank
Hydraulic Retention Time (HRT) at Peak Flow (minutes)	5
Hydraulic capacity each (mgd)	25
Sidewater Depth (feet)	16
Width	25
Length	25

6.2.1.3 Primary Clarification

Primary clarifiers are designed to remove both organic and inorganic solids from the wastewater stream through sedimentation. Primary clarifiers provide a quiescent area where solids with specific gravities greater than 1.0 (water) will settle to the bottom and then be removed as primary sludge. Solids with specific gravities close to or less than 1.0 will tend to rise to the surface as scum from where they are collected and removed for further treatment. Gas bubbles from entrained air or produced from biological activity in the primary clarifier will sometimes attach to particles and cause them to float.

Figure 6-6: Example of Rectangular Primary Clarifier

To allow wall-to-wall construction and to minimize the number of individual structures, rectangular clarifiers would be recommended in this case. Two clarifiers with a total area of approximately 9,200 ft^2 would be required to meet projected peak hour flows and provide 100% redundancy on peak day. Table 6-3 contains basic primary clarifier design criteria.

Table 6-3: Primary Clarification Design Criteria

Parameter	Value
Average Day Flow	4.6
Maximum Day Flow	23
Overflow Rate Average Dry Weather Flow (gal/ft^2/d)	1,000
Overflow Rate Peak Wet Weather Flow (gal/ft^2/d)	2,500
Detention Time, maximum (hr)	2
Sidewater Depth (feet)	15

Table 6-3: Primary Clarification Design Criteria

Parameter	Value
Number of PCL	2
Area per PCL (square feet)	4600

6.2.1.4 High Rate Primary Clarification for Peak Wet Weather Flows

Conventional primary clarification relies on particulates of higher specific weight than water to settle out by gravity. This requires a certain settling time and restricts the allowable peak flow rates to achieve acceptable removal rates within the primary clarifier. An alternative to conventional clarification is high rate clarification (Figure 6-7) which increases the settling velocities of the particulates by adding micro-sand in combination with polymer and a coagulant. This binds particulates and colloidal matter to the sand, which settle out rapidly in the downstream plate clarifier. The sand is separated from the organics by a hydrocyclone and recycled back. Primary clarifiers can handle 2,500 gal/ft^2/day at peak, whereas high rate primary clarification can handle as much as 84,000 gal/ft^2 at high removal efficiencies. Because of this, high rate units only take up a fraction of the space required for conventional clarification. However, because of the high operation costs, this technology is not typically suited to replace primary clarification but is increasingly considered to provide wet weather flow treatment to avoid or reduce the capital cost for otherwise large primary and secondary treatment basins. The exact facility layout and footprint depends on the specific vendor; for this plan, the estimated footprint of the facility would be 60 feet x 20 feet.

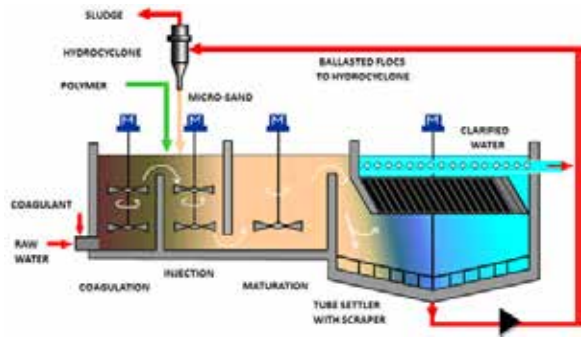


Figure 6-7: Example for High Rate Primary Clarification (Actiflo shown)

Table 6-4: High Rate Primary Clarification Design Criteria

Parameter	Value
Maximum Day Flow	17
Overflow Rate Peak Wet Weather Flow ($g/ft^2/min$)	60
Number of trains	2
Length (feet)	60
Width (feet)	20
Sidewater Depth (feet)	16

At this early phase of planning, high rate clarification was not further pursued for the regional plan, in favor of conventional primary clarification.

6.2.1.5 Secondary Treatment

As typical secondary treatment levels are anticipated for the facility, conventional activated sludge was developed for this plan. The conventional activated sludge alternative developed includes two parallel complete mixed basins followed by three rectangular secondary clarifiers and a RAS/WAS pump station. The system would be designed for BOD removal only and operate at very low solids retention times of 3 days or less, depending on the water temperature. The mixed liquor suspended solids would be limited to 2,000 mg/L. The aeration system would consist of fine bubble diffusers and variable speed blowers, which are not state of the art for energy efficiency and long term operating costs.

This results in an aeration basin total volume of 1.0 million gallons and a total secondary clarifier surface of 20,000 ft^2 for the projected flows and loads (no industrial contribution considered). The side wall depth of 16 feet was selected to common wall construction with the clarifiers to minimize construction and operations costs (due to higher aeration efficiency).

Table 6-5: Secondary Treatment Design Criteria

Parameter	Unit	Value
Conventional Aeration Basins		
Maximum Month Flow	mgd	13.0
Maximum Month influent BOD*	lb/d	59
Maximum Month influent TSS*	lb/d	47
Number of Trains	-	2
Temperature	°C	10
Solids Retention Time	d	2.5
Mixed Liquor Suspended Solids	mg/L	2000
Maximum OUR	mg/L/hr	50

Table 6-5: Secondary Treatment Design Criteria

Parameter	Unit	Value
Sidewater Depth	ft	16
Total Volume	MG	1.0
Secondary Clarifiers		
Number of Secondary Clarifiers		2
Secondary Clarifier Sidewater Depth	ft	15
Secondary Clarifier Hydraulic Load (Peak Flow)	gal/ft^2/d	1200
Secondary Clarifier Sold Load (Maximum Month Flow)	lb/ft^2/d	<15
Total Surface Area	ft^2	19,000

*based on conventional primary clarification removal efficiency.

6.2.1.6 Disinfection

Effluent disinfection is typically provided through either chlorine addition or ultraviolet light. Either disinfection method would be suitable for this treatment facility. Hypochlorite-based chlorination addition is recommended because of its lower operation cost and ability to handle high peak flows. The disinfection design criteria are summarized in Table 6-6. The required total chlorine contact tank is 420,000 gallons.

The chemical storage and feed system is based on delivered 25 percent hypochlorite (to be diluted on-site) and a 5 mg/L chlorine dose. Under average conditions the chlorine demand amounts to approximately 300 lb Cl/d or 250 gallons of 12.5 percent hypochlorite. At peak flow the chlorine demand increases to 1700 lb Cl/d or 1,260 gallons of 12.5 percent hypochlorite. Two 5,000-gallon storage tanks would provide sufficient chemical storage under maximum month conditions.

Table 6-6: Hypochlorite Disinfection Design Criteria

Parameter	Value
Average Flow (mgd)	4.6
Peak Flow (mgd)	40
Number of Storage Tanks	2
Volume of Storage Tanks, each	5,000 gal
Hypochlorite concentration	25%
Number of Trains	2
HRT at Peak Flow* (minimum)	15
Total Volume (mg)	0.42
Sidewater Depth (feet)	16

** 10 States Standard*

6.2.1.7 Outfall

The exact capacity of the existing outfall is not known, but estimated between 10 and 12 mgd. Changes to the pump station and discharge manhole could increase the capacity to a maximum of approximately 30 mgd. The peak hour flow to a regional WWTP is projected at 39.6 mgd, thus an additional outfall would have to be constructed. To prevent sedimentation in the outfall, both outfalls would have to be operated all the time.

The effluent pump station and the regional plant would be designed to pump all the plant flow, thus the existing pump station could be abandoned. For this evaluation, it is assumed that the new outfall would have a capacity of 30 mgd and no modification would be made to the existing outfall. Under normal operation, the new outfall would ultimately convey 75 percent of the effluent and 25 percent would be discharged through the existing outfall.

6.2.2 Solid Stream Treatment (as part of regional WWTP)

6.2.2.1 Thickening

Mechanical biosolids thickening is recommended to minimize the anaerobic digester volume. Mechanical thickening not only produces better thickening results as compared to gravity or flotation thickening, it also allows cothickening of primary and secondary sludge. The mechanical thickening options are gravity belt thickener, centrifuge, and rotating drum thickener. Because of the odor control issue, gravity belt thickening is not recommended for primary sludge or a blend of primary and secondary sludge. Rotating drum thickeners (Figure 6-8) have shown very good results, are better suited for 24/7 operation, are lower in cost compared to centrifuges, and are recommended for this treatment system.

Figure 6-8: Example of Rotating Drum Thickener

To equalize the sludge flow and mix the primary and secondary sludge, a sludge blend tank is required upstream of the thickener. The thickening design assumed 24/7 thickening and continuous digester feed. Under maximum month flows and loads, the plant would generate 13,000 pounds of primary and secondary solids, which amount to 290 gpm at 0.5 percent TSS. Two thickener units with a capacity of 300 gpm each would provide full redundancy.

Table 6-7: Sludge Thickening Design Criteria

Parameter	Value
Type	Rotating Drum
Number of Units	2
Capacity each (gpm)	200
Feed TSS (%)	0.5
Thickened Sludge TSS (%)	7

6.2.2.2 Anaerobic Digestion

On average, a regional WWTP would generate roughly 9,000 pounds per day of primary and secondary solids and 13,000 pounds per day at maximum month. To meet EPA's Class B biosolids, a retention time of 15 days at mesophilic temperature is required in the digesters. The anaerobic digesters are ideally fed on a continuous basis for which the thickening system is laid out. To provide sufficient operational flexibility, a digested sludge storage tank with a storage time of 7 days would be required. This results in a total anaerobic digester volume of 0.3 million gallons and 0.15 million gallons of digested sludge storage. On average, the digester would generate approximately 86,000 ft^3 of digester gas; roughly 7,000 ft^3 could be used for digester heating while the remaining gas could be converted to electrical energy with an engine, or cleaned and sold as low pressure gas to nearby industries. Cogeneration options are not included in cost estimating this plan; however, the value of the digester gas is accounted in the cost evaluation.

Table 6-8: Anaerobic Digestion Design Criteria

Parameter	Value
Number of Digesters	2
HRT (maximum month) (days)	15
Digester TSS (%)	4
Sidewater Depth (feet)	30
Total Volume (million gallons)	0.3
Number of Storage Tanks	1
HRT (day)	7
Volume (million gallons)	0.15

6.2.2.3 Dewatering

The three dewatering technologies most commonly applied are belt filter presses, centrifuges, and screw presses. Typically, belt filter presses have the lower dewatering performance, but are lowest in capital cost; vice versa for centrifuges. Screw presses are relatively new in wastewater treatment but have shown to perform well with dewatering results between those of belt filter presses and centrifuges. They can have a slightly larger footprint but its operation is fully enclosed, requires little energy, maintenance, and generates little noise.

Figure 6-9: Example of Dewatering Screw Press

The design criteria are summarized in Table 6-9. The dewatering system is designed to operate 8 hours per day on weekdays.

Depending on the manufacturer, a screw press dewatering system may include a blend tank or prethickening. A dedicated polymer feed system is required. For the scale of this plant, polymer could be delivered in totes.

Table 6-9: Dewatering Design Criteria

Parameter	Value
Type	Screw Press
Number of Units	2
Capacity each (gpm)	50
Run time (hour/days per week)	8/5
Feed TSS (%)	4
Dewatered Sludge TSS (%)	22

6.2.3 Overall Facility Layout

The ground level of the existing aerated basins is below the wet weather groundwater table and floodplain. The geology will require construction on piles. With essentially no structures in place on the site, the layout can be developed to minimize cost and simplify construction. As such, the layout for this plan places all unit processes within one structure with an operation and maintenance building placed on top of the aeration basin. Detailed design of the facility can be designed such that it can be completed such that more trains can be added in the future.

In addition to avoiding some of the issues associated with ground level, the compact design reduces the cost by minimizing piping, site work, wiring, concrete, excavation, and fill, which are typical constraints of working within and existing facility. Figure 6-10 shows an example of a facility designed in this manner.

Figure 6-11 shows the overall site plan relative to the site. For this plan, the treatment plant is shown to be constructed in the northeast corner of the ASB close to the berm. The space between the berm and the treatment plant would be filled in to create parking spaces and space for delivery and sludge hauling trucks. This layout takes advantage of the excavation from the ASB, while avoiding encroachment of the wetlands.

Figure 6-10: Example of Compact WWTP Design (Santa Paula, CA PERC)

Figure 6-11: Overall Site Plan, Regional WWTP, and Outfall

Figure 6-12 and Figure 6-13 below show the proposed layout of the regional WWTP.

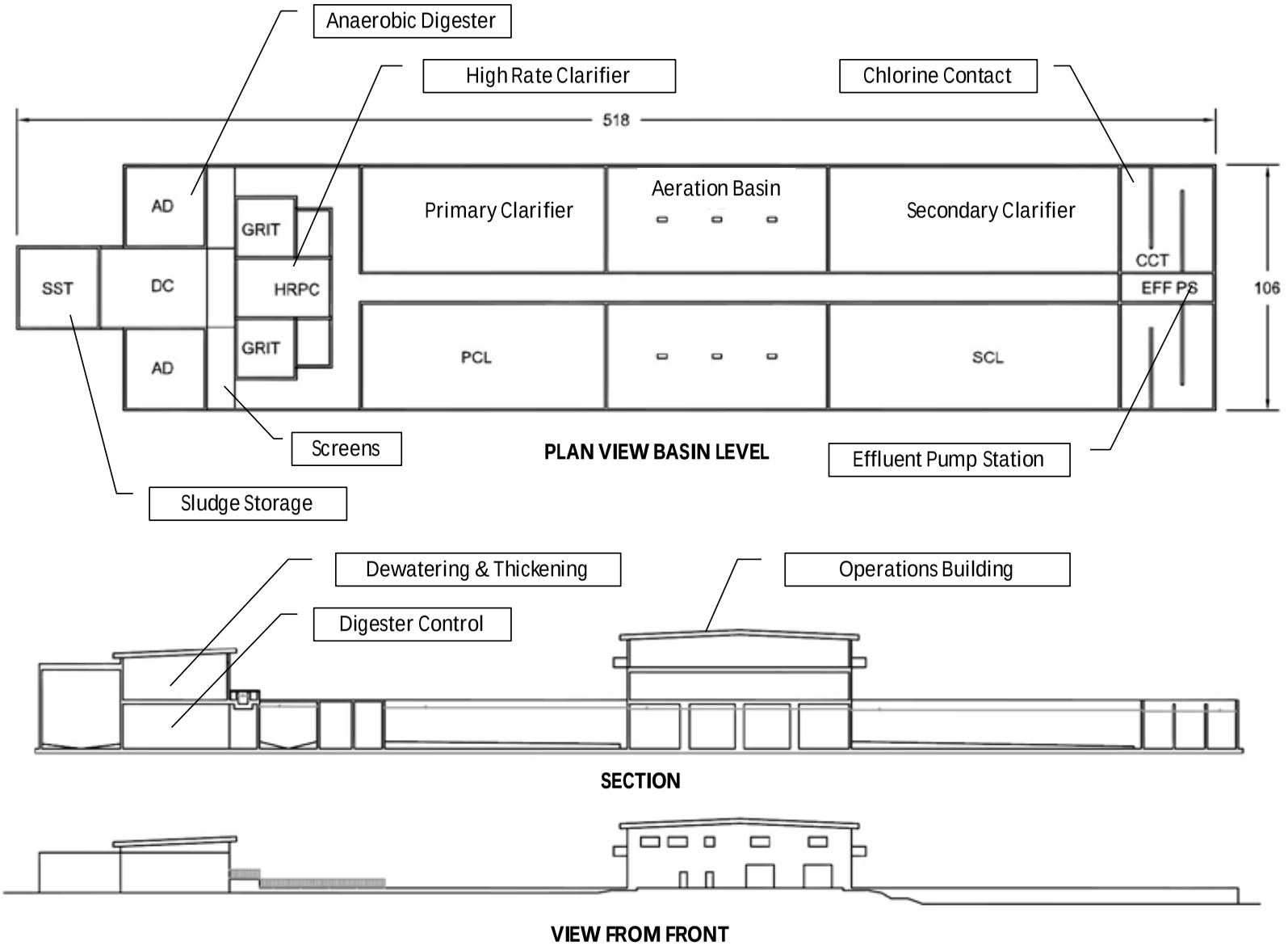
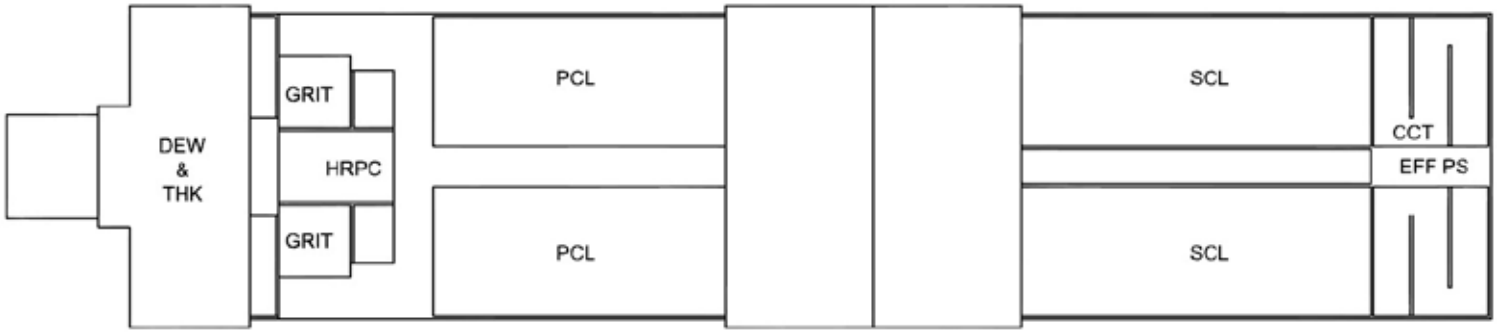
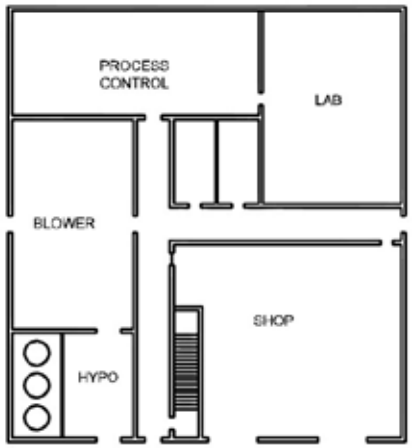


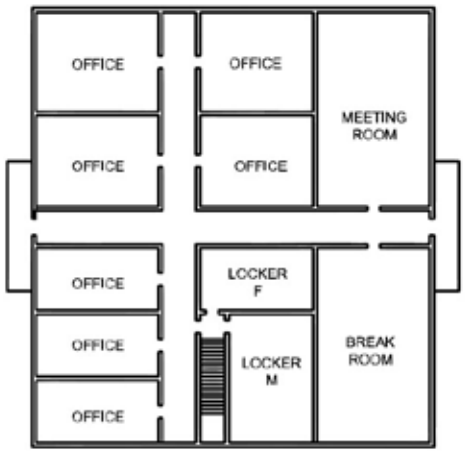
Figure 6-12: Conceptual Basin Level Plan View and Sections



VIEW FROM ABOVE



PLAN VIEW 1ST FLOOR



PLAN VIEW 2ND FLOOR

Figure 6-13: Top Level Plan View and Operations Building Floor Plan

6.3 Regional Biosolids Management Alternatives

Trends in the industry show capital and operational advantages from regionalizing biosolids treatment, in addition to distribution advantages of the biosolids product. At the same time, the Cities of Coos Bay and North Bend have indicated some challenges with treatment and disposal of their biosolids. These two conditions have led the Port to include the evaluation of a regional biosolids treatment facility that would be independent from wastewater treatment, on the North Spit. This section presents the findings of this evaluation.

Constructing a regional biosolids management facility could provide immediate benefits to the plant at Coos Bay and North Bend by eliminating solids processing and disposal capacity issues. By including either aerobic or anaerobic post digestion, as well as sludge storage at the facility, maximum flexibility would be provided with respect to solids transfer and disposal.

6.3.1 Biosolids Flows and Loads

Table 6-10 shows the assumed regional solids load estimates based on the following assumptions for wastewater treatment:

- Primary clarifier TSS removal rate: 60%
- Secondary treatment yield: 1 lb TSS/lb BOD removed
- Anaerobic digester volatile suspended solids (VSS) reduction: 40% (due to undersized digesters once loadings increase)
- The digested sludge has a total solids content of at least 2%
- The WAS/PSL mix has a total solids content of at least 2%

Table 6-10: Solids Flows and Loads to Regional Biosolids Facility for 2027

	Influent	Primary Effluent	WAS	PSL	Total Solids Transfer to Regional Facility		
	TSS	TSS	TSS	TSS	TSS	VSS	Flow
Units	lb/d	lb/d	lb/d	lb/d	lb/d	lb/d	gal/day
Average							
Coos Bay WWTP 1	2,700	1,080	2,210	2,180	2,180	1,680	13,100
Coos Bay WWTP 2	2,200	880	1,630	1,660	1,660	1,280	10,000
NB	2,700	1,080	3,400	-	3,400	2,890	20,400
Total					7,230	5,850	43,400
Maximum Month							

Table 6-10: Solids Flows and Loads to Regional Biosolids Facility for 2027

	Influent	Primary Effluent	WAS	PSL	Total Solids Transfer to Regional Facility		
	TSS	TSS	TSS	TSS	TSS	VSS	Flow
CooBay WWTP 1	3,500	1,400	3,120	2,990	2,990	2,310	18,000
Coos Bay WWTP 2	2,700	1,080	2,600	2,430	2,430	1,880	14,600
North Bend	2,850	1,140	3,110	-	3,110	2,640	18,700
Total					**8,520**	**6,820**	**51,100**

The sludge volumes presented in Table 6-11 represent the worse case scenario. The hauled sludge volume could be substantially decreased by additional thickening at existing facilities in North Bend and Coos Bay, prior to hauling to the North Spit.

Table 6-11: Solids Loads to Regional Biosolids Facility (lb/d) for 2027

	Influent	PE	WAS	DSL	Solids Transfer		
	TSS	TSS	TSS	TSS	TSS	VSS	Flow
Average							
WWTF No. 1	2,700	1,080	2,210	2,180	2,180	1,680	13,100
WWTF No. 2	2,200	880	1,630	1,660	1,660	1,280	10,000
North Bend	2,700	1,080	3,400	-	6,100	5,190	36,600
Total					**9,930**	**8,150**	**59,600**
Maximum Month							
WWTF No. 1	3,500	1,400	3,120	2,990	2,990	2,310	18,000
WWTF No. 2	2,700	1,080	2,600	2,430	2,430	1,880	14,600
North Bend	2,850	1,140	3,110	-	5,950	5,060	35,700
Total					**11,360**	**9,240**	**68,200**

6.3.2 Regional Biosolids Treatment Alternatives

For all alternatives it was assumed the transferred sludge has 2 percent solids. For the 2027 flows and loads, this results in 60,000 gpd on average. Depending on the size of the truck, this would result in 60 to 120 transfers per day, which would have a significant traffic impact and require a small vehicle fleet. At current flows and loads, the trucking requirements would be roughly 80 percent compared to 2027.

Generating such truck traffic is not sustainable long term but could be an intermediate solution to spread capital cost. Long term, sludge should either be thickened at the individual treatment plants, or pumped. Prethickening would require three individual thickening facilities, but could reduce the hauled volume by 75 percent.

A better long-term solution would be to transfer pumping directly from the North Bend facility and the Port's WWTP No. 2. Sludge from the Port's WWTP No. 1 would be transferred to WWTP No. 2. The transfer line(s) across the bay would have to be sunk. The transfer line from the Port's WWTP No. 2 to WWTP No. 1 could be drilled; therefore, transfer pumping to the regional biosolids management facility is not a recommended option.

Three treatment alternatives were considered. The digested sludge could be dewatered and land applied as a Class B biosolids or treated further to meet Class A requirements. Additionally, the sludge could be dried for beneficial reuse as a fertilizer or for use as a fuel. Direct incineration is also an option. The Class A or dryer elements could also be added in the future without impacting the design or utility of the digestion/storage/dewatering systems.

Because of the volume of sludge digestion, storage in a lagoon is not a practical solution. Per year, roughly two million pounds of solids would accumulate in a lagoon (6 to 12 million gallons). If dewatered annually, this would produce roughly 6,000 cubic yards of cake (dewatered biosolids). Aside from the hauling requirements, the dewatering would require permanent installation of dewatering equipment owing to the volume. A mobile unit would require too much time to take advantage of seasonal disposal options. However, a solids storage lagoon can provide redundancy for the solids processing facility, which would reduce capital costs.

Additional anaerobic digester capacity may be considered for biosolids alternatives 1 and 2 to allow receiving of sludge, septic waste, food waste, fats, oils, and grease, or high strength organic waste from industries to generate additional biogas. The transferred digested sludge would produce only a small amount of gas, which nevertheless should be sufficient for the facility's heating requirements. Gas yield could be increased by additional organic loads from the aforementioned sources. Biosolids Alternative 1 – Post Digestion and Dewatering

This alternative consists of an anaerobic digester and a sludge storage tank (Figure 6-14). Because the transferred digested sludge is assumed to be relatively thin (2 to 3 percent), the received sludge would be thickened using a rotary drum thickener to minimize the required digester and sludge storage volume. This would require a sludge receiving tank to feed from the thickener and would equalize deliveries. The digester would provide an additional 10 days of retention time, plus 10 days of sludge storage.

Dewatering may be provided by either screw presses or centrifuges. Dewatering centrifuges are selected in this case as they provide superior dewatering performance, which is desirable to minimize hauling and critical for drying and incineration applications.

The dewatering centrate would be discharged into an aerated storage lagoon, which would also serve as temporary sludge storage. From there it would overflow into the remaining ASB.

The dewatered Class B biosolids would be either land-applied or disposed of at a landfill. The design criteria for Alternative 1 are summarized in Table 6-12.

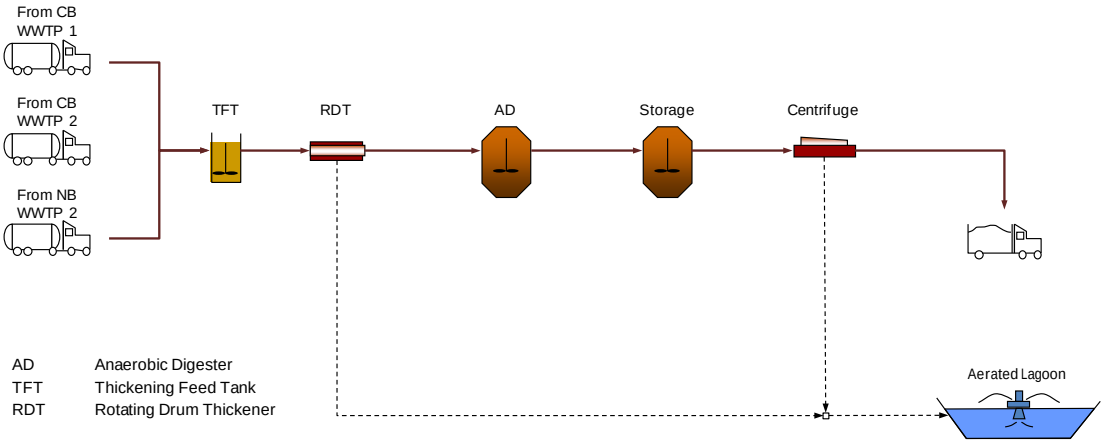


Figure 6-14: Schematic of Regional Biosolids Management Facility

Table 6-12: Solids Processing Design Criteria – Alternative 1

Parameter	Value
Thickening	
Thickening Feed Tank Volume (gallons)	100,000
Number of Drum Thickeners	1
Capacity each (gpm)	105
Thickening Run Time (hr/d/w)	8/5
Post Digestion and Storage	
Digester HRT (day)	10
Storage HRT (day)	10
Digester Volume (million gallons)	0.16
Storage Volume (million gallons)	0.16
Dewatering	
Number of Centrifuges	2
Capacity Each (gpm)	30
Dewatering run Time (hr/d/w)	8/5

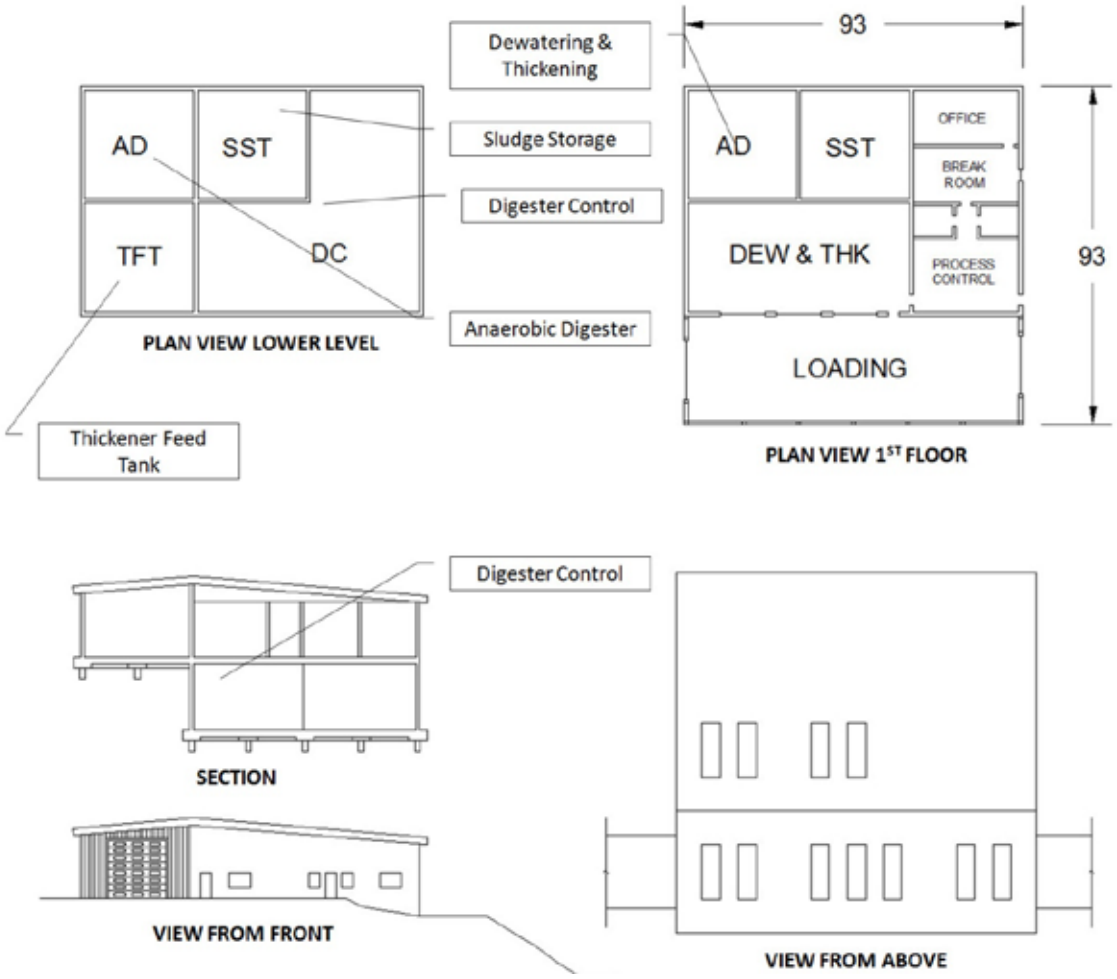


Figure 6-15: Conceptual Plan View and Section of Regional Biosolids Management Facility – Alternative 1

6.3.3 Biosolids Alternative 2 – Post Digestion and Drying

This alternative combines Alterative 1 with biosolids drying (Figure 6-16). Different drying technologies are available; some produce a fuel, others produce a fertilizer product. Because of the product volume, either solution would require capable partners that handle, store, and distribute the product. It is assumed the Port would not be involved in the product distribution or sale. A market analysis should be conducted prior to design to determine which provides the better year-round market value. For this evaluation, production of a fertilizer product is assumed.

Because the transferred digested sludge is assumed to be relatively thin (2 to 3 percent) the received sludge would be thickened using a rotary drum thickener to minimize the required digester and sludge storage volume. This would require a sludge receiving tank to feed the thickener and would equalize deliveries. The digester would provide an additional 10 days of retention time plus 10 days of sludge storage.

Dewatering would be provided by centrifuges and the dewatered sludge would be fed directly to the dryer. Because of the time required to start and stop dryers, the system would be designed to operate 24 hours on weekdays and be shut down weekends and holidays, as well as 15 additional days per year for maintenance and cleaning. Full redundancy is required for both thickening and dewatering.

The dewatering centrate would be discharged into an aerated storage lagoon, which would also serve as temporary sludge storage. From there it would overflow into the remaining ASB.

Table 6-13: Solids Processing Design Criteria – Alternative 2

Parameter	Value
Thickening	
Thickening Feed Tank Volume (gallons)	100,000
Number of Drum Thickeners	1
Capacity each (gpm)	70
Thickening Run Time (hr/d/w)	24/5
Post Digestion and Storage	
Digester HRT (day)	10
Storage HRT (day)	10
Digester Volume (million gallons)	0.16
Storage Volume (million gallons)	0.16
Dewatering	
Number of Centrifuges	2
Capacity Each (gpm)	16
Dewatering run Time (hr/d/w)	24/5
Drying	
Drying Capacity (lb/hr)	560
Drying run Time (hr/d/w)	24/5

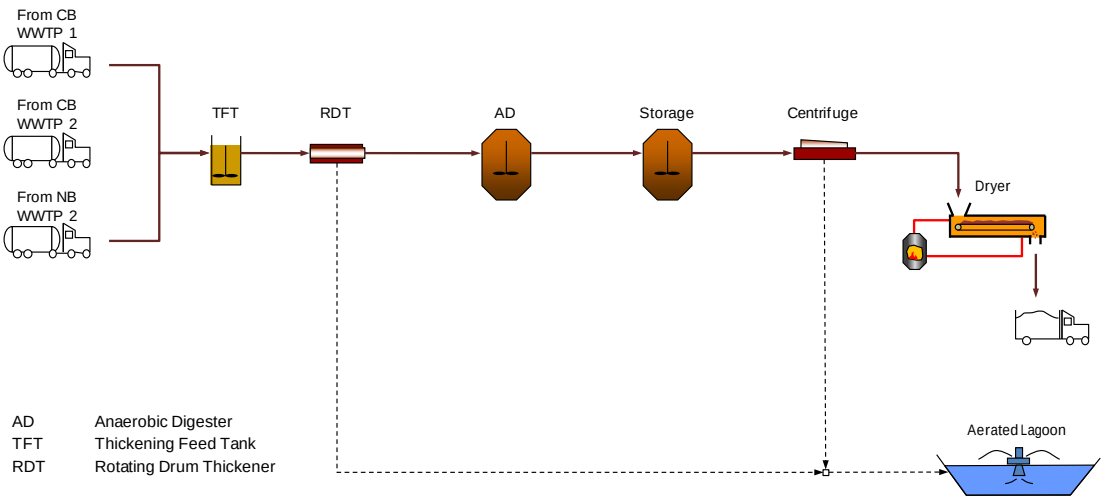


Figure 6-16: Schematic of Regional Biosolids Management Facility With Drying

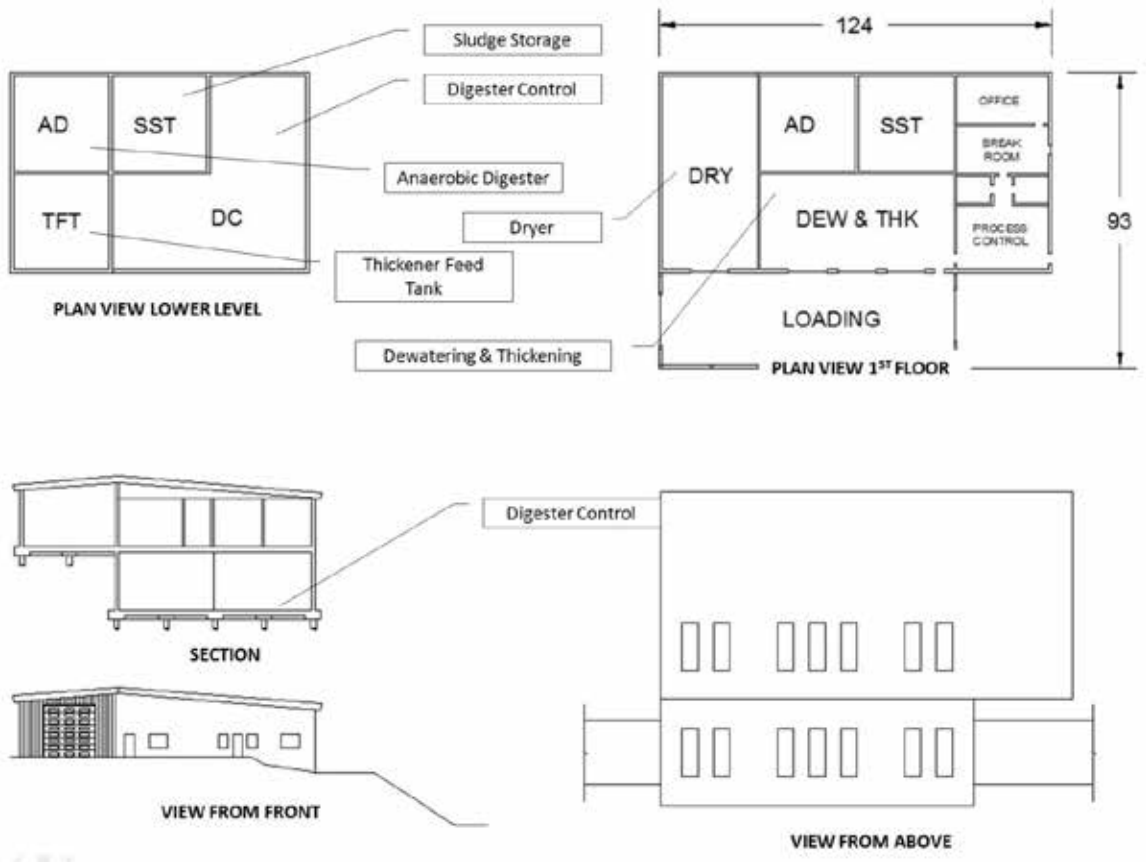


Figure 6-17: Conceptual Plan View and Section of Regional Biosolids Management Facility – Alternative 2

6.3.4 Regional Biosolids Alternative 3 – Incineration

With over 99% solids reduction rate, direct dewatering and incineration could significantly reduce solids disposal issues. Incineration does not require prior digestion; however, for this alternative it is assumed the digester operation would continue at existing both Coos Bay and North Bend treatment plants. If digestion were to cease, the primary and WAS from these plants would have to be thickened prior to hauling.

The delivered sludge would be pumped into a storage tank. Sludge would then be further thickened and dewatered prior to incineration. The incinerator ash would be hauled to a landfill (Figure 6-18).

Incinerators are operated 24/7 but require periodic shutdowns for maintenance. These shutdowns can last several weeks, during which either temporary storage or an alternative disposal is required. For this alternative it is assumed the sludge would be stored temporarily in portions of the existing ASB with an aerated water cap for odor control. Full redundancy is required for both thickening and dewatering.

The incinerator excess heat can be used in neighboring industries or to generate electricity.

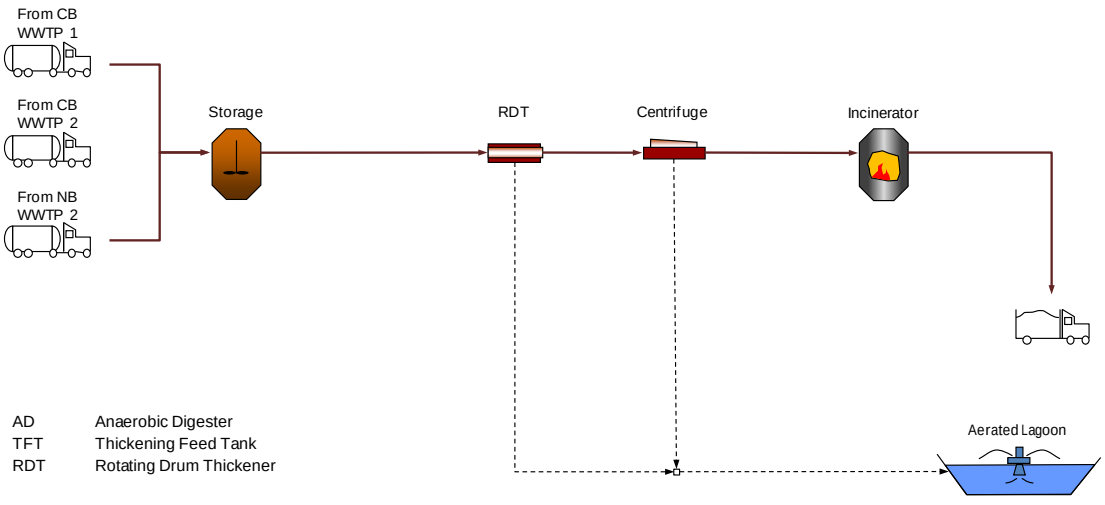


Figure 6-18: Schematic of Regional Biosolids Management Facility with Incineration – Alternative 3

Table 6-14: Solids Processing Design Criteria – Alternative 3

Parameter	Value
Thickening	
Thickening Feed Tank Volume (gallons)	100,000
Number of Drum Thickeners	2
Capacity each (gpm)	15
Thickening Run Time (hr/d/w)	24/7
Dewatering	
Number of Centrifuges	2
Capacity Each (gpm)	17
Dewatering run Time (hr/d/w)	24/7
Incineration	
Required Capacity (lb/d)	12,700
Run Time (h/day)	7/24
Utilization (%)	90

6.4 Planning Cost Estimates

Preliminary costs for biosolids treatment were in excess of $10M and rapidly considered as not meeting water quality needs sought by the Port for this project. Therefore, further analysis of this option were abandoned.

7.0 Financial Analysis

7.1 Introduction

To evaluate potential operation and maintenance (O&M) and capital costs of the regional system, the costs of the Port's and North Bend's existing systems were evaluated, and used as a baseline for comparing the potential projected regional system costs. Each entity's existing wastewater system rates, number of customers, budget (revenue and expenses) are described below. It should be noted that most of the data for both entities was gathered from documents available on the cities' websites, and as verified with staff via teleconference.

Two different scenarios are analyzed for financial planning: one is the regional treatment plant, and the other is Phase 1, where an interceptor and lift station are constructed from Coos Bay plant No.2 through the Estuary to the Port's outfall, for discharge into the ocean. The latter was considered a Phase 1 approach to removing domestic wastewater discharges from the Coos Bay Estuary, and is based on the preliminary analysis presented in Appendix B. The Regional Biosolids Alternative was eliminated from further analysis because of the elevated capital costs involved and since it did not respond to water quality purposes.

7.2 Wastewater Rates

The City of Coos Bay charges its wastewater customers a base rate plus volume charge per 100 cubic feet (cf). Wastewater rates charged by the City of Coos Bay are listed in Table 7-1.

The City of North Bend charges its wastewater residential customers a flat rate. Commercial customers are charged a base rate plus a volume charge for volume above 800 cf. Wastewater rates charged by the City of North Bend are listed in Table 7-2.

Table 7-1:Monthly Wastewater Rates, City of Coos Bay, Effective May 2012

Customer Class	Rate
Residential (1 family 1-inch, individually metered)	
Base Rate ($/Month)	$15.62
Volume Charge (per 100 cf) [1]	$5.60
Multifamily	
Base Rate ($/Month)	$15.62
Volume Charge (per 100 cf)	$5.60
Governmental (schools, city, county, state, federal)	
Base Rate ($/Month)	$15.62
Volume Charge (per 100 cf)	$5.60
High Strength Users*	
Base Rate ($/Month)	$15.62
Volume Charge (per 100 cf)	$6.94

Table 7-1:Monthly Wastewater Rates, City of Coos Bay, Effective May 2012

Customer Class	Rate
Commercial	
Base Rate ($/Month)	$15.62
Volume Charge (per 100 cf)	$5.60
Combined High Strength and Commercial	
Must be metered and rate to be determined	
Users who are not Coos Bay-North Bend Customers	$61.61

** Volume based on winter averages*

Table 7-2: Monthly Wastewater Rates, City of North Bend, 2012

Customer Class	Rate
Residential	
Flat Rate ($/Month)	$25.25
Commercial	
Base Rate ($/Month)	$25.25
Volume Charge over 800 cf (per 100 cf)	$1.79

7.3 Current Customer Information

The City of Coos Bay has approximately 2.5 mgd average dry weather flow. The number of total customers served is 5,941. The total revenues expected for 2012 is $4,544,600. The City of Coos Bay customer data are listed in Table 7-3. This data was used to develop the baseline financial analysis to evaluate the existing conditions of the regional treatment plant options.

Table 7-3: Wastewater Customer Data, City of Coos Bay, 2012

Wastewater Customer Data, 2012	
Number of Customers	
Residential	4,896
Multifamily	379
Governmental (schools, city, county, state, federal)	143
Commercial	523
Total Customers	5,941
Average Flow	2.5 mgd
Projected 2012 Rate Revenue	$4,544,600

The City of North Bend has approximately 1.6 mgd average dry weather flow. The number of total customers served is 4,389. The total revenues expected for 2012 is $1,500,000. This data provided the basis for the financial analysis for North Bend.

Table 7-4: Number of Customers, City of North Bend, 2012

Wastewater Customer Data, 2012	
Number of Active Accounts	4,389
Average Flow	1.6 mgd
Projected 2012 Rate Revenue	$1,500,000

7.4 Development of Financial Analysis of the Existing Wastewater Costs for Coos Bay and North Bend

A financial projection was developed to determine each City's ability to meet its existing capital improvement and operating needs over the next 6-year time period. Fund balance (or reserve levels) was also analyzed in developing the financial projection. The financial analysis involved reviewing the projected revenues and expenses of each city for 2012 to 2018. A multiyear review allows analysis of potential rate impacts of both scenarios.

The development of the projection was based on the City of Coos Bay and North Bend budget, previous master plan documents, and staff input. The 2012 wastewater utility budgets for each city were escalated by applying factors for inflation and growth, which are described below. The impacts of both scenarios were based on engineering estimates for construction and operational costs, as provided within this plan. These potential capital and operational costs were then compared to existing operations.

7.4.1 Future Revenues

The first component in developing the financial analysis is a review of the sources of revenue of each wastewater system. The different revenues received from operations are:

- Rate revenues – wastewater sales to customer accounts
- Other revenues – permits, interest income, and other miscellaneous sources

Projections for future year rate revenues were developed by applying a projected growth rate of half a percent to the 2012 budgeted rate revenue through 2018.

For Coos Bay, the rate revenues are projected to be approximately $4.6 million in 2013. The rate revenues of the utility come from wastewater sales to residential, multifamily, governmental, and commercial customers. Other revenues for 2013 total approximately $93,000; a majority of the revenue stems from aluminum sludge payments. The total revenue available to offset the operating and capital requirements of the wastewater system totals $4.7 million in 2013 and is projected to increase to $4.8 million by 2018.

Table 7-5 projects the revenues for the City of Coos Bay's wastewater utility for the years 2012 through 2018.

Table 7-5: Projected 6-year Financial Plan Revenues – Coos Bay

	Budget	Projected, thousands					
	2012	2013	2014	2015	2016	2017	2018
Revenues							
Rate	$4,720	$4,624	$4,647	$4,670	$4,693	$4,717	$4,740
Other	100	93	88	89	90	91	92
Total	**$4,820**	**$4,717**	**$4,735**	**$4,759**	**$4,783**	**$4,808**	**$4,832**

Rate revenues for North Bend are projected to be approximately $1.5 million in 2013. The rate revenues of the utility come from wastewater sales to residential and commercial customers. Other revenues projected for 2013 total approximately $40,000. The total revenue available to offset the operating and capital requirements of the wastewater system totals $1.55 million in 2013 and is projected to increase to $1.58 million by 2018. Table 7-6 projects the revenues for the City of North Bend's wastewater utility for the years 2012 through 2018.

Table 7-6: Projected 6-year Financial Plan Revenues – North Bend

	Budget	Projected, thousands					
Sources of Revenue	2012	2013	2014	2015	2016	2017	2018
Revenues							
Rate	$1,500	$1,508	$1,515	$1,523	$1,530	$1,538	$1,546
Other	52	40	41	41	42	42	42
Total	**$1,552**	**$1,548**	**$1,556**	**$1,564**	**$1,572**	**$1,580**	**$1,588**

The projected 6-year revenues for both Coos Bay and North Bend are based on existing operations. There are no projected rate increases included in these projections.

7.4.2 Future Expenses

The second part of the financial analyses is a review of expenses. The projection of future operating expenses is based on the 2012 and 2013 budget levels for Coos Bay. North Bend is based on 2012 budget levels. These expenses are projected for future years by applying escalation factors pertinent to the type of expense being reviewed. The expense escalation factors range from 2.5 to 6 percent.

The development of the projection was based on the "cash basis" approach. The cash basis approach is the most commonly used method of accumulating expenses for budgeting and rate setting for public utilities. The cash basis includes the following costs:

- Operations and maintenance
- Capital improvements funded from rates
- Debt service
- Working capital/contingency

7.4.2.1 Operation and Maintenance Expenses

Using the 2012 budget as a starting point, expenses were escalated by factors representing assumed inflationary rates to obtain projected costs. Escalation factors include labor, benefits, materials and supplies, and miscellaneous. The escalation factors ranged from 2.5 to 6 percent. Expenses escalated an average of 3 percent, with medical expenses escalated at 6 percent.

Coos Bay operation and maintenance expenses include the Port's WWTP Nos. 1 and 2, collection and administration. The Coos Bay stormwater expenses were not included in this financial analysis. The total treatment, collection, and administration O&M expenses for Coos Bay were projected from $2.9 million in 2013 to $3.3 million in 2018.

North Bend expenses were shown in total and were not itemized between treatment and collection expenses. The North Bend operation and maintenance expenses were projected from $1.2 million in 2013 to $1.4 million in 2018.

7.4.2.2 Capital Improvements Funded from Rates

Capital improvements are related to the infrastructure of a utility. The modeling of these financial analyses are identified as possible future capital projects, which would combine treatment facilities to one regional facility or implement a Phase 1 project for Coos Bay that includes updating their current lift station and adding a new interceptor pipeline to the Port sewer outfall to discharge to the ocean, versus the current discharge into the Bay. These future capital improvements will be run as scenarios later in the discussion.

Capital improvements referred to in this section refer to maintaining or "renewal and replacement projects" of the existing infrastructure. Rate funding for renewal and replacement projects is an important part of any capital funding plan. It is prudent utility financial planning to include a minimum of rate funding for renewal projects so that existing customers are paying for renewal of the facilities from which they benefit. By rate funding renewal projects, the utility can also achieve a stronger debt service coverage (DSC) ratio, which is described below. A higher DSC ratio can provide lower interest rates on future bond financing and help to keep rates lower in the long-term. This assumption of funding annual depreciation was assumed for these financial analyses. Therefore, if the utilities are not currently funding capital at these levels, they would have different results in the financial analysis. In this way, these results are

theoretical and do not necessarily illustrate the current financial status for each city, just the situation if each utility were funding depreciation expense. By evaluating all systems (Coos Bay and North Bend's existing systems and the proposed regional system and Phase 1 system) on this equal standing (all system funding depreciation) the systems can be evaluated and compared more equitably.

7.4.2.3 Debt Service

The City of Coos Bay has one existing debt issue at this time with a total debt payment of $520,000 in 2013 and continuing through 2018. The City of North Bend does not appear to have any existing debt service for wastewater.

The City of Coos Bay is facing a financial challenge of $72.6 million needed improvements over the next 20 years as stated in their current budget document. Included in these financial projections for Coos Bay is the estimated $24 million wastewater plant replacement for plant 2 in Empire. The treatment plant upgrades and additions may decrease operational costs over the long term and comply with specific regulatory requirements. The plant will most likely be bond financed. The tentative timing of the construction and financing of these projects is in final review and not set at this time but will occur in the near future. However, these treatment plant costs are not included for the future scenario, because it is assumed if the regional plant were implemented, that it would replace the need for the City's upgrade. These treatment costs were included in the Phase 1 assessment discussed below in Section 7.8.

Additional debt issues will be needed to fund the capital projects identified in the Regional treatment infrastructure and the Phase 1 lift station project. Terms assumed for these loans are 4.75% interest over 20-years. Payments for these new debt issues are approximately $6.1 million. These estimates of future debt are predicated on implementing the capital projects at some point in time. The actual schedule of these projects being completed will be determined at some time in the future as the Cities and the Port determine the necessity of either the Regional treatment plant or the Coos Bay Phase I lift station/pipeline project. For purposes of the financial analysis, the proposed debt is assumed to occur in 2014 for the regional plant and for Phase 1.

7.4.3 Funding Alternatives

There are various outside funding sources that can aide in funding capital improvements and maximize funding of Capital Improvement Programs while minimizing rates to the degree possible. Several outside funding alternatives are described below. The balance of Capital Improvement Programs that cannot be funded by rates or outside funding sources must be debt financed. In this way, customers who connect to the system in the future also pay a share of the cost of the infrastructure needs to serve them. This balancing of funding sources for capital improvements provides intergenerational equity between existing and future customers.

Revenue Bonds

Revenue bonds are secured solely by the revenue developed by the wastewater system(s). Revenue bonds do not affect the legal debt limitation of a municipality. These bonds are generally created and sold through the passage of an ordinance by the Governing Board (City Council or regional governance body).

To repay these bonds, it is necessary to meet debt coverage requirements. DSC is a financial measurement, or a credit check as required by the bond covenants, of an entity's ability to repay debt. The level of coverage varies with the financial capability of the system (credit worthiness). Meeting DSC requirements is an important financial indicator for well-managed utilities. A DSC ratio is a comparison of net income before annual debt service payments compared to the total annual debt service on revenue bonds, or on all outstanding debt service. A DSC ratio of 1.25 or 1.30 is generally considered the legally acceptable minimum for revenue bond depending on the specific bond covenants. A DSC ratio of 1.5 or greater is considered a stronger financial target. Bond rating agencies look at a utility's DSC ratio in determining the utility's rating, which affects interest rates for future bond issues. The higher the DSC ratio, the better the rating and the lower future interest rates, debt payments, and long-term user rates.

As described above, it is assumed that the regional plant and/or Phase 1 project for Coos Bay will need to be debt financed. These are both assumed to be in the form of revenue bonds, and other financing instruments, as described below. The most notable of these for wastewater system improvements are the Drinking Water State Revolving Fund and the Centennial Clean Water Fund. There are a number of additional potential funding sources that were identified for water quality improvement projects in the Bay or to improve habitat that may have eligible funding. These other possible funding sources are listed in Appendix E, and summarized below.

State Loans and Grants

The State of Oregon has several financial programs that are available for municipal infrastructure improvements.

Economic Development Administration and United States Department of Commerce

Grant Program: Public Works and Economic Development Facilities – Maximum grant amount $2,000,000 dollars. To support the construction or rehabilitation of essential public infrastructure and facilities necessary to generate or retain private sector jobs and investments, attract private sector capital, and promote regional competiveness.

Oregon Infrastructure Finance Authority; Grant Program Special Public Works Fund

Maximum grant $500,000 dollars. Restoration of environmental conditions on publicly-owned industrial lands, port facilities, wharves and docks; the purchase of land rights and easements necessary for public facility wastewater and water systems.

Oregon Infrastructure Finance Authority; Grant Program Water/Wastewater Financing Program

Maximum grant $750,000 dollars. For design and construction of public infrastructure needed to ensure compliance with the Safe Drinking Water Act or the Clean Water Act.

Oregon Infrastructure Finance Authority; Port Revolving Fund

Maximum grant $3,000,000 dollars. Assist Oregon ports in the planning and construction of facilities and infrastructure. Funds may be used to assist Port-related private business development projects. Eligible project costs can include engineering, acquisition, improvement, rehabilitation, construction, operation, and maintenance or pre-project planning.

Community Development Block Grants

These are federal grants administered by the state and are available to counties and cities to serve the needs of low- and moderate-income residents. Non entitlement cities and counties are eligible. The project must principally benefit low- and moderate-income residents and have a citizen participation/community development plan. Note that grants and loans can be used as leverage for bank loans.

USDA Rural Development Grants and Loans

These funds are dedicated to populations under 20,000, and cities of less than 5,000 have greater eligibility. These funds are typically partial grant (25%) and loan financing of up to 40 years. Wastewater treatment, and in particular when governments coordinate together for regional facilities, meet eligibility criteria. These funds are highly competitive.

Developer Extensions/Contributions

When new subdivisions within the Cities' service area require wastewater service, the system's extension may be constructed by the developer, according to plans and specifications approved by the City. The improvements are then deeded to the City for operation and maintenance. Some private funds could be generated by potential customers/developers.

Capital Facility Charges

Each city that has capital facility charges (capacity connection charges) should keep their fees updated. Should the regional plan move forward, these charges could be updated to reflect the regional wastewater system costs as detailed in this plan. The portion of facilities with capacity to serve growth can be attributed toward the calculation of the capital facility charges. This capital facility charge revenue can be used on future capital to create additional capacity or applied toward debt to finance the portion of projects that will serve growth.

7.4.4 Capital Project Financing

As a practical matter and prudent practice, a utility should fund a portion of its capital improvements from rates on an ongoing basis. The balancing of funding projects between existing and future customers is important, as the improvements benefit both. The funding of capital from rates is targeted toward funding at a minimum level of annual depreciation expense. The City of Coos Bay wastewater utility 2012 depreciation expense was not readily available; however, budgeted capital for 2012 was $643,000. For this analysis, this level of capital funding is escalated and is projected to increase to approximately $790,000 by 2018. The City of North Bend wastewater utility budgeted capital expenses for 2012 are $1 million. This amount of capital funding was escalated to $1.3 million by 2018. It is important to remember that these cities may not be planning on funding this level in future years. This was used for the projected financial analysis and may not reflect the utility's actual planned future expenditures.

This type of rate funding should be targeted toward renewal of existing infrastructure, as it is paid by existing customers, beneficiaries of the system in place. Actual replacement cost is typically twice the level of depreciation (for a system with an average useful life of 50 years.). Therefore, depreciation expense should be targeted as a minimum funding level, and whenever possible, it should be increased. Rate funding (pay as you go) also enables a utility to maintain a strong DSC ratio, which is important for maintaining lower interest rates on any future revenue bonds that may be needed.

For the regional treatment plant and the Phase I Coos Bay lift station and pipeline, the capital improvement from rates was assumed to be total plant project costs depreciated over 50 years.

7.4.5 Reserve Levels

Another key indicator of a utility's financial health and viability is its reserve levels. Because a portion of Coos Bay's revenue is consumption-based, and therefore dependent on weather conditions and usage patterns, maintaining adequate reserve levels is important for stable fiscal management of the utility. A discussion of the utility's reserves is provided below.

Industry standards recommend that utilities maintain working capital reserves at a level adequate to handle unexpected occurrences, including unexpected cash flow fluctuations. A minimal balance for an O&M reserve for a utility that bills monthly is recommended to be a minimum of 45 days (12 percent) of operations and tax expenses. Coos Bay discusses this 45 day minimum in their budget document. The 45 day fund balance would equate to approximately $360,000 in 2013, increasing to $412,000 by 2018 for Coos Bay. This fund balance is important to have adequate funds for cash flow during unexpected events.

7.5 Summary of the Financial Projections

A summary of the financial analysis of the existing wastewater systems for Coos Bay and North Bend is provided below in Table 7-7 and Table 7-8 provided the funding assumptions described above. This is an abbreviated summary of the detailed financial analyses, which are included in Appendix G.

Table 7-7: Projected Existing 6-year Financial Plan for Coos Bay

	Budget	Projected, thousands					
Expenses	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**
Revenues							
Rate Revenues	$4,720	$4,624	$4,647	$4,670	$4,693	$4,717	$4,741
Other Revenues	100	93	88	89	90	91	92
Total Revenue	**$4,820**	**$4,717**	**$4,735**	**$4,759**	**$4,783**	**$4,808**	**$4,833**
Expenses							
O&M	$2,822	$2,918	$2,998	$3,081	$3,166	$3,254	$3,344
Capital from Rates	644	666	690	715	740	765	792
Debt Service	520	520	520	520	520	520	520
Contingency	638	631	653	675	699	724	749
Total Requirement	$4,624	$4,735	$4,861	$4,991	$5,125	$5,263	$5,405
Balance/Deficiency	**$195**	**($18)**	**($126)**	**($232)**	**($342)**	**($455)**	**($572)**
Balance as % Rates	**0.0%**	**0.4%**	**2.7%**	**4.9%**	**7.3%**	**9.6%**	**12.1%**
Average Dry Flow, MGD	2.5	2.5	2.5	2.5	2.6	2.6	2.6
Cost Per Gallon	$1.85	$1.88	$1.93	$1.97	$2.01	$2.05	$2.10

Table 7-8: Projected Existing 6-year Financial Plan for North Bend

	Budget	Projected, thousands					
Expenses	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**
Revenues							
Rate Revenues	$1,500	$1,508	$1,515	$1,523	$1,530	$1,538	$1,546
Other Revenues	52	40	41	41	42	42	42
Total Revenue	**$1,552**	**$1,548**	**$1,556**	**$1,564**	**$1,572**	**$1,580**	**$1,588**
Expenses							
O&M	$1,176	$1,213	$1,252	$1,292	$1,333	$1,376	$1,420
Capital from Rates	1,060	1,097	1,135	1,175	1,216	1,259	1,303
Debt Service	0	0	0	0	0	0	0
Contingency	0	0	0	0	0	0	0
Total Requirement	**$2,236**	**$2,310**	**$2,387**	**$2,467**	**$2,549**	**$2,635**	**$2,723**
Balance/Deficiency	**($684)**	**($763)**	**($831)**	**($903)**	**($977)**	**($1,055)**	**($1,135)**
Balance as % Rates	45.6%	50.6%	54.9%	59.3%	63.9%	68.6%	73.4%
Average Dry Flow, MGD	1.6	1.6	1.6	1.6	1.6	1.6	1.6
Cost Per Gallon	$1.40	$1.44	$1.48	$1.52	$1.56	$1.61	$1.65

When interpreting the results of both Table 7-7 and Table 7-8, it is important to understand that the "Balance as a % of Rates" is cumulative. That is, any rate adjustments made in earlier years would reduce the required adjustment in the following years.

It is also important to note that the revenues and expenses for North Bend were obtained from the City's website. The capital funding from rates in the analysis is escalated into future years and is based on estimated system depreciation. However, as noted above, the City may not be funding this level of capital currently or in future years. Therefore, this should be considered an estimated financial plan from available data for 2012 only, and based on funding renewal and replacement projects from rates at the level of depreciation expense. This should not be assumed to be an actual projection of North Bend wastewater utility costs for future years. This analysis was developed as a base line from which to evaluate the Regional treatment plant.

7.6 Summary of Existing Wastewater Rates Projected

Based on the assumptions of the analysis as described above, the results of the financial analysis indicate the need to adjust rates in future years to meet the existing projected capital and operating needs of each City's wastewater utility system.

7.7 Regional Treatment Plant Financial Projections

A new regional treatment plant that would be shared by the City of Coos Bay and North Bend is a scenario that is being investigated for economic development purposes and improving water quality of the Bay. A summary of the projected financial plan of the regional wastewater plant is provided in Table 7-9. This is an abbreviated summary of the detailed financial plan and analysis, which is provided in Appendix G. The O&M costs were estimated based on Coos Bay average full time employees, average employee cost, and the engineering estimates for O&M and FTEs determined in earlier chapter of this plan. These expenses are in 2012 dollars. Capital from rates was based on the total project cost of $75.8 million depreciated over 50 years, or $1.5 million in capital from rates. The debt service was estimated based on $75.8 million funded with revenue bonds at 4.75 percent over 20 years.

Table 7-9: Projected 6-year Financial Plan for Regional Treatment Plant - Coos Bay and North Bend

	Thousands $					
Expenses	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**
Expenses						
O&M	$940	$968	$997	$1,028	$1,059	$1,092
Capital from Rates	1,570	1,620	1,680	1,740	1,800	1,860
Net Debt Service	7,009	7,009	7,009	7,009	7,009	7,009
Working Capital	0	0	0	0	0	0
Total Requirement	$9,519	$9,597	$9,686	$9,777	$9,868	$9,961
Number of Customers	10,382	10,434	10,486	10,538	10,591	10,644
Annual Cost per Customer	$917	$920	$924	$928	$932	$936
Average Dry Flow, MGD	4.1	4.1	4.2	4.2	4.2	4.2
Cost Per Gallon	$2.31	$2.32	$2.33	$2.34	$2.35	$2.36

The resulting costs shown in Table 7-9 can be compared to the total combined operational costs of the City of Coos Bay and North Bend shown in Table 7-10. These are estimates based on actual existing operating costs. It is important to note that the Cities' costs also include collection and administration. The Regional costs evaluated herein include only treatment and some administrative costs. Therefore, each City will have local additional collection costs and administration in addition to the regional treatment costs shown above.

Table 7-10: Projected Combined 6 year Financial Plan for Coos Bay and North Bend

	Thousands $					
	2013	**2014**	**2015**	**2016**	**2017**	**2018**
Coos Bay Expenses (Tbl. 7-7)	$4,735	$4,861	$4,991	$5,125	$5,263	$5,405
Number of Customers	5,971	6,001	6,031	6,061	6,091	6,121
Annual Cost per Customer	$793	$810	$828	$846	$864	$883
Average Dry Weather Flow	2.5	2.5	2.5	2.6	2.6	2.6
Cost Per Gallon	$1.88	$1.93	$1.97	$2.01	$2.05	$2.10
North Bend Exps. (Tbl. 7-8)	$2,310	$2,387	$2,467	$2,549	$2,635	$2,723
Number of Customers	4,411	4,433	4,455	4,477	4,500	4,522
Annual Cost per Customer	$524	$539	$554	$569	$586	$602
Average Dry Weather Flow	1.6	1.6	1.6	1.6	1.6	1.6
Cost Per Gallon	$1.44	$1.48	$1.52	$1.56	$1.61	$1.65
Combined Projections	**$7,045**	**$7,248**	**$7,458**	**$7,674**	**$7,897**	**$8,128**
Number of Customers	**10,382**	**10,434**	**10,486**	**10,538**	**10,591**	**10,644**
Annual Cost per Customer	$679	$695	$711	$728	$746	$764
Average Dry Weather Flow	**4.1**	**4.1**	**4.2**	**4.2**	**4.2**	**4.2**
Cost Per Gallon	**$1.71**	**$1.75**	**$1.79**	**$1.83**	**$1.88**	**$1.92**

On a combined basis, in 2013 dollars, the Cities of Coos Bay and North Bend are currently paying $1.71 per gallon for treatment, collection and administration. However, the expenses of each City cannot be combined in this fashion, and divided by total number of customers because the systems are not set up to operate in a coordinated fashion. As can be seen in Table 7-9, for regional treatment only, not including collection and administration costs, the customers would be paying $2.31 per gallon in 2013 dollars. It is evident that costs will need to include beyond that level to account for collection costs. It does appear that regional treatment will be an increased expense, in particular for North Bend, when compared to today's treatment and costs on the individual City basis. This financial assessment does NOT includes the $24M capital costs of treatment plant expansion that Coos Bay is currently in the process of undertaking, as the assumption is that they would not be expended if a regional plant is implemented. Those costs would otherwise appear in the year 2014, with the increased debt to pay for that expansion in Coos Bay.

It is also important to look at the triple-bottom line elements of a project such as the regional wastewater treatment facilities. There can be many economic, social and environmental benefits or attributes to the project that should be monetized in order to get a full and well rounded perspective of the project. This type of analysis goes beyond the financial/rate only perspective and monetizes the full range of attributes of the project.

7.8 Phase 1 Pump Station and Pipeline Financial Projections for Coos Bay Only

An additional financial analysis for the City of Coos Bay was completed where the City completes the WWTP changes it is currently pursuing, and improves the pump station, adding a pipeline to bring discharge to the North Spit. This alternative analysis is described below.

Pump Station capital cost estimates are approximately $10 million in 2012 dollars. The O&M included 1.25 additional FTEs, primarily for the pump station, based on current City salary and personnel cost averages. If the City is adding additional FTEs for its treatment plant expansion and upgrades, that would be in addition to these projections. All expenses, including the electricity and materials and supplies for the Pump station projects are from the engineering estimate provided in Appendix H. The capital from rates was based on the $10 million pump station being depreciated over 50 years or $250,000 dollars.

Additionally, the City would need to complete the treatment plant expansion and upgrades it is currently preparing if the regional plant were not implemented in the near term. The assumed debt service for the $24.4 million treatment plant project is estimated to be $1.9 million annually at 4.75% interest over 20 years. The City may receive low-interest loan financing for a portion of the project, so this estimate could be considered conservative. Debt payments were assumed to begin in 2014. Depreciation for the new treatment plant was estimated to be implemented gradually, at only 50% for this first 5 year period while the plant is new. That is an additional $250,000 in rate funding per year, included in "Capital From Rates" in the table below, where it is combined with the capital from rates above, for the Pump Station.

A summary of the financial analysis of these two major capital improvements is provided in Table 7-11. This is an abbreviated summary of the detailed financial plan and analysis, which is provided in the Appendix G.

Table 7-11: Projected 6 year Financial Plan for Phase I Lift Station and Pipeline, Coos Bay Only

	Thousands $					
Expenses	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**
Expenses						
O&M	$193	$199	$205	$212	$218	$225
Capital from Rates	480	500	520	540	560	580
Net Debt Service	870	2,787	2,787	2,787	2,787	2,787
Working Capital	0	0	0	0	0	0
Total Requirement	$1,543	$3,486	$3,512	$3,539	$3,565	$3,592
Number of Customers	5,971	6,001	6,031	6,061	6,091	6,121
Annual Cost per	$259	$581	$582	$584	$585	$587

Table 7-11: Projected 6 year Financial Plan for Phase I Lift Station and Pipeline, Coos Bay Only

Thousands $						
Expenses	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**
Customer						
Average Dry Weather Flow	2.5	2.5	2.5	2.6	2.6	2.6
Cost Per Gallon	$0.61	$1.38	$1.38	$1.39	$1.39	$1.39

The resulting costs shown in Table 7-11 are added to the projected existing operational costs of the City of Coos Bay. Table 7-12 below shows the combined operational costs.

Table 7-12: Projected Combined Six Year Financial Plan for Coos Bay Only

Thousands $						
	2013	**2014**	**2015**	**2016**	**2017**	**2018**
Coos Bay Expense: Table 7-7	$4,735	$4,861	$4,991	$5,125	$5,263	$5,405
Number of Customers	5,971	6,001	6,031	6,061	6,091	6,121
Annual Cost per Customer	$793	$810	$828	$846	$864	$883
Average Dry Weather Flow	2.5	2.5	2.5	2.6	2.6	2.6
Cost Per Gallon	$1.88	$1.93	$1.97	$2.01	$2.05	$2.10
Combined with Table 7-11	**$6,279**	**$8,347**	**$8,503**	**$8,663**	**$8,828**	**$8,997**
Number of Customers	**5,971**	**6,001**	**6,031**	**6,061**	**6,091**	**6,121**
Annual Cost per Customer	$1,052	$1,391	$1,410	$1,429	$1,449	$1,470
Average Dry Weather Flow	**2.5**	**2.5**	**2.5**	**2.6**	**2.6**	**2.6**
Cost Per Gallon	**$2.50**	**$3.31**	**$3.35**	**$3.40**	**$3.44**	**$3.49**

Obviously, any additional facilities to Coos Bay will be an additional cost. Again, the triple-bottom line approach may be an appropriate next step in analyzing the feasibility and reasonableness of either the treatment plant or this Phase 1 step. A "Sustainable Return on Investment" analysis can evaluate the social, economic, environmental, and financial attributes of these projects to determine their true costs and benefits to the community as a whole. A sustainable return on investment process would be conducted with the regional players to gain consensus on project attributes. Then the attributes would be researched and monetized, to the degree possible, to help determine a triple-bottom line financial result that includes social, economic, and environmental aspects of the project.

7.9 Summary

The financial plan results presented in this section indicate that the potential wastewater rates for the regional plant compared on an annual cost per customer and cost per gallon are within the range of current operating expenses for treatment and collection. The important piece to keep in mind is that the regional costs are only for treatment; collection and some administrative costs would be additive. All costs used for these analyses are in 2012 dollars.

A potential next step in the evaluation process may be to determine a sustainable return on investment for the regional treatment plant and Phase 1 projects. This could provide the community with a comprehensive picture of the true costs of the projects, and the cost of not doing the projects. This evaluation would consider social and environmental project attributes, along with financial aspects.

8.0 Recommended Plan

The cost of implementing a regional wastewater facility on the North Spit are substantial and would require considerable discussions and agreement with regional partners to outline costs and benefits to each prior to implementation. That said, the existence of the North Spit facilities and associated ocean discharge permit are regional assets which should be leverage in the longer term. In the lifespan of this facilities plan, however, it has been determined that the conditions were not in place to implement domestic wastewater treatment facilities within the next five years, after which another plan would be required. The information in this plan should be helpful in this next phase.

Appendix A:
NPDES Permit No. 101499

ISSUED

Expiration Date: 5-31-2009
Permit Number: 101499
File Number: 96255

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM
WASTE DISCHARGE PERMIT

Department of Environmental Quality
Western Region - Salem Office
750 Front St. NE, Suite 120, Salem, OR 97301-1039
Telephone: (503) 378-8240

Issued pursuant to ORS 468B.050 and The Federal Clean Water Act

ISSUED TO:

Weyerhaeuser Co. – N. Bend
PO Box 329
North Bend OR 97459

SOURCES COVERED BY THIS PERMIT:

Type of Wastewater	Outfall Number	Outfall Location
Landfill leachate, storm water, residual paper mill waste, miscellaneous wash water	001(a)	Pacific Ocean
Deflation plain stormwater	001(b)	Pacific Ocean
Deflation plain seepage	002	Pacific Ocean and Coos Bay
North and South Pond Seepage	003	Coos Bay

FACILITY TYPE:

Non-bleach Corrugated Paper Mill – permanently closed

RECEIVING STREAM INFORMATION:

Basin: South Coast
Sub-Basin: Coos
Stream: Pacific Ocean
LLID: 1242091436511-25.6-D
County: Coos

EPA REFERENCE NO: OR-000211-9

Issued in response to Application No. 986626 received February 5, 2002.
This permit is issued based on the land use findings in the permit record.

Mark E Hamlin
for Michael H. Kortenhof, Western Region Water Quality Manager

June 25, 2004
Date

PERMITTED ACTIVITIES

Until this permit expires or is modified or revoked, the permittee is authorized to construct, install, modify, or operate a wastewater collection, treatment, control and disposal system and discharge to public waters adequately treated wastewaters only from the authorized discharge point or points established in Schedule A and only in conformance with all the requirements, limitations, and conditions set forth in the attached schedules as follows:

Unless specifically authorized by this permit, by another NPDES or WPCF permit, or by Oregon Administrative Rule, any other direct and indirect discharge to waters of the state is prohibited, including discharge to an underground injection control system.

SCHEDULE A

1. **Waste Discharge Limitations not to be exceeded after permit issuance.**

   a. Outfall 001(a) (Discharge of Process Wastewater to Ocean)

Parameters	Limit
pH	Shall not be outside the range of 6.0 – 9.0

   b. Outfall 001(b) (Discharge from Deflation Plain)

Parameters	Limit
Oil and Grease	Shall not exceed 10 mg/L
Visible Solids	No visible discharge allowed
Debris (see Note 1)	No discharge allowed
pH	Shall not be outside the range of 6.0 – 9.0

2. Except as provided for in OAR 340-045-0080, no wastes shall be discharged and no activities shall be conducted which violate Water Quality Standards as adopted in OAR 340-041 except in the following defined mixing zone:

   The mixing zone shall consist of that portion of the Pacific Ocean extending from the ocean floor to the surface and 500 feet laterally in all directions from the diffuser outfall.

3. All wastewater and process related residuals shall be managed and disposed of in a manner that will prevent: A violation of the Department's Groundwater Quality Protection Rules (OAR 340-040); and A violation of any permit-specific groundwater concentration limits, established pursuant to OAR 340-040-0030, which may be subsequently incorporated into this permit.

4. The Department may reopen this permit, if necessary, to include groundwater parameters, concentration limits, and compliance points based on investigations conducted by the Department's Cleanup program.

NOTES:

1. Debris is defined as anything that will be retained by a 5 mesh screen.

SCHEDULE B

1. **Minimum Monitoring and Reporting Requirements to be met after permit issuance** (unless otherwise approved in writing by the Department).

The permittee shall monitor the parameters as specified below at the locations indicated. The laboratory used by the permittee to analyze samples shall have a quality assurance/quality control (QA/QC) program to verify the accuracy of sample analysis. If QA/QC requirements are not met for any analysis and cannot be re-analyzed, then the results shall be included in the report, but not used in calculations required by this permit. When the permittee cannot re-analyze the existing sample, then they shall re-sample in a timely manner for parameters failing the QA/QC requirements, analyze the samples, and report the results.

a. Outfall 001 (Discharge of wastewater to Pacific Ocean)

Item or Parameter	Minimum Frequency	Type of Sample
Flow	Daily	Continuous *
BOD5	2/month	24-hour composite
TSS	2/month	24-hour composite
pH	2/month	Grab

* In the event that the flow measurement system fails, permittee shall notify the Department within 48 hours. Flows shall be estimated daily based on leachate flow, pond levels, and rainfall records until the system has been repaired. Flow measurement system shall be fixed within 30 days of failure being noticed.

b. Outfall 001(b) (Discharge from deflation plain)

Item or Parameter	Minimum Frequency	Type of Sample
Oil & Grease	Weekly (when discharging)	Visual observation
Visible Solids	Weekly (when discharging)	Visual observation
Debris	Weekly (when discharging)	Visual observation
pH	Weekly (when discharging)	Grab
BOD_5	Weekly (when discharging)	Grab
TSS	Weekly (when discharging)	Grab

c. Outfall 002 (Seepage from the deflation plain and aeration stabilization basin) and Outfall 003 (Seepage from the north and south settling basins)**

**Monitoring for these outfalls is covered under the existing site groundwater monitoring plan, and will be updated as necessary based on the results of the closure investigation described in Schedule C. Discharges from these outfalls are regulated as state-only discharges under Oregon's groundwater protection rules and ORS 468B.050, not the Federal Clean Water Act.

2. **Reporting Procedures**

a. Monitoring results shall be reported on approved forms. The reporting period is the calendar month. Reports must be submitted to the appropriate Department office by the 15th day of the following month.

b. For compliance, the analytical results below the level of detection should be reported as Not Detected and the detection limit listed.

SCHEDULE C

Compliance Schedules and Conditions

1. The permittee has entered into an agreement with the Department to evaluate the potential impacts of residual sludges in the north and south settling basins, the Deflation Plain (former lagoon), and the Aeration Stabilization Basin. Based on this evaluation, no later than one year from permit issuance the permittee shall provide the Department with closure proposals for the north and south settling basins, the Deflation Plain (former lagoon), and the Aeration Stabilization Basin, unless an alternative date is negotiated with the Department's Cleanup Section.

2. The permittee is expected to meet the compliance dates which have been established in this schedule. Either prior to or no later than fourteen days following any lapsed compliance date, the permittee shall submit to the Department a notice of compliance or noncompliance with the established schedule. The Department may revise a schedule of compliance if it determines good and valid cause resulting from events over which the permittee has little or no control.

SCHEDULE D

Special Conditions

1. The permittee shall have a contingency plan for prevention and handling of spills and unplanned discharges and the plan shall be in force at all times.

2. Sanitary wastes shall be disposed of to a septic tank and subsurface disposal system (or by other approved means) which is installed, operated, and maintained in accordance with the requirements of the Department of Environmental Quality and the local health department and in a manner which will prevent inadequately sanitary wastewater from entering any waters of the state or from becoming a nuisance or health hazard.

3. An environmental supervisor or designee shall be designated to coordinate and carry out all necessary functions related to maintenance and operation of waste collection, treatment, and disposal facilities. This person must have access to all information pertaining to the generation of wastes in the various process areas.

4. The permittee is required to notify the DEQ Coos Bay office (PH: 541-269-2721) during regular office hours and OERS (PH: 800-452-0311) other times of any plant malfunction that may cause environmental or health impacts so corrective action can be coordinated between the permittee and the Department.

5. Permittee shall not make any site or process changes that will cause an increase in effluent temperature without prior written approval from the Department.

6. Permittee shall limit site industrial activities to building and equipment maintenance, landfill operations, equipment removal and storage, demolition and infrastructure modifications and/or improvements.

7. Management and Maintenance of Groundwater Monitoring Wells

   a. The permittee shall protect and maintain each groundwater monitoring well so that samples collected are representative of actual conditions.

   b. All monitoring well abandonments, replacements, repairs, and installations must be conducted in accordance with the Water Resources Department Oregon Administrative Rules, Chapter 690, Division 240, and with the Department's guidance "Groundwater Monitoring Well Drilling, Construction, and Decommissioning", dated August 22, 1992. All monitoring well abandonments, replacements, repairs, and installations must be documented in a report prepared by an Oregon registered geologist.

   c. If a monitoring well becomes damaged or inoperable, the permittee shall notify the Department in writing within 14 days of when the permittee becomes aware of the circumstances. The written report shall describe: what problem has occurred, the remedial measures that have been or will be taken to correct the problem, and the measures taken to prevent the recurrence of damage or in operation. The Department may require the replacement of inoperable monitoring wells.

   d. Prior to installation of new or replacement monitoring wells, the placement or design must be approved in writing by the Department. Well logs and a well completion report shall be submitted to the Department within thirty (30) days of installation of the well. The report shall include a survey drawing showing the location of all monitoring wells, disposal sites, and water bodies.

   e. Prior to abandonment of existing wells deemed unsuitable for groundwater monitoring, an abandonment plan must be submitted to the Department for review and approval.

SECTION A. STANDARD CONDITIONS

1. Duty to Comply

The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of Oregon Revised Statutes (ORS) 468B.025 and is grounds for enforcement action; for permit termination, suspension, or modification; or for denial of a permit renewal application.

2. Penalties for Water Pollution and Permit Condition Violations

Oregon Law (ORS 468.140) allows the Director to impose civil penalties up to $10,000 per day for violation of a term, condition, or requirement of a permit.

In addition, a person who unlawfully pollutes water as specified in ORS 468.943 or ORS 468.946 is subject to criminal prosecution.

3. Duty to Mitigate

The permittee shall take all reasonable steps to minimize or prevent any discharge or sludge use or disposal in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment. In addition, upon request of the Department, the permittee shall correct any adverse impact on the environment or human health resulting from noncompliance with this permit, including such accelerated or additional monitoring as necessary to determine the nature and impact of the noncomplying discharge.

4. Duty to Reapply

If the permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the permittee must apply for and have the permit renewed. The application shall be submitted at least 180 days before the expiration date of this permit.

The Director may grant permission to submit an application less than 180 days in advance but no later than the permit expiration date.

5. Permit Actions

This permit may be modified, suspended, revoked and reissued, or terminated for cause including, but not limited to, the following:

a. Violation of any term, condition, or requirement of this permit, a rule, or a statute;

b. Obtaining this permit by misrepresentation or failure to disclose fully all material facts; or

c. A change in any condition that requires either a temporary or permanent reduction or elimination of the authorized discharge.

The filing of a request by the permittee for a permit modification or a notification of planned changes or anticipated noncompliance, does not stay any permit condition.

6. Toxic Pollutants

The permittee shall comply with any applicable effluent standards or prohibitions established under Section 307(a) of the Clean Water Act for toxic pollutants within the time provided in the regulations that establish those standards or prohibitions, even if the permit has not yet been modified to incorporate the requirement.

7. Property Rights

The issuance of this permit does not convey any property rights of any sort, or any exclusive privilege.

8. Permit References

Except for effluent standards or prohibitions established under Section 307(a) of the Clean Water Act for toxic pollutants and standards for sewage sludge use or disposal established under Section 405(d) of the Clean Water Act, all rules and statutes referred to in this permit are those in effect on the date this permit is issued.

SECTION B. OPERATION AND MAINTENANCE OF POLLUTION CONTROLS

1. Proper Operation and Maintenance

The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance also includes adequate laboratory controls, and appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems which are installed by a permittee only when the operation is necessary to achieve compliance with the conditions of the permit.

2. Duty to Halt or Reduce Activity

For industrial or commercial facilities, upon reduction, loss, or failure of the treatment facility, the permittee shall, to the extent necessary to maintain compliance with its permit, control production or all discharges or both until the facility is restored or an alternative method of treatment is provided. This requirement applies, for example, when the primary source of power of the treatment facility fails or is reduced or lost. It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

3. Bypass of Treatment Facilities

a. Definitions

(1) "Bypass" means intentional diversion of waste streams from any portion of the treatment facility. The term "bypass" does not include nonuse of singular or multiple units or processes of a treatment works when the nonuse is insignificant to the quality and/or quantity of the effluent produced by the treatment works. The term "bypass" does not apply if the diversion does not cause effluent limitations to be exceeded, provided the diversion is to allow essential maintenance to assure efficient operation.

(2) "Severe property damage" means substantial physical damage to property, damage to the treatment facilities or treatment processes which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.

b. Prohibition of bypass.

(1) Bypass is prohibited unless:

(a) Bypass was necessary to prevent loss of life, personal injury, or severe property damage;

(b) There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate backup equipment should have been installed in the exercise of reasonable engineering judgement to prevent a bypass which occurred during normal periods of equipment downtime or preventative maintenance; and

(c) The permittee submitted notices and requests as required under General Condition B.3.c.

(2) The Director may approve an anticipated bypass, after considering its adverse effects and any alternatives to bypassing, when the Director determines that it will meet the three conditions listed above in General Condition B.3.b.(1).

c. Notice and request for bypass.

(1) Anticipated bypass. If the permittee knows in advance of the need for a bypass, it shall submit prior written notice, if possible at least ten days before the date of the bypass.

(2) Unanticipated bypass. The permittee shall submit notice of an unanticipated bypass as required in General Condition D.5.

4. Upset

a. Definition. "Upset" means an exceptional incident in which there is unintentional and temporary noncompliance with technology based permit effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operation error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventative maintenance, or careless or improper operation.

b. Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with such technology based permit effluent limitations if the requirements of General Condition B.4.c are met. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review.

c. Conditions necessary for a demonstration of upset. A permittee who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:

(1) An upset occurred and that the permittee can identify the causes(s) of the upset;

(2) The permitted facility was at the time being properly operated;

(3) The permittee submitted notice of the upset as required in General Condition D.5, hereof (24-hour notice); and

(4) The permittee complied with any remedial measures required under General Condition A.3 hereof.

d. Burden of proof. In any enforcement proceeding the permittee seeking to establish the occurrence of an upset has the burden of proof.

5. Treatment of Single Operational Event

For purposes of this permit, A Single Operational Event which leads to simultaneous violations of more than one pollutant parameter shall be treated as a single violation. A single operational event is an exceptional incident which causes simultaneous, unintentional, unknowing (not the result of a knowing act or omission), temporary noncompliance with more than one Clean Water Act effluent discharge pollutant parameter. A single operational event does not include Clean Water Act violations involving discharge without a NPDES permit or noncompliance to the extent caused by improperly designed or inadequate treatment facilities. Each day of a single operational event is a violation.

6. Overflows from Wastewater Conveyance Systems and Associated Pump Stations

a. Definitions

(1) "Overflow" means the diversion and discharge of waste streams from any portion of the wastewater conveyance system including pump stations, through a designed overflow device or structure, other than discharges to the wastewater treatment facility.

(2) "Severe property damage" means substantial physical damage to property, damage to the conveyance system or pump station which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of an overflow.

(3) "Uncontrolled overflow" means the diversion of waste streams other than through a designed overflow device or structure, for example to overflowing manholes or overflowing into residences, commercial establishments, or industries that may be connected to a conveyance system.

b. Prohibition of overflows. Overflows are prohibited unless:

(1) Overflows were unavoidable to prevent an uncontrolled overflow, loss of life, personal injury, or severe property damage;

(2) There were no feasible alternatives to the overflows, such as the use of auxiliary pumping or conveyance systems, or maximization of conveyance system storage; and

(3) The overflows are the result of an upset as defined in General Condition B.4. and meeting all requirements of this condition.

c. Uncontrolled overflows are prohibited where wastewater is likely to escape or be carried into the waters of the State by any means.

d. Reporting required. Unless otherwise specified in writing by the Department, all overflows and uncontrolled overflows must be reported orally to the Department within 24 hours from the time the permittee becomes aware of the overflow. Reporting procedures are described in more detail in General Condition D.5.

7. Public Notification of Effluent Violation or Overflow

If effluent limitations specified in this permit are exceeded or an overflow occurs, upon request by the Department, the permittee shall take such steps as are necessary to alert the public about the extent and nature of the discharge. Such steps may include, but are not limited to, posting of the river at access points and other places, news releases, and paid announcements on radio and television.

8. Removed Substances

Solids, sludges, filter backwash, or other pollutants removed in the course of treatment or control of wastewaters shall be disposed of in such a manner as to prevent any pollutant from such materials from entering public waters, causing nuisance conditions, or creating a public health hazard.

SECTION C. MONITORING AND RECORDS

1. Representative Sampling

Sampling and measurements taken as required herein shall be representative of the volume and nature of the monitored discharge. All samples shall be taken at the monitoring points specified in this permit and shall be taken, unless otherwise specified, before the effluent joins or is diluted by any other waste stream, body of water, or substance. Monitoring points shall not be changed without notification to and the approval of the Director.

2. Flow Measurements

Appropriate flow measurement devices and methods consistent with accepted scientific practices shall be selected and used to ensure the accuracy and reliability of measurements of the volume of monitored discharges. The devices shall be installed, calibrated and maintained to insure that the accuracy of the measurements is consistent with the accepted capability of that type of device. Devices selected shall be capable of measuring flows with a maximum deviation of less than ± 10 percent from true discharge rates throughout the range of expected discharge volumes.

3. Monitoring Procedures

Monitoring must be conducted according to test procedures approved under 40 CFR Part 136, unless other test procedures have been specified in this permit.

4. Penalties of Tampering

The Clean Water Act provides that any person who falsifies, tampers with, or knowingly renders inaccurate, any monitoring device or method required to be maintained under this permit shall, upon conviction, be punished by a fine of not more than $10,000 per violation, or by imprisonment for not more than two years, or by both. If a conviction of a person is for a violation committed after a first conviction of such person, punishment is a fine not more than $20,000 per day of violation, or by imprisonment of not more than four years or both.

5. Reporting of Monitoring Results

Monitoring results shall be summarized each month on a Discharge Monitoring Report form approved by the Department. The reports shall be submitted monthly and are to be mailed, delivered or otherwise transmitted by the 15th day of the following month unless specifically approved otherwise in Schedule B of this permit.

6. Additional Monitoring by the Permittee

If the permittee monitors any pollutant more frequently than required by this permit, using test procedures approved under 40 CFR 136 or as specified in this permit, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the Discharge Monitoring Report. Such increased frequency shall also be indicated. For a pollutant parameter that may be sampled more than once per day (e.g., Total Chlorine Residual), only the average daily value shall be recorded unless otherwise specified in this permit.

7. Averaging of Measurements

Calculations for all limitations which require averaging of measurements shall utilize an arithmetic mean, except for bacteria which shall be averaged as specified in this permit.

8. Retention of Records

Except for records of monitoring information required by this permit related to the permittee's sewage sludge use and disposal activities, which shall be retained for a period of at least five years (or longer as required by 40 CFR part 503), the permittee shall retain records of all monitoring information, including all calibration and maintenance records of all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this permit, for a period of at least 3 years from the date of the sample, measurement, report or application. This period may be extended by request of the Director at any time.

9. Records Contents

Records of monitoring information shall include:

a. The date, exact place, time and methods of sampling or measurements;

b. The individual(s) who performed the sampling or measurements;

c. The date(s) analyses were performed;

d. The individual(s) who performed the analyses;

e. The analytical techniques or methods used; and

f. The results of such analyses.

10. Inspection and Entry

The permittee shall allow the Director, or an authorized representative upon the presentation of credentials to:

a. Enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit;

b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;

c. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit, and

d. Sample or monitor at reasonable times, for the purpose of assuring permit compliance or as otherwise authorized by state law, any substances or parameters at any location.

SECTION D. REPORTING REQUIREMENTS

1. Planned Changes

The permittee shall comply with Oregon Administrative Rules (OAR) 340, Division 52, "Review of Plans and Specifications". Except where exempted under OAR 340-52, no construction, installation, or modification involving disposal systems, treatment works, sewerage systems, or common sewers shall be commenced until the plans and specifications are submitted to and approved by the Department. The permittee shall give notice to the Department as soon as possible of any planned physical alternations or additions to the permitted facility.

2. Anticipated Noncompliance

The permittee shall give advance notice to the Director of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.

3. Transfers

This permit may be transferred to a new permittee provided the transferee acquires a property interest in the permitted activity and agrees in writing to fully comply with all the terms and conditions of the permit and the rules of the Commission. No permit shall be transferred to a third party without prior written approval from the Director. The permittee shall notify the Department when a transfer of property interest takes place.

4. Compliance Schedule

Reports of compliance or noncompliance with, or any progress reports on interim and final requirements contained in any compliance schedule of this permit shall be submitted no later than 14 days following each schedule date. Any reports of noncompliance shall include the cause of noncompliance, any remedial actions taken, and the probability of meeting the next scheduled requirements.

5. Twenty-Four Hour Reporting

The permittee shall report any noncompliance which may endanger health or the environment. Any information shall be provided orally (by telephone) within 24 hours, unless otherwise specified in this permit, from the time the permittee becomes aware of the circumstances. During normal business hours, the Department's Regional office shall be called. Outside of normal business hours, the Department shall be contacted at 1-800-452-0311 (Oregon Emergency Response System).

A written submission shall also be provided within 5 days of the time the permittee becomes aware of the circumstances. If the permittee is establishing an affirmative defense of upset or bypass to any offense under ORS 468.922 to 468.946, and in which case if the original reporting notice was oral, delivered written notice must be made to the Department or other agency with regulatory jurisdiction within 4 (four) calendar days. The written submission shall contain:

a. A description of the noncompliance and its cause;

b. The period of noncompliance, including exact dates and times;

c. The estimated time noncompliance is expected to continue if it has not been corrected;

d. Steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance; and

e. Public notification steps taken, pursuant to General Condition B.7.

The following shall be included as information which must be reported within 24 hours under this paragraph:

a. Any unanticipated bypass which exceeds any effluent limitation in this permit.

b. Any upset which exceeds any effluent limitation in this permit.

c. Violation of maximum daily discharge limitation for any of the pollutants listed by the Director in this permit.

The Department may waive the written report on a case-by-case basis if the oral report has been received within 24 hours.

6. Other Noncompliance

The permittee shall report all instances of noncompliance not reported under General Condition D.4 or D.5, at the time monitoring reports are submitted. The reports shall contain:

a. A description of the noncompliance and its cause;

b. The period of noncompliance, including exact dates and times;

c. The estimated time noncompliance is expected to continue if it has not been corrected; and

d. Steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.

7. Duty to Provide Information

The permittee shall furnish to the Department, within a reasonable time, any information which the Department may request to determine compliance with this permit. The permittee shall also furnish to the Department, upon request, copies of records required to be kept by this permit.

Other Information: When the permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or any report to the Department, it shall promptly submit such facts or information.

8. Signatory Requirements

All applications, reports or information submitted to the Department shall be signed and certified in accordance with 40 CFR 122.22.

9. Falsification of Information

A person who supplies the Department with false information, or omits material or required information, as specified in ORS 468.953 is subject to criminal prosecution.

10. Changes to Indirect Dischargers - **[Applicable to Publicly Owned Treatment Works (POTW) only]**

The permittee must provide adequate notice to the Department of the following:

a. Any new introduction of pollutants into the POTW from an indirect discharger which would be subject to section 301 or 306 of the Clean Water Act if it were directly discharging those pollutants and;

b. Any substantial change in the volume or character of pollutants being introduced into the POTW by a source introducing pollutants into the POTW at the time of issuance of the permit.

c. For the purposes of this paragraph, adequate notice shall include information on (i) the quality and quantity of effluent introduced into the POTW, and (ii) any anticipated impact of the change on the quantity or quality of effluent to be discharged from the POTW.

11. Changes to Discharges of Toxic Pollutant - **[Applicable to existing manufacturing, commercial, mining, and silvicultural dischargers only]**

The permittee must notify the Department as soon as they know or have reason to believe of the following:

a. That any activity has occurred or will occur which would result in the discharge, on a routine or frequent basis, of any toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels:

(1) One hundred micrograms per liter (100 □g/L);

(2) Two hundred micrograms per liter (200 □g/L) for acrolein and acrylonitrile; five hundred micrograms per liter (500 □g/L) for 2,4-dinitrophenol and for 2-methyl-4,6-dinitrophenol; and one milligram per liter (1 mg/L) for antimony;

(3) Five (5) times the maximum concentration value reported for that pollutant in the permit application in accordance with 40 CFR 122.21(g)(7); or

(4) The level established by the Department in accordance with 40 CFR 122.44(f).

b. That any activity has occurred or will occur which would result in any discharge, on a non-routine or infrequent basis, of a toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels":

(1) Five hundred micrograms per liter (500 □g/L);

(2) One milligram per liter (1 mg/L) for antimony;

(3) Ten (10) times the maximum concentration value reported for that pollutant in the permit application in accordance with 40 CFR 122.21(g)(7); or

(4) The level established by the Department in accordance with 40 CFR 122.44(f).

SECTION E. DEFINITIONS

1. BOD means five-day biochemical oxygen demand.
2. TSS means total suspended solids.
3. mg/L means milligrams per liter.
4. kg means kilograms.
5. m^3/d means cubic meters per day.
6. MGD means million gallons per day.
7. Composite sample means a sample formed by collecting and mixing discrete samples taken periodically and based on time or flow.
8. FC means fecal coliform bacteria.
9. Technology based permit effluent limitations means technology-based treatment requirements as defined in 40 CFR 125.3, and concentration and mass load effluent limitations that are based on minimum design criteria specified in OAR 340-41.
10. CBOD means five day carbonaceous biochemical oxygen demand.
11. Grab sample means an individual discrete sample collected over a period of time not to exceed 15 minutes.

12. Quarter means January through March, April through June, July through September, or October through December.
13. Month means calendar month.
14. Week means a calendar week of Sunday through Saturday.
15. Total residual chlorine means combined chlorine forms plus free residual chlorine.
16. The term "bacteria" includes but is not limited to fecal coliform bacteria, total coliform bacteria, and E. coli bacteria.
17. POTW means a publicly owned treatment works.

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Updated 5-17-04 PN 199115 der

Appendix B:
Regional Conveyance System Evaluation

B. Regional Conveyance Evaluation

B.1 Introduction

There currently are not conveyance facilities to bring domestic wastewater from the Cities of Coos Bay and North Bend to the North Spit. In and effort to maximize existing infrastructure and leverage the ocean outfall, a phased approach to regional treatment could simply be to pump treated secondary effluent from Coos Bay and/or North Bend for discharge through the ocean outfall.

B.2 Preliminary Alternatives

Five different options for pumping of secondary effluent from the two existing Coos Bay WWTP 1 and WWTP 2 and North Bend WWTP were analyzed:

- **Option 1** pumps flows from Coos Bay WWTP 2 to the proposed discharge site across Coos Bay via single force main consisting of a 2.72 mile long open trench and 0.5 mile-long horizontal directional drilled (HDD) pipe sections.
- **Option 2** pumps flows from North bend WWTP to the proposed discharge side across the Coos Bay, via single force main consisting of a 0.78 mile-long open trench and 1.10 mile-long HDD pipe sections.
- **Option 3** pumps flows from Coos Bay WWTP 1 to the proposed discharge side across the Coos Bay, via single force main consisting of a 4.43 mile-long open trench and a 1.10 mile long HDD pipe section.
- **Option 4** pumps flows from Coos Bay WWTP 2 and North Bend WWWTP to the connection point of their associated force mains and then sends water across the Coos Bay to the proposed discharge site via an approximately 1.10 mile-long HDD and 0.4 mile long open trench pipe sections.
- **Option 5** pumps flows from Coos Bay WWTP 1 and 2 and North Bend WWWTP to the connection point of associated force mains and then sends water across the Coos Bay to the Proposed discharge site via approximately 1.1 mile long HDD and 0.4 long open trench pipe sections.

Figure B-1 through Figure B-5 illustrate the different scenarios.

Preliminary hydraulic calculations were conducted to estimate proposed force mains sizes. Force main sizes were selected based on Ductile Iron Pipe sizes. Pipe velocities range between 5 feet per second and 7 feet per second, and head losses average between 5 ft/1000 feet to 7 ft/1000 feet.

Different pipe sizes were selected for different design flows including current: average day (Q1) and peak day flows (Q2), as well as future Year 2027 average day (Q3) and peak daily flow (Q4).

B.3 Conceptual Cost Estimates

Preliminary cost estimating for each of selected option and force mains were based on pipe length, pipe diameter, applying a unit cost of installed pipeline of $12/inch/ft. This estimated unit pipe cost is based on installed pipe cost and recent bids in Portland Area.

The cost for the pump station was based on pump station capacity assuming the starting cost of 0.5 M plus the following unit costs:

- $0.25 M/per mgd for pump station between 1 and 5 MGD
- $0.2 M/mgd for PS between 6 and 10 MGD
- $0.150 M/mgd for PS between 11 and 15 MGD
- $0.150 M/mgd for PS between 16 and 20 MGD
- $0.125 M/MGD for PS capacity above 20 MGD.

Pump stations will be equipped with variable frequency drives attached to submersible or vertical turbine pumps. A stand-by power generator will be available on-site.

Figure B-1: Option 1 – Coos Way WWTP2 to Proposed Discharge Site

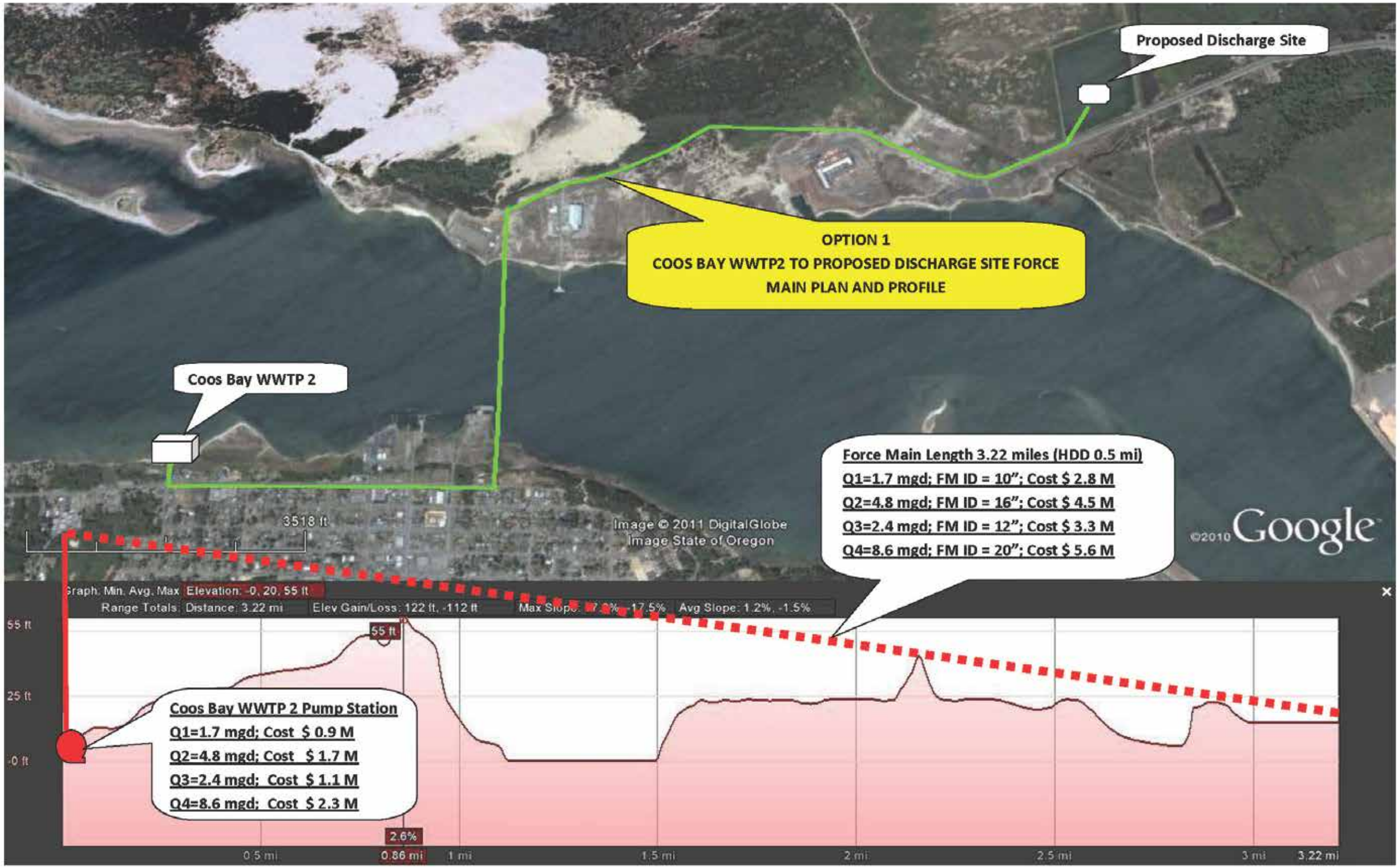


Figure B-2: Option 2 – North Bend WWTP to Proposed Discharge Site

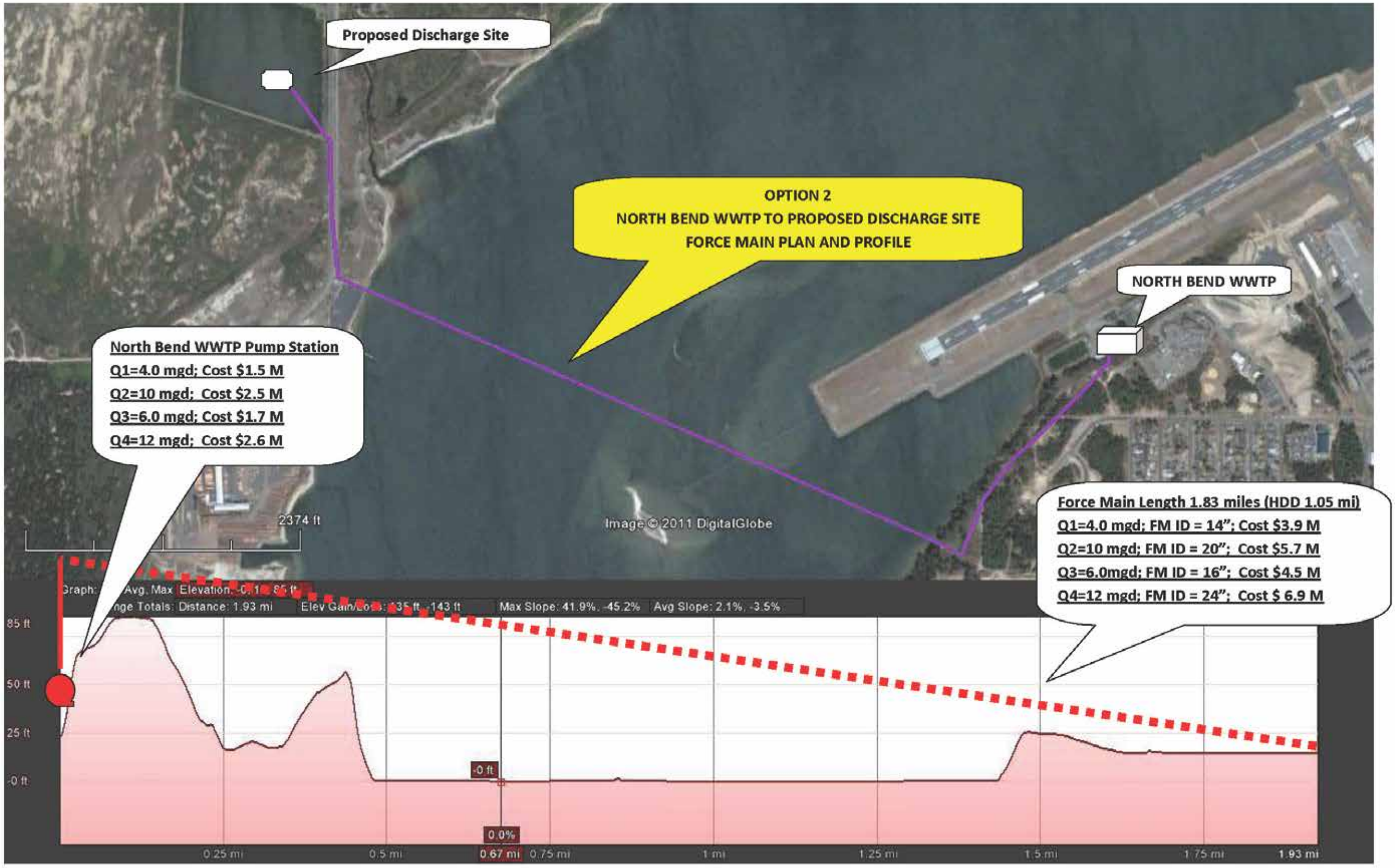


Figure B-3: Option 3 – Coos Bay WWTP1 to Proposed Discharge Site

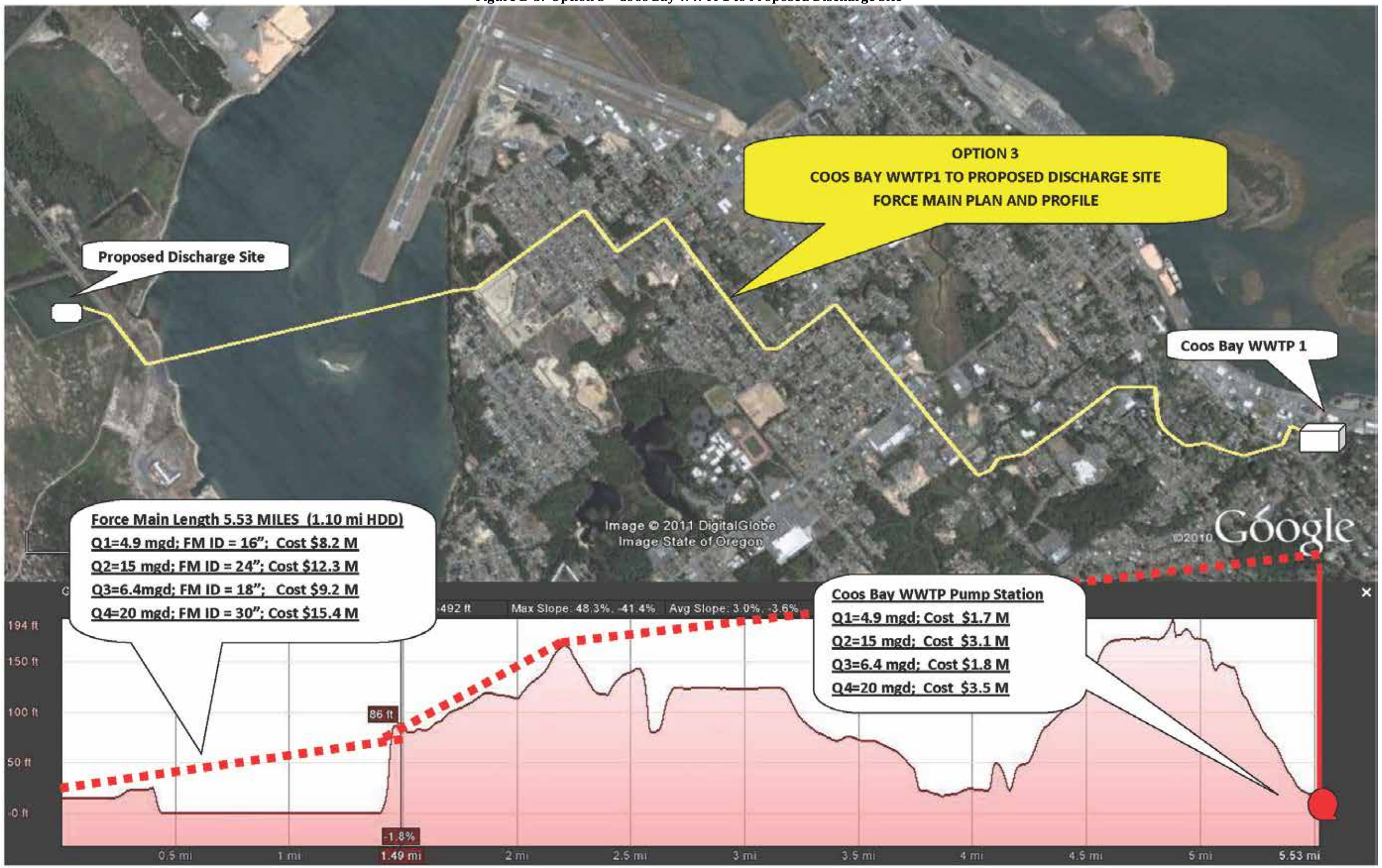


Figure B-4: Option 4–North Bend WWTP2 and Coos Bay WWTP2 to Proposed Discharge Site

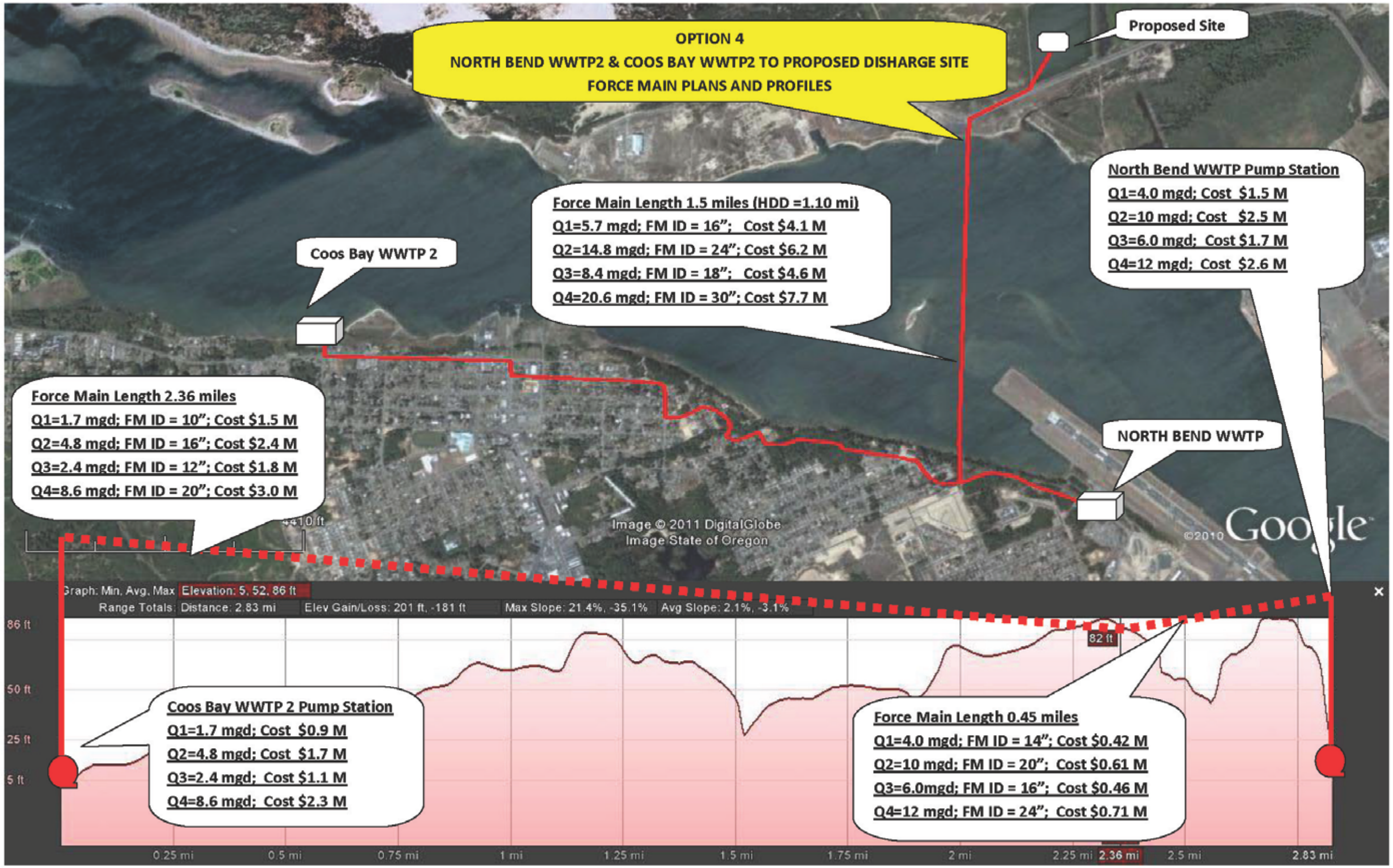
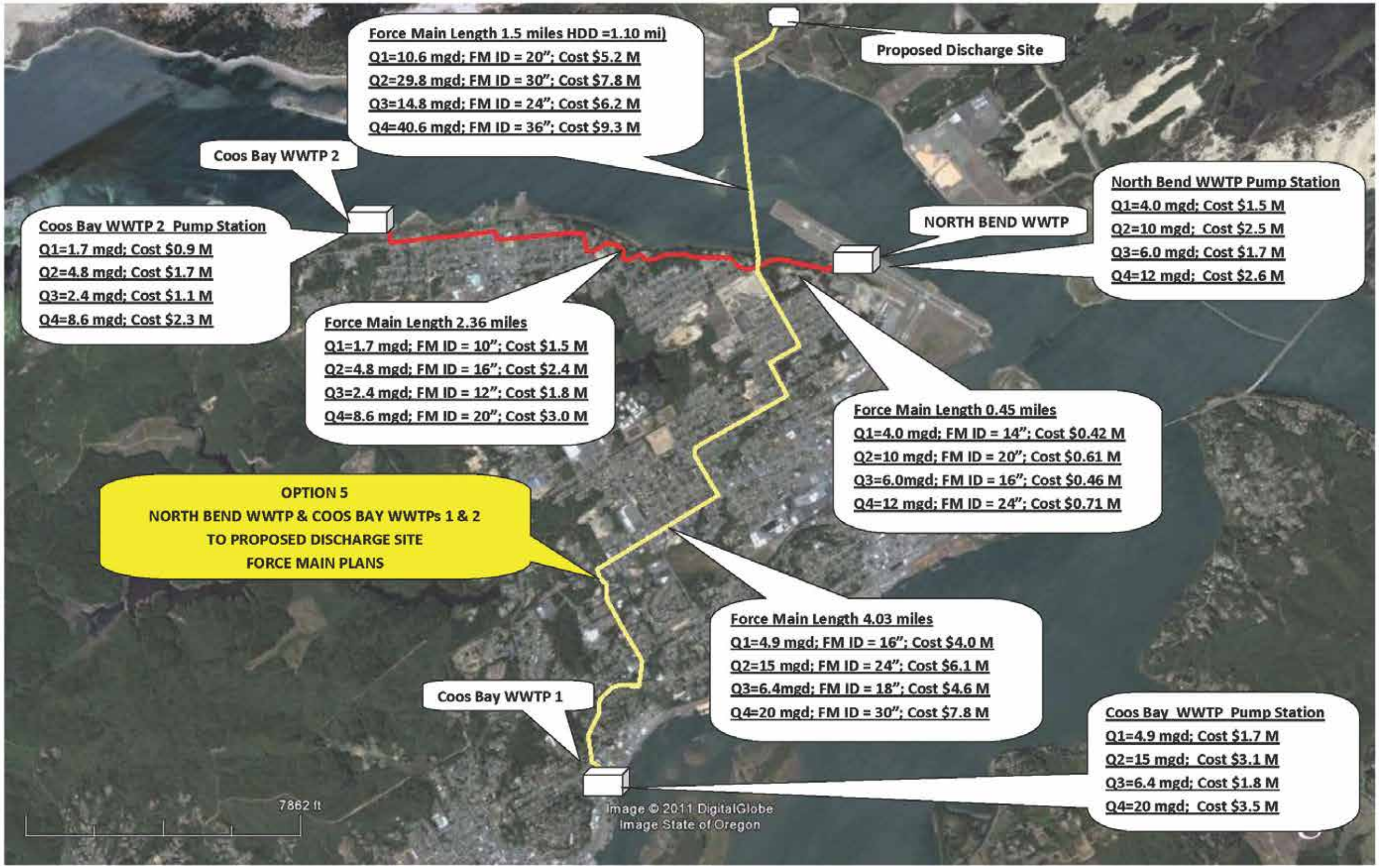


Figure B-5: Option 5 – North Bend WWTP and Coos Bay WWTPs 1 and 2 to Proposed Discharge Site



B.4 Coos Bay Plant No.2 Conveyance Only

Assuming a phased approach, preliminary evaluation of conveyance options only from Coos Bay Plant No.2 was completed. In this case the options include construction of a new effluent pump station at the plant, and construction of a new force main across the Bay to the existing Port of Coos Bay (the Port) Outfall structure (see Figure B-1).

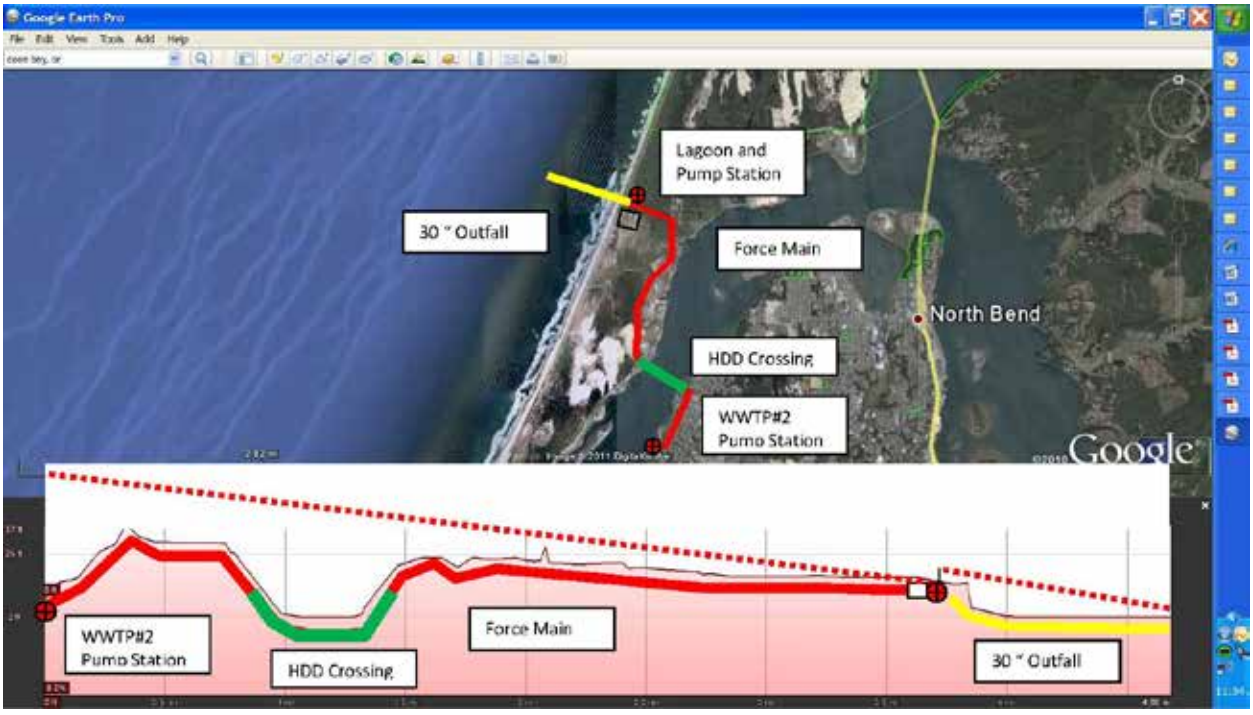


Figure B- 1 - Project Site, Effluent PS, Force Main and Outfall Structure

Two potential alternatives of this option were considered based on potential use of the existing outfall structure capacity and future agreement with the Port. Those alternatives include:

Alternative 1: Peak wet weather flows from the plant will be pumped directly to the Outfall structure and discharge at the maximum discharge rate of approximately 8 MGD.

Alternative 2: The Plant will pump peak flows to the existing detention pond adjacent to the Outfall structure. A new outfall pump station at the detention pond will be built to pump water to the outfall structure at the agreed discharge rates. The size of the outfall pump station will be further evaluated based on the agreement.

In addition to those two alternatives, WWTP#2 may explore option to build a wet weather flow treatment facility near the outfall structure and store water at the

detention pond that may be used for irrigation, fire protection, or commercial use if needed. This option will also require construction of effluent pump station at the WWTP#2 and a force main, same as in alternatives 1 and 2.

B.4.1 Use of Existing 8-inch HDD Crossing

There is an existing 8-inch HDD pipe crossing the bay, located further south of the proposed 20-inch crossing location. This 8-inch pipe has a maximum capacity of 1.1 MGD at approximate velocity of 5 fps and frictional head loss of about 13 ft/1000 feet of length. Due its relatively low capacity, and higher head loss, this pipe may not to be used by this project to pump primary effluent and was no longer considered for this plan.

B.4.2 North Spit Effluent Pump Station

A new Effluent pump Station will be built at the north Spit plant to replace the aging existing, with a firm capacity of 8 MGD. It will consist of a below ground wet well structure, equipped with a total of 5 variable speed pumps, two smaller pumps (one working and one standby) for flows between 0.1 and 2 MGD and three larger pumps (two working and one standby pump) each with a maximum capacity of approximately 4.0 MGD. The pump station may use five submersible wetwell pumps as shown below, or vertical turbine pumps installed on the upper wet well reinforced concrete slab. The pump station upper slab will be elevated slightly above the surrounding paved area and shall be equipped with a standby power generator, switchgear, portable pump crane, VFDs, Control panel and additional necessary mechanical, instrumentation and electrical equipment. To reduce the construction cost, all electrical equipment will be located under open air metal frame shelter with roof to protected from rain and sun.

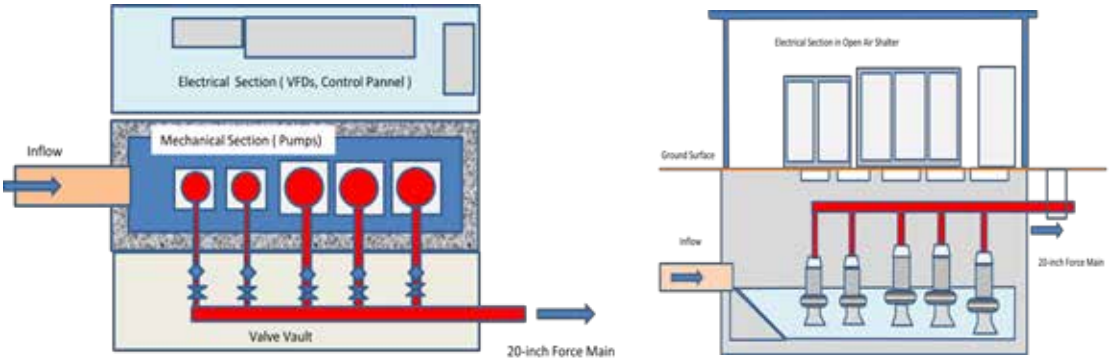


Figure B 2 - Effluent PS Plan and Section

For Alternative 1 (assuming that peak flow will be discharged at full rate of 8 MGD), smaller pumps shall be 45 Hp and larger pump shall be 180 Hp pumps. For **Alternative 2**, due to decrease in static head, required larger and smaller pump power shall be decreased by approximately 10% .

B.4.3 New Force Main

B.4.3.1 Alignment

The proposed force main shown in Figure B-1 will have a total length of approximately 20,000 ft. First 4.500 ft will be laid along the N. Empire Boulevard, next 2850 ft will be laid under the bay, using horizontal directional drilling method, and the rest of the pipeline (12,650 ft) will be built along the North Spit and Trans Pacific Hwy until the pipe turns on local road toward the existing Outfall structure. For this technical memorandum it is assumed that the force main will be sized to serve the Coos Bay WWTP#2 **only.** However, the Coos Bay WWTP#1 may also consider sending its wet weather flows across the Bay in future what may require additional capacity of the proposed force main HDD and the North Spit pipe sections.

To reduce construction, maintenance and operational cost, proposed force main alignment shall be further evaluated and may need to changed based on expected geotechnical conditions at the crossing, existing marina structures, mostly piles and other underground structures that may exist along the crossing alignment, pipe entry, pipe exist and pipe lay down areas. In addition, moving the crossing further south may slightly reduce pumping head by avoiding higher alignment elevation along N. Empire Blvd.

B.4.3.2 Pipe Hydraulic Characteristics:

For the peak design flow of approximately 8 MGD, the proposed force main shall have a minimum internal diameter of 20-inch, approximate Hydraulic Grade Line (HGL) slope (pipe friction head loss) of 7 ft/1000 ft (assuming C=110 roughness coefficient) and peak velocity of 5.75 fps. It is expected that maximum working pressure may not exceed 80 to 100 psi at the deepest section of the bay crossing.

B.4.3.3 Pipe Material:

The proposed force main may be made of High Density Polyethylene (HDPE), Ductile Iron (DI) pipes with Protecto 401 –lining for sewer application, or even C-905 PVC pipes. For the bay crossing section, consideration shall be given to fusible PVC, HDPE, DI or even lined steel pipes.

B.4.4 Existing Outfall Structure

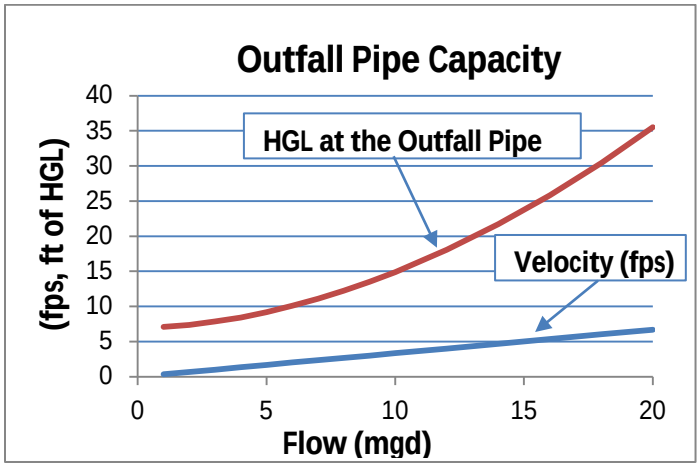
The existing ocean outfall structure was built in 1972-1973 by the Port of Coos Bay, Oregon. The work included installation of approximately 4,740 ft of 30-inch diameter cement mortar lined and coated steel outfall pipe, and 500 ft of 21-inch cement mortar lined and coated diffuser pipes. The outfall pipe was connected to the old Pump Station receiving water from the adjacent detention lagoon via the existing 36-inch intake pipe.

The lagoon was fed in the past with effluent from the Menasha Paper Board Division site via the existing 10-inch effluent line.

The old pump station was designed to pump between 3100 to 4500 gpm (4.5 MGD to 7.0 MGD) from the detention pond to the discharge manhole (Manhole Rim Elevation 22 ft) located at the upstream end of the outlet pipe. A pumping head of 24 feet was required to discharge design flows to the manhole under estimated 12 ft high tide ocean levels. Depending on the tide level, during the discharging, water level in the discharge manhole may fluctuate. Outfall pipe invert elevation at the existing discharge manhole is 7 ft above the sea level.

Capacity of the Existing Outfall Line

It is estimated that the existing outfall pipe may experience reduction in design capacities, due to aging, increasing in roughness, accumulation of sediment, plugging of diffuser pipes, etc. The existing capacity shall be determined by pumping water to discharge manhole, measuring flow, and water levels in the ocean and discharge manhole. It is estimated that under the high tide levels of 12 ft, the existing structure may have capacity of approximately 11 to 12 MGD. This capacity may be further increased by increasing the height of discharge manhole. With water level at the upgraded discharge manhole at 25 ft , the discharge capacity will be approximately 15 MGD or at water level of 35 ft the capacity may increase to a maximum of 20 MGD assuming maximum pipe velocity of 6.70 fps and frictional head loss



of 6.0 feet/1000 feet (C=110).

B.5 Alternative 2 Costing

B.5.1 Detention Pond and Outfall Pump Station –

It is assumed that the existing detention pond may receive peak wet weather flows from WWTP#2 detain it for a certain time and discharge it at the lower rate to the outfall

structure. However, final hydraulic and hydrological calculations need to be performed to analyze duration and shape of incoming wet weather flows hydrographs to determine necessary pond size under different discharge conditions that may be requested by the Port. To estimate future construction cost it may be assumed that the proposed outfall pump station may will be a manhole type (10- ft diameter) lift station with a maximum capacity of 3 MGD, equipped with two 30 Hp constant speed pumps, one working and one standby. This pump station may also need to have a standby power generation.

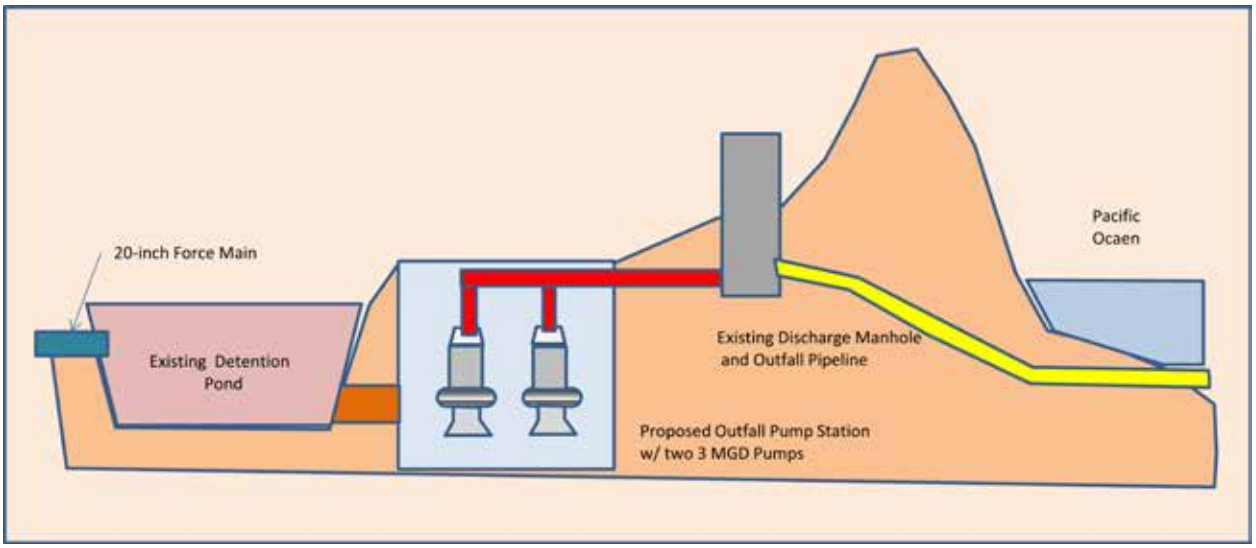


Figure 3 – Detention Pond, Outfall Structure and Outfall Pump Station

B.5.2 Estimated Construction Cost

The construction cost estimate is based on the recent bids and recent cost estimates for similar pump stations and pipelines including estimate for Influent Pump Station for City of Newberg, Storm water lift Station for the Port of Portland, Rock Creek and Sugar Creek Excess Flow Pump Stations for the City of Independence, Missouri, Intertie 1 and Intertie 2 Diversion projects including 2 MGD, 3 MGD, and 30 MGD pump stations, 14-inch, 20-inch, and 30-inch L=25,000 feet force mains for Clackamas County, Oregon.

The following construction cost for different project elements is show in the following table :

Diversion Component	Estimated Construction Cost
1) 8 MGD Effluent Pump Station (Coos Bay No.2 to North Spit)	**$ 2,500,000**

2) Force Main a) Force Main along N. Empire BLVD L=4,500 feet, 20-inch b) Pipe b) Force Main Bay Crossing, HDD, L=2,850 feet, 20-inch c) Force Main Across the Bay, L=12,650; 20-inch Force Main Subtotal	 $ 1,350,000 $ 2,850,000 $ 3,050,000 **$ 7,250,000**
3) Outfall Lift Station with discharge manhole upgrades	**$ 700,000**
Total:	**$ 10,450,000**

Appendix C:
Land Use Compatibility Statement and Permitting Analysis

Land Use and Permitting Constraints Technical Memorandum

Introduction

The International Port of Coos Bay has requested that HDR provide a regulatory compliance review for a Waste Water Treatment Facility to be constructed in Coos County, Oregon. The facility would be a new facility located on the North Spit in Coos Bay. The following activities are likely to be associated with this project, although these are noted as potentially not needed until further definition of the facilities is completed.

- Operations/maintenance/control building that could require domestic water and septic disposal.
- Installation of electrical collection, transmission and interconnection facilities in county or state right of way.
- Discharges of materials to air and/or water.
- Management, storage, and/or disposal of hazardous wastes.

This memorandum outlines the permits and regulatory clearances that are anticipated for the approval, construction, and operation for this project, as well as the potential risks and timelines associated with the permit/approval processes as the project would move toward implementation.

Study Area

The Coos Bay area lies on the south central Oregon coast in Coos County, bordered by the communities of Coos Bay, Charleston, North Bend, and Bunker Hill. The Coos Bay area is in the South Coast Basin, which includes both the Coos Estuary and the Pacific Ocean within territorial limits, i.e. within 3 miles of the coast line of the State of Oregon (ORS 468B.005 (10)). The North Spit site is a mostly industrial property located across the estuary and is bounded on the north by the Siuslaw National Forest, Coos Bay to the south and east, and the Pacific Ocean to the west.

Regulatory Requirements

A project of the size being considered is likely to trigger one or more permits at either at the federal, state, and local levels. Table 1 (located in Attachment 2) presents the federal, state and local regulatory requirements that would be reasonably anticipated for this type of project. The following types of project components were considered:

- Filling and grading to construct the facility as well as access roads (which would impact wetlands).
- Potential improvements or repair/maintenance to existing water crossings and horizontal drilling under Coos Bay.
- Repurpose and/or improvements to the existing 30-inch outfall to the Pacific Ocean.
- Access to local or state managed roads/highways on the North Spit.
- Interconnection to public water and sewage facilities.
- Flood zones.
- Potential impacts to fish and wildlife habitats.

- Potential impacts to land uses.

Due to the proposed location of the facility on the North Spit, the following permit requirements are not currently expected, but are still included in Table 1 until project elements are confirmed:

- If the force main is horizontally drilled under Coos Bay, then the Rivers and Harbors Act Section 10 is not expected to be triggered.
- The North Spit appears to be outside of the FEMA 100-year flood zone.
- It is expected that no in-water work within Coos Bay would be required due to the horizontal drilling activities. If that assumption stays, then Oregon Department of Fish and Wildlife (ODFW) fish passage would not be triggered.
- Currently it appears that no state-owned or state-leased land would be impacted, therefore State ESA may not be triggered.
- If the project does not provide updates/improvements to the ocean outfall, most federal permitting could be avoided including some Oregon Department of Environmental Quality permitting.
- If the project can avoid impacts to USFS, BLM or other federal properties, the NEPA process could be avoided.

Permitting Risks

The following permitting related factors should be considered during development of this waste water treatment facility project:

- Permit terms and conditions and environmental resource mitigation requirements that can increase the cost of construction or operation of the project. Mitigation may be required if sensitive habitats or resources are temporarily or permanently impacted by the project. For example, mitigation may be needed for impacts to wetland, stream/riparian, and protected habitats. In such cases, mitigation typically aims at replacing the types of resources being lost, or enhancing the functions of the resources being lost (e.g. creating or restoring a wetland to compensate for a loss of wetland acreage).
- Public opposition to the project, or lack of local government support for the project.

Risks associated with complex permitting and stringent permit terms and conditions can result from lack of advance knowledge of the potential impact to sensitive environmental resources, including, but not limited to:

- Filling or work in waters of the U.S. and of the state, including wetlands;
- Presence of sensitive wildlife and plant species, or their associated habitat, at the project site;
- Presence of protected fish in water bodies that can be affected directly or indirectly by project activities;
- Presence of cultural or archeological resources;
- Presence of hazardous materials, contaminated soils, or evidence that agricultural products have been applied illegally.

Wetlands Permitting Risks

Based on information and reports from the International Port of Coos Bay, the Department of State Lands (DSL) has stated that they believe the created wetlands (the wetlands are located on the area of the former treatment lagoons) are jurisdictional. This means that if the wetlands are impacted, the project would be required to mitigate for the impacts and be permited through the standard DSL and Army Corps (USACE) permitting processes. In order to verify this assumptions by the DSL, the wetlands will need to be further reviewed for area of impact based on current design and a wetland delineation will need to be completed to determine the type of wetland and mitigation/restoration options that can be implemented. The project will need to document why the wetlands are being impacted, alternatives (if any) to impacting them, and the mitigation plan to cover lost functions.

If the wetland delineation identifies the wetlands as being created from uplands, an argument to the regulatory agencies can be made that the facilities are not jurisdictional and therefore mitigation is not needed. The agencies will not verify the type of wetland, and therefore sign off on jurisdiction without having an updated wetland delineation completed and submitted for their review. Until that time, this memorandum will assume that the wetlands are jurisdictional and follow that scenario until the lesser, non-jurisdictional scenario can be verified.

Potential Land Use Risks

Public opposition is usually raised during the public notice process for the local county Conditional Use Permit. Once a complete application has been received, a public notice is issued to neighboring property owners. During the public notice period, those notified may object to approval or note any adverse consequences or incompatibilities that may result from approval.

A Land Use Compatibility Statement (LUCS) was submitted in September 2010 by the International Port of Coos Bay to Coos County and the DEQ. Coos County Planning Department responded to the LUCS with a list of regulatory requirements that need to be resolved prior to the LUCS being approved. The highest risk item on the list of regulatory requirements is wetland mitigation/restoration. There are options to review during project development to resolve this item. Those options include providing funding to a mitigation bank within the area (further review will need to be done to make sure the bank will be operational within the project timelines and provide necessary functions), purchase a new area to provide restoration, or mitigate on site. More information on the LUCS triggers, risks and timelines can be found in Table 1 in Attachment 2.

For Coos County, once the Director has issued a decision, the public, applicant, Commission, and Board of Commissioners (Board) have 15 days to make an appeal (public and applicant) or request review of a decision (Board and Commission). All appeals are subject to a “de novo” hearing process which means that the appeal hearing starts anew. The appeal process does not have a specific timeline associated with it as it is dependent on which body the appeal is made to, the timing of the appeal in relation to the required public notice process, and the meeting frequency of the appeal body. Each appeal takes approximately 4-8 weeks, which includes scheduling the public hearing with a decision issued following the hearing.

Well-organized opposition can seek to use any of the permitting processes as a means to slow the overall project approval process down.

The following actions, taken early in the project development process, can mitigate the risks described above:

1) Evaluate all environmental constraints of the site prior to avoid or minimize as much as possible. This memorandum included a survey/review of existing documents to determine

the potential environmental impacts. A more detailed site review will need to be done to verify those impacts.

2) Identify all constraints as specifically as possible, i.e. presence of wetlands, sensitive species, potential for cultural and archeological resources, etc. This memorandum has identified the elements of the project as known at this time. After further project design and an associated site is developed, these constraints can be narrowed down even further, which generally helps the project schedule due to the ability to further minimize and mitigate assumed impacts.
3) Develop a strategy to gain support for the projects from local government representatives and the public.
4) Establish relationships with citizens, local property owners, recreational area users, and local citizens and/or environmental groups to gather shared understanding of the overall project's goals and benefits.

Conclusions and Recommendations

Most federal permits can be avoided by carefully planning out the project design to avoid federal resources. In order to verify the assumptions for local and state permits, especially the wetland requirement, additional field work will need to be completed. Highest priority should be placed on completing the wetland delineation as that is a higher schedule risk factor (due to potential right of way needs) than the other items.

Attachment 1

Land Use Compatibility Statement

Attachment 2

Table 1: Potential Regulatory Permits and Approvals

Oregon Department of Environmental Quality
LAND USE COMPATIBILITY STATEMENT (LUCS)

SECTION 1 - TO BE COMPLETED BY APPLICANT

A. Applicant Name: Oregon International Port of Coos Bay	**B. Project Name:** Coos Bay North Spit Wastewater Treatment
Contact Name: Elise Hamner	**Physical Address:**
Mailing Address: P.O. Box 1215	**City, State, Zip:** North Bend, OR 97459
City, State, Zip: Coos Bay, OR 97420-0311	**Tax Lot #:** 100
Telephone: 541-267-7678	**Township:** 25S **Range:** 13W **Section:** 07 and 08
Tax Account #:	**Latitude:** 124 17' 0.00"
	Longitude: 43 25' 0.00'

C. Describe the project, include the type of development, business, or facility and services or products provided (attach additional information if necessary):

The City of Coos Bay operates two wastewater treatment plants; Plant No. 1 in the upper bay just off U.S. 101, and Plant No. 2 in the lower bay just off Cape Arago Highway. Plant No. 2 is operating out of compliance with EPA/DEQ standards and is under a Mutual Agreement Order (WQ/M-WR-03-022) to bring the plant into compliance. The City approached the Port several months ago about constructing a municipal wastewater treatment facility near the former wastewater lagoon operated by Weyerhaeuser Company for its former paper mill. Port staff offered to pursue the idea of using the property on the North Spit to construct a new wastewater treatment plant that could handle municipal and industrial wastewater, with a stated goal to take these effluents out of the Coos Bay estuary, Oregon's largest commercial oyster producing estuary. The Port's view is that a new plant would be as cost effective as the extensive upgrade required of the City's Plant No. 2, while providing additional advantages to the community and estuary. The current plant has little, if any, room for expansion. In addition to providing flexibility for future regulatory requirements that may drive additional treatment of Coos Bay wastewater flows, a new site could accommodate flows from other communities, potentially eliminating discharges to the sensitive estuary in favor of a regional treatment facility.

D. Check the type of DEQ permit(s) or approval(s) being applied for at this time.

- ☐ Air Quality Notice of Construction
- ☐ Air Contaminant Discharge Permit *(excludes portable facility permits)*
- ☐ Air Quality Title V Permit
- ☐ Air Quality Indirect Source Permit
- ☐ Parking/Traffic Circulation Plan
- ☐ Solid Waste Land Disposal Site Permit
- ☐ Solid Waste Treatment Facility Permit
- ☐ Solid Waste Compost Facility Registration or Permit
- ☐ Solid Waste Letter Authorization Permit
- ☐ Solid Waste Material Recovery Facility Permit
- ☐ Solid Waste Energy Recovery Facility Permit
- ☐ Solid Waste Transfer Station Permit
- ☐ Waste Tire Storage Site Permit
- ☐ Pollution Control Bond Request
- ☐ Hazardous Waste Treatment, Storage, or Disposal Permit
- ☐ Clean Water State Revolving Fund Loan Request
- ☐ Wastewater/Sewer Construction Plan/Specifications *(includes review of plan changes that require use of new land)*
- ☐ Water Quality NPDES Individual Permit
- ☐ Water Quality WPCF Individual Permit *(for onsite construction-installation permits use the DEQ Onsite LUCS form)*
- ☐ Water Quality NPDES Stormwater General Permit *(1200-A, 1200-C, 1200-CA, 1200-COLS, and 1200-Z)*
- ☐ Water Quality General Permit *(all general permits, except 600, 700-PM, 1700-A, and 1700-B when they are mobile.)*
- ☐ Water Quality 401 Certification for federal permit or license

E. This application is for: ☐ Permit Renewal ☐ New Permit ☐ Permit Modification ☑ Other:

SECTION 2 - TO BE COMPLETED BY CITY OR COUNTY PLANNING OFFICIAL

Instructions: Written findings of fact for all local decisions are required; written findings from previous actions are acceptable. For uses allowed outright by the acknowledged comprehensive plan, DEQ will accept written findings in the form of a reference to the specific plan policies, criteria, or standards that were relied upon in rendering the decision with an indication of why the decision is justified based on the plan policies, criteria, or standards.

A. The project proposal is located: ☐ Inside city limits ☐ Inside UGB ☑ Outside UGB

B. Name of the city or county that has land use jurisdiction *(the legal entity responsible for land use decisions for the subject property or land use)*:

Coos County

Oregon Department of Environmental Quality
LAND USE COMPATIBILITY STATEMENT (LUCS)

SECTION 2 - TO BE COMPLETED BY CITY OR COUNTY PLANNING OFFICIAL

Applicant Name:	**Project Name:**

C. Is the activity or use allowed under Measure 49? ☐ No, Measure 49 is not applicable ☐ Yes; if yes, then check one:

☐ Express; approved by DLCD order #:

☐ Conditional; approved by DLCD order #:

☐ Vested; approved by local government decision or court judgment docket or order #:

D. Is the activity or use compatible with your acknowledged comprehensive plan as required by OAR 660-031?
Please complete this form to address the activity or use for which the applicant is seeking approval (see 1.C on the previous page). If the activity or use is to occur in multiple phases, please ensure that your approval addresses the phases described in 1.C. For example, if the applicant's project is described in 1.C as a subdivision and the LUCS indicates that only clearing and grading are allowed outright but does not indicate whether the subdivision is approved, DEQ will delay permit issuance until approval for the subdivision is obtained from the local planning official.

☐ The activity or use is not regulated by the acknowledged comprehensive plan; explain:

☐ **YES**, the activity or use is pre-existing nonconforming use allowed outright by *(provide reference for local ordinance)*:

☐ **YES**, the activity or use is allowed outright by *(provide reference for local ordinance)*:

☐ **YES**, the activity or use received preliminary approval that includes requirements to fully comply with local requirements; findings are attached.

☐ **YES**, the activity or use is allowed; findings are attached.

☐ **NO**, see 2.C above, activity or use allowed under Measure 49; findings are attached.

☑ **NO**, *(complete below or attach findings for noncompliance and identify requirements the applicant must comply with before compatibility can be determined)*:

Relevant specific plan policies, criteria, or standards: SEE ATTACHED 9-22-10 LETTER

Provide the reasons for the decision:

Additional comments (attach additional information as needed): THE Facility IS PERMITTED ONCE THE APPLICANT HAS DEMONSTRATED COMPLIANCE WITH THE APPLICABLE Policies & CONDITIONS AS IDENTIFIED IN THE ATTACHED 9-22-10 LETTER ISSUED BY THE PLANNING DEPT. ONCE THIS HAS BEEN COMPLETED THE PLANNING DEPT. WILL ISSUE ZONING CLEARANCE FOR THE PROJECT. THE PROPOSED RECREATIONAL ACTIVITY & WETLAND RESTORATION ARE SUBJECT TO FURTHER LAND USE REVIEW & APPROVAL

Planning Official Signature: Patty Everndon **Title:** Director

Print Name: PATTY EVERNDON **Telephone #:** 541-396-3121 x212 **Date:** 9-22-10

If necessary, depending upon city/county agreement on jurisdiction outside city limits but within UGB: N/A

Planning Official Signature: **Title:**

Print Name: **Telephone #:** **Date:**

Coos County Planning Department
Coos County Courthouse Annex, Coquille, Oregon 97423
Mailing Address: 250 N. Baxter, Coos County Courthouse, Coquille, Oregon 97423
Physical Address: 225 N. Adams, Coquille, Oregon

(541) 396-3121 Ext.210
FAX (541) 756-8630 / TDD (800) 735-2900

September 22, 2010

Oregon International Port of Coos Bay
Attn: Elise Hamner
PO Box 1215
Coos Bay, Oregon 97420

RE: DEQ LAND USE COMPATIBLITY STATEMENT (LUCS); NORTH SPIT WASTEWATER TREATMENT PLANT; T.25, R.13, S.07/08 TL 100[1]

The proposal is to site a wastewater treatment facility on the above referenced property. The facility would include a headworks/control building, effluent pump station and ponds. Also, proposed is a recreation area, wetland enhancement and new berms.

The Coos County Zoning and Land Development Ordinance (LDO) defines utilities:

> Public service structures which fall into two categories:
> (2) high-intensity facilities, which consist of storm water and treated waste water outfalls (including industrial waste).
> Note: in shoreland units this category also includes sewage treatment plants…

The proposed project lies in the Coos Bay Estuary Management Plan (CBEMP) shoreland units (zones) 3-Water-Dependent Shorelands (3-WD) and 4-Conservation Shorelands (4-CS). The Management Objectives for these zones are:

3-WD §4.5.240: This shoreland district shall be managed to efficiently utilize the property for water-dependent or related commercial/industrial development. Development must be conducted in a manner that is consistent with the Plan's general policy regarding beaches and dunes. Any area of disturbed snowy plover habitat shall be replaced elsewhere on the North Spit (see Districts #1CS and #2CS) such that: (1) sites created as habitat are made available before or concurrently with alteration of existing habitat, and (2) there is no net loss of habitat.

4-CS §4.5.255: This shoreland district shall be managed to maintain the existing lagoon and its ability to handle effluents and to allow development of a freshwater marsh.

[1]Location per LUCS. It appears the location should be identified as T.25, R.13, S.06/07, TL #101/100,101

The chart below identifies the project for each zone as well as associated uses/activities and whether each of these components are allowed in the zone and, if so, the applicable plan polices that need to be addressed for each component. The "X" indicates which Policies apply to each of the proposed uses/activities.

CBEMP Unit	3-WD				4-CS				
Use/ Activity	High Intensity Utilities	New Berm	New Ponds	Public Birding	High Intensity Utilities	New Berm	New Ponds	Public Birding	Wetland Enhancement
CBEMP Policies	P-G	P-G	P-G	ACU-S,G	P-G	P-G	P-G	N	ACU-S, G
13	-	-	-	-	X	X	X		X
14	X	X	X	X	X	X	X		X
17	X	X	X	X	X	X	X		X
18	X	X	X	X	X	X	X		X
20	X	X	X	X	-	-	-		-
27	X	X	X	X	-	-	-		-
30	X	X	X	X	X	X	X		X
49	X	X	X	X	X	X	X		X
50	X	X	X	X	X	X	X		X
51	X	X	X	X	X	X	X		X
22b	-	-	-	-	-	-	-		X

The letter "P" identifies the use/activity is permitted. The letter "G" identifies that "general" conditions apply and the letter "S" identifies that "special" conditions apply.

Plan Policies:

#13 Overall Use Priorities within Coastal Shorelands

I. Local government shall maintain the following priorities for the overall use of coastal shorelands (from highest to lowest):

a. Promote uses which maintain the integrity of estuaries and coastal waters;

b. Provide for water-dependent uses;

c. Provide for water-related uses;

d. Provide for nondependent, nonrelated uses which retain flexibility of future use and do not prematurely or inalterably commit shorelands to more intensive uses;

e. Provide for development, including nondependent, nonrelated uses, in urban areas compatible with existing or committed uses;

f. Permit nondependent, nonrelated uses which cause a permanent or long-term change in the features of coastal shorelands only upon a demonstration of public need.

In addition, priority uses for flood hazard and floodplain areas outside of incorporated cities shall

include agriculture, forestry, recreation and open space.

This strategy recognizes that the Coos Bay Estuary Management Plan's shoreland designations, and permitted uses and activities are based upon and establish general priorities for the use of coastal shoreland resources.

#14 General Policy on Uses within Rural Coastal Shorelands

I. Coos County shall manage its rural areas within the "Coos Bay Coastal Shorelands Boundary" by allowing only the following uses in rural shoreland areas, as prescribed in the management units of this Plan, except for areas where mandatory protection is prescribed by LCDC Goal #17 and CBEMP Policies #17 and #18:

a. Farm uses as provided in ORS 215.203;

b. Propagation and harvesting of forest products;

c. Private and public water-dependent recreation developments;

d. Aquaculture;

e. Water-dependent commercial and industrial uses, water-related uses, and other uses only upon a finding by the Board of Commissioners or its designee that such uses satisfy a need which cannot be accommodated on uplands or shorelands in urban and urbanizable areas or in rural areas built upon or irrevocably committed to non-resource use.

f. Single-family residences on lots, parcels, or units of land existing on January 1, 1977, when it is established that:

1. The dwelling is in conjunction with a permitted farm or forest use, or

2. The dwelling is in a documented "committed" area, or

3. The dwelling has been justified through a goal exception; and

4. Such uses do not conflict with the resource preservation and protection policies established elsewhere in this Plan;

g. Any other uses, including non-farm uses and non-forest uses, provided that the Board of Commissioners or its designee determines that such uses satisfy a need which cannot be accommodated at other upland locations or in urban or urbanizable areas. In addition, the above uses shall only be permitted upon a finding that such uses do not otherwise conflict with the resource preservation and protection policies established elsewhere in this Plan.

This strategy recognizes (1) that Coos County's rural shorelands are a valuable resource and accordingly merit special consideration, and (2) that LCDC Goal #17 places strict limitations on land divisions within coastal shorelands. This strategy further recognizes that rural uses "a through "g" above, are allowed because of need and consistency findings documented in the "factual base" that supports this Plan.

#17 Protection of "Major Marshes" and "Significant Wildlife Habitat" in Coastal Shorelands

Local governments shall protect from development, major marshes and significant wildlife habitat, coastal headlands, and exceptional aesthetic resources located within the Coos Bay Coastal Shorelands Boundary, except where exceptions allow otherwise.

I. Local government shall protect:

a. "Major marshes" to include areas identified in the Goal #17, "Linkage Matrix", and the Shoreland Values Inventory map; and

b. "Significant wildlife habitats" to include those areas identified on the "Shoreland Values Inventory" map; and

c. "Coastal headlands"; and

d. "Exceptional aesthetic resources" where the quality is primarily derived from or related to the association with coastal water areas.

II. This strategy shall be implemented through:

a. Plan designations, and use and activity matrices set forth elsewhere in this Plan that limit uses in these special areas to those that are consistent with protection of natural values; and

b. Through use of the Special Considerations Map, which identified such special areas and restricts uses and activities therein to uses that are consistent with the protection of natural values. Such uses may include propagation and selective harvesting of forest products consistent with the Oregon Forest Practices Act, grazing, harvesting wild crops, and low-intensity water-dependent recreation.

c. Contacting Oregon Department of Fish and Wildlife for review and comment on the proposed development within the area of the 5b or 5c bird sites.

This strategy recognizes that special protective consideration must be given to key resources in coastal shorelands over and above the protection afforded such resources elsewhere in this Plan.

#18 Protection of Historical, Cultural and Archaeological Sites

The project site is not within an inventoried area of cultural concern, therefore, this policy does not apply.

#20 Dredged Material Disposal Sites

Local government shall support the stockpiling and disposal of dredged materials on sites specifically designated in Plan Provisions, Volume II, Part 1, Section 6, Table 6.1, and also shown on the "Special Considerations Map". Ocean disposal is currently the primary disposal method chosen by those who need disposal sites. The dredge material disposal designated sites on the list provided on Table 6.1, has decreased because the ocean has become the primary disposal method, the in-land DMD sites have diminished and those which have remained on the DMD list are sites which may be utilized in the future and not be cost-prohibitive. Consistent with the "Use/Activity" matrices, designated disposal sites shall be managed so as to prevent new uses and activities which could prevent the sites' ultimate use for dredge material disposal. A designated site may otherwise only be released for some other use upon a finding that a suitable substitute upland site or ocean dumping is available to provide for that need. Sites may only be released through a Plan Amendment. Upland dredged material disposal shall be permitted elsewhere (consistent with the "Use/Activity" matrices) as needed for new dredging (when permitted), maintenance dredging of existing functional facilities, minor navigational improvements or drainage improvements, provided riparian vegetation and fresh-water wetlands are not affected. For any in-water (including intertidal or subtidal estuarine areas) disposal permit requests, this strategy shall be implemented by the preparation of findings by local government consistent with Policy #5 (Estuarine Fill and Removal) and Policy #20c (Intertidal Dredged Material Disposal). Where a site is not designated for dredged material disposal, but is used for the disposal of dredged material, the amount of material disposed shall be considered as a capacity credit toward the total identified dredged material disposal capacity requirement.

I. This policy shall be implemented by:

a. Designating "Selected Dredge Material Disposal Sites" on the "Special Considerations Map"; and

b. Implementing an administrative review process (to preclude pre-emptory uses) that allows uses otherwise permitted by this Plan but proposed within an area designated as a "Selected DMD" site only upon satisfying all of the following criteria:

1. The proposed use will not entail substantial structural or capital improvements (such as roads, permanent buildings and nontemporary water and sewer connections); and

2. The proposed use must not require any major alteration of the site that would affect drainage or reduce the usable volume of the site (such as extensive site grading/excavation or elevation from fill); and

3. The proposed use must not require site changes that would prevent the expeditions conversion of the site to estuarine habitat.

c. Local government's review of and comment on applicable state and federal waterway permit applications for dike/tidegate and drainage ditch actions.

II. This strategy recognizes that sites designated in the Comprehensive Plan reflect the following key environmental considerations required by LCDC Goal #16:

a. Disposal of dredged material in upland or ocean waters was given general preference in the overall site selection process;

b. Disposal of dredged material in estuary waters is permitted in this Plan only when such disposal is consistent with state and federal law;

c. Selected DMD sites must be protected from pre-emptory uses.

#27 Floodplain Protection within Coastal Shorelands

The respective flood regulations of local government set forth requirements for uses and activities in identified flood areas; these shall be recognized as implementing ordinances of this Plan.

This strategy recognizes the potential for property damage that could result from flooding of the estuary.

#30 Restricting Actions in Beach and Dune Areas with "Limited Development Suitability" and Special Consideration for Sensitive Beach and Dune Resources (moved from Policy #31)

I. Coos County shall permit development within areas designated as "Beach and Dune Areas with Limited Development Suitability" on the Coos Bay Estuary Special Considerations Map only upon the establishment of findings that shall include at least:

a. The type of use proposed and the adverse effects it might have on the site and adjacent areas;

b. Temporary and permanent stabilization programs and the planned maintenance of new and existing vegetation;

c. Methods for protecting the surrounding area from any adverse effects of the development; and

d. Hazards to life, public and private property, and the natural environment which may be caused by the proposed use; and

e. Whether drawdown of groundwater would lead to loss of stabilizing vegetation, loss of water quality, or intrusion of saltwater into water supplies.

Implementation shall occur through an administrative conditional use process which shall include submission of a site investigation report by the developer that addresses the five considerations above.

II. This policy recognizes that:

a. The Special Considerations Map category of "Beach and Dune Areas with Limited Development Suitability" includes all dune forms except older stabilized dunes, active foredunes, conditionally stabilized foredunes that are subject to ocean undercutting or wave overtopping, and interdune areas (deflation plains) subject to ocean flooding;

b. The measures prescribed in this policy are specifically required by LCDC Goal #18 for the above-referenced dune forms, and that

c. It is important to ensure that development in sensitive beach and dune areas is compatible with, or can be made compatible with, the fragile and hazardous conditions common to beach and dune areas.

III. Permits for beachfront protective structures shall be issued only where development existed on January 1, 1977 (see Section 3. Definitions for "development"). Criteria for review of all shore and beachfront protective structures shall provide that:

a. Visual impacts are minimized;

b. Necessary access to the beach is maintained;

c. Negative impacts on adjacent property are minimized; and

d. Long-term or recurring costs to the public are avoided.

IV. Local government shall cooperate with state and federal agencies in regulating the following actions in beach and dune areas by sending notification of Administrative Conditional Use decision:

a. Destruction of desirable vegetation (including inadvertent destruction by moisture loss or root damage),

b. The exposure of stable and conditionally stable areas to erosion,

c. Construction of shore structures which modify current or wave patterns leading to beach erosion, and

d. Any other development actions with potential adverse impacts.

#49 Rural Residential Public Services

Coos County shall provide opportunities to its citizens for a rural residential living experience, where the minimum rural public services necessary to support such development are defined as police (sheriff)

protection, public education (but not necessarily a rural facility), and fire protection (either through membership in a rural fire protection district or through appropriate on-site fire precaution measures for each dwelling).

Implementation shall be based on the procedures outlined in the County's Rural Housing State Goal Exception.

I. This strategy is based on the recognition:

a. that physical and financial problems associated with public services in Coos Bay and North Bend present severe constraints to the systems' ability to provide urban level services, and

b. that rural housing is an appropriate and needed means for meeting housing needs of Coos County's citizens.

#50 Rural Public Services

Coos County shall consider on-site wells and springs as the appropriate level of water service for farm and forest parcels in unincorporated areas and on-site DEQ-approved sewage disposal facilities as the appropriate sanitation method for such parcels, except as specifically provided otherwise by Public Facilities and Services Plan Policies #49, and #51. Further, Coos County shall consider the following facilities and services appropriate for all rural parcels: fire districts, school districts, road districts, telephone lines, electrical and gas lines, and similar, low-intensity facilities and services traditionally enjoyed by rural property owners.

This strategy recognizes that LCDC Goal #11 requires the County to limit rural facilities and services.

#51 Public Services Extension

I. Coos County shall permit the extension of existing public sewer and water systems to areas outside urban growth boundaries (UGBs) and unincorporated community boundaries (UCB's) or the establishment of new water systems outside UGB's and UCB's where such service is solely for:

a. development of designated industrial sites;

b. development of "recreational" planned unit developments (PUDs);

c. curing documented health hazards;

d. providing domestic water to an approved exception for a rural residential area;

e. development of "abandoned or diminished mill sites" as defined in ORS 197.719(1) and designated industrial land that is contiguous to the mill site.

II. This strategy shall be implemented by requiring:

a. that those requesting service extensions pay for the costs of such extension; and

b. that the services and facilities be extended solely for the purposes expressed above, and not for the purpose (expressed or implied) of justifying further expansion into other rural areas; and

c. that the service provider is capable of extending services; and

d. prohibiting hook-ups to sewer and water lines that pass through resource lands as allowed by "I, a through d" above; except, that hook-ups shall be allowed for uses covered under "II, a through d" above.

e. That the service allowed by "e" above is authorized in accordance with ORS 197.719.

#22b Limiting Dredge and Fill as Estuarine Restoration

I. Local government shall support estuarine dredge or fill actions as estuarine restoration (pursuant to LCDC Goal #16) only when such restoration will meet the requirements of administrative rules adopted by the Division of State Lands and only upon findings which demonstrate the following:

a. Factual assessment of the nature and extent of the estuarine resource believed to have existed at the proposed restoration site at some time in the past; and

b. Factual assessment of how the estuarine resource at the site was lost; and

c. Comparison of the resource enhancement expected to result from the proposed restoration project, together with a determination that the proposed project will, in fact, probably restore all or some of the resource values lost at the site; and

d. The fill/removal findings at ORS 196.

This policy shall be implemented by an administrative conditional use review process and response to requests for comments by the Division of State Lands and Corps of Engineers regarding state or federal waterway permits.

This policy recognizes that not all estuarine dredge or fill actions may be considered estuarine restoration pursuant to LCDC Goal #16.

Other application conditions (G and S), not related to a specific plan policy that must be addressed:

LDO §4.5.241 General Condition (5) also requires that all uses in 3-WD must be consistent with a Snowy Plover habitat mitigation plan; see Management Objective.

LDO §4.5.241 Special Conditions for recreation in 3-WD states that a public boat ramp facility designated to meet the needs of and accommodate small private crafts shall be allowed and shall be located on public lands, provided that such is compatible with other uses allowed in this Management District.

The proposed recreational activity (public birding) is subject to conditional use review for that portion in 3-WD and is not allowed in 4-CS. To allow in the 4-CS zone requires plan and ordinance amendments.

There are no county inventoried wetlands on the project site and the proposal is not within the floodplain.

LDO §4.5.180(e) allows riparian vegetation removal in order to site or properly maintain public utilities and road right-of-ways as long as the vegetation removed is the minimum necessary to accomplish the purpose.

The applicant must demonstrate compliance as indicated above prior to the Planning Department authorizing the proposed development.

Sincerely
Coos County Planning Department

Patty Evernden, Director

C: Dave Perry, DLCD

Oregon International Port of Coos Bay WWTF Planning Project – Potential Regulatory Permits and Approvals

Federal, state and local regulatory requirements that should be reasonably anticipated for development of a WWTF on the North Spit area at the Oregon International Port of Coos Bay are summarized in the following table. For each permit, the responsible agency, triggers and process, as well as estimated timelines are provided. As WWTF design progresses some permits may no longer be required and timelines will need to be reviewed validity based on known impacts.

Environmental Permits and Regulatory Approvals

Permit / Approval	Responsible Agency	Notes	Approximate Timeframe and Risks	Avoid Permit By:
Federal				
National Environmental Policy Act (NEPA)	Lead Federal Agency	Trigger: • Federal permit or approval required; siting on federal lands; receipt of federal grants or funds. Process: • Prior to issuing a federal permit or approval, a federal agency must ensure that it has complied with NEPA. • The lead federal agency should need to be determined based on the appropriate federal "nexus". Agency is anticipated to be USFS or BLM, depending on impacts. • The process to conduct NEPA compliance depends on how the agency implements NEPA in its review process; for example, an agency may require a separate NEPA document preparation track, or may incorporate the review into its internal review process. • The level of environmental review (Categorical Exclusion, Environmental Assessment, or Environmental Impact Statement) depends on the potential affects of the project and the standards of the lead agency in determining if those affects are significant. • For a project of this nature, the agencies likely to require compliance with NEPA are the U.S. Army Corps of Engineers if a permit is needed to work in waters of the U.S or if any of the project facilities are located on federally managed lands, that land management agency. Related Approvals: • Section 7 Endangered Species Act Consultation • Section 106 National Historic Preservation Act Consultation • Additional Federal Acts	Timeline: • Categorical Exclusion – approximately 12 months. • Environmental Assessment or Environmental Impact Statement – 12-24 months. Risks: • Potential for significant adverse impacts to sensitive resources or public controversy can prompt an agency to consider preparing an EIS.	Avoiding federal lands (BLM, USFS, etc) should avoid the need for NEPA permitting.

Permit / Approval	Responsible Agency	Notes	Approximate Timeframe and Risks	Avoid Permit By:
Federal Endangered Species Act (ESA)	Lead Federal Agency consults with: • US Fish and Wildlife Service (USFWS) • National Marine Fisheries Service (NMFS)	Trigger: • Any federal agency issuing a permit or an approval must comply with the federal ESA[1] Process: • If ESA listed species or their protected habitat are present at the site or in the area potentially affected, the federal agency must review potential impacts and conduct Section 7 consultation with the Service responsible for the species. • If a project meets performance standards of a programmatic consultation (SLOPES IV for example), consultation can be streamlined. • The applicant should conduct appropriate literature and field studies to identify the potential presence of federally listed species at the project site. • Consultation can be "informal "(i.e. not likely to adversely affect), or "formal" (i.e. likely to adversely affect). • Requires preparation of a Biological Evaluation or Assessment if federal ESA listed species should be potentially affected by the proposed project. Related Approvals: • Magnuson Stevens Act - Essential Fish Habitat	Timeline: • Concurrent with the review process by the Federal Agency undertaking consultation, but may add time to the agency's approval timeline. • The informal consultation process takes minimum of 135 days. • The formal consultation takes minimum of 180 days. Risks: Potential adverse impact to a protected species or their habitat can significantly lengthen the overall permit/approval process.	Avoid federal lands or affecting federal species. If discharge outfall is not moved or altered, marine mammals should not be affected and permitting for the federal agencies could be avoided, or minimized (depending on review of other species in project area).
Magnuson Stevens Fishery Conservation and Management Act (Magnuson Stevens Act)	Lead Federal Agency consults with National Marine Fisheries Service	Trigger: • Review required for potential impacts to Essential Fish Habitat (EFH) for ocean species and all anadramous fish throughout their migratory range. Process: • Included as part of the Biological Assessment. • The applicant should conduct appropriate literature and field studies to identify the potential presence of anadramous fish species at the project site. Related Approvals: • Endangered Species Act	Timeline: • Concurrent with ESA Section 7 consultation.	Avoid federal lands or affecting federal species. If discharge outfall is not moved or altered, marine mammals should not be affected and permitting for the federal agencies could be avoided, or minimized (depending on review of other species in project area).
Marine Mammal Protection Act (MMPA)	NMFS	Trigger: • Review required for potential impacts to MMPA listed species, such as stellar sea lions. Process: • Included as part of the Biological Assessment.	Timeline: • Concurrent with ESA Section 7 consultation.	Avoid federal lands or affecting federal species. If discharge outfall is not moved or altered, marine mammals should not be affected and permitting for the federal agencies could be avoided, or minimized (depending on review of other species in project area).

[1] If no federal permit or approval is required, but the project is anticipated to adversely affect a federally listed species or their habitat, the applicant should be required to obtain a permit for "take" of the species under Section 10 of the ESA.

Permit / Approval	Responsible Agency	Notes	Approximate Timeframe and Risks	Avoid Permit By:
Clean Water Act Section 401 Water Quality Certification	Oregon Department of Environmental Quality (ODEQ)	Trigger: • Any federal agency issuing a permit or an approval must comply with Section 401 of the CWA; ODEQ has been delegated the federal jurisdiction to perform Section 401 review for projects in OR (OAR 340-048). • Typically, for an energy project, Corps Approval under Section 404 of the federal CWA will trigger Section 401 review. Process: • Review Clean Water Act (CWA) Section 404 permit to determine if the project should affect beneficial uses of waters (including wetlands). • Stormwater, erosion and sediment control plans should be required if more than one acre of disturbance.	Timeline: • Concurrent with CWA 404 permit process. • An ODEQ certification decision is to be made within 90 days after an application is deemed complete. • In practice, most certifications are processed in less than a year.	Reducing/minimizing impacts to wetlands or other waters of the US could limit the need for this permit, but due to current project plans, this will more than likely not be avoided.
Clean Water Act Section 402 – National Pollutant Discharge Elimination System Permits (NPDES)	ODEQ	Trigger: • Clearing, grading, and excavation that disturb one or more acres of land requires NPDES stormwater (1200-C) permit from DEQ. Process: • As with CWA Section 401, a stormwater plan and an Erosion and Sediment Control Plan should need to be prepared for these activities. • Adherence to the CWA Section 402 requires National Pollutant Discharge Elimination System (NPDES) stormwater (1200-C) permits from DEQ.	Timeline: • This permit is processed approximately 45-60 days prior to construction and takes about 30 days to receive an approval.	Will be needed based on current plans. If the project later avoids more than one acre of disturbance, this could be eliminated.
Clean Water Act Section 404	US Army Corps of Engineers (USACE)	Trigger: • Permanent or temporary discharge of fill in waters of the U.S. including wetlands. Process: • Activities with minimal impacts can qualify for Nationwide Permits (NWPs), provided no other portion of the project requires review under Section 404 of the CWA. • More complex projects require Individual permits. • A Compensatory Mitigation may need to be developed prior to completion of the permit application if resources are permanently affected. • The type of activity and degree of alteration to the water of the U.S. determines the level of review. Related Approvals: • Rivers and Harbors Act of 1899, Section 10 • Clean Water Act Section 401 Water Quality Certification • Removal Fill Permit, Oregon Department of State Lands	Timeline: • Nation wide Permit (NWP) for smaller fills is a 45-90 day review of permit application after permit application is deemed complete. No public notice required. NEPA is already completed in the NWP process. • Individual permit is a 4-24 month process after permit application is deemed complete. 30 day Public notice is required. Risks: • If consultation under the Endangered Species Act or National Historic Preservation Act is required, the timeline for issuing the Corps approvals will include this consultation. • Level of complexity of project and severity of impacts to waters of the U.S.. • If extensive coordination is required under the NHPA, this should need to occur prior to the Corps permit being issued	Will be needed based on current plans.
Rivers and Harbors Act of 1899, Section 10	USACE	Trigger: • Required for any construction in or over "navigable waters" of the U.S. which could affect the course, location, condition, or capacity of these waters. Process: • Included with the CWA application submittal. Related Approvals: • Clean Water Act Section 404 Review	Timeline: • This approval is processed concurrently with the Clean Water Act Section 404 permit application and submittal requirements are similar to those required for the CWA.	May be avoided if the horizontal drilling under Coos Bay is completed and if the discharge outfall is not altered.

Permit / Approval	Responsible Agency	Notes	Approximate Timeframe and Risks	Avoid Permit By:
Coastal Zone Management Act	Oregon Department of Land Conservation and Development (DLCD)	Trigger: • Activities and development affecting coastal resources which involve federal activities, federal licenses or permits, and federal assistance programs (funding) require written Coastal Zone Management (CZM) decision. Process: • Activities & developments require a CZM determination be submitted stating that the project is consistent with Oregon's Coastal Zone Management Program to the "maximum extent practicable."	Timeline: • This process is concurrent with the CWA process.	May be avoided if the discharge outfall is not altered.
Marine Protection, Research and Sanctuaries Act Section 103	Environmental Protection Agency (EPA) USACE State of Oregon	Trigger: • Required for any disposal of materials into the ocean (e.g. dredge material). Process: • EPA is responsible for issuing permits for the disposal of non-dredged materials in ocean waters. The USACE is responsible for issuing permits for the transportation and disposal of dredged material for disposal in ocean waters. • Requires an evaluation of disposal materials using EPA criteria. Allows for dredge materials to be used for "beneficial uses" if feasible.	Timeline: • Typical review time is 3-6 months.	May be avoided if the discharge outfall is not altered.
Ports and Waterway Safety Act of 1972 (PWSA)	United States Coast Guard (USCG)	Trigger: • Applies in any port or place under the jurisdiction of the US, or in any area covered by an international agreement. • Establishes safety and security zones for vessels in transit and while docked within Coos Bay – a Regulated Navigation Area. Process: • USCG establishes vessel traffic service/separation schemes (VTSS) for ports, harbors, and other waters subject to congested vessel traffic. • USCG issues a Waterway Suitability Report (WSR) for safety and security zones.	Timeline: • Typical review time is 3-6 months.	May be avoided if the horizontal drilling under Coos Bay is completed and if the discharge outfall is not altered.
Private Aids to Navigation (PATON)	USCG	Trigger: • Installation of a fixed structure or floating object within the waters of the US. Process: • USCG is required to review all work performed within " navigable waters" of the United US to determine whether or not such work (i.e. installation of a fixed structure or floating object) will require to be marked with PATON.	Timeline: • Typical review time is 90 days.	May be avoided if the discharge outfall is not altered.

Permit / Approval	Responsible Agency	Notes	Approximate Timeframe and Risks	Avoid Permit By:
National Historic Preservation Act (NHPA)	Lead Federal Agency and State Historic Preservation Office (SHPO)	Trigger: • Any Federal Agency issuing a permit or an approval must comply with the federal NHPA. Process: • The applicant should conduct appropriate literature and field studies to identify the potential presence of cultural and archeological resources at the project site. • The NHPA requires consideration of potential project-related effects on properties listed, or eligible for listing in the National Register of Historic Places as well as cultural resources. In particular, Section 106 of the NHPA requires federal agencies to consult with SHPO to determine if activities may affect historic properties or cultural resources. • SHPO is also required to consult with the tribes regarding cultural resources. • If the project is determined to adversely affect the potentially eligible property or cultural resource, preparation of Determinations of Eligibility and Findings of Effect should be required.	Timeline: • Section 106 is processed concurrently with either NEPA or CWA. Risks: • Potential for significant adverse impact to Tribal cultural or archeological resources may require preparation of a Memorandum of Understanding with affected Tribes.	Avoiding federal lands (BLM, USFS, etc) or agencies requiring federal permitting (including natural resource agencies).
Obstructions to Navigation	Federal Aviation Administration (FAA)	Trigger: • Any construction that may possible affect navigable air space. Process: • Notice submitted to the FAA describing the proposed construction and timing for review and approval by the FAA.	Timeline: • Review is approximately 60 days.	May be avoided if the horizontal drilling under Coos Bay is completed and if the discharge outfall is not altered.
Migratory Bird Treaty Act (MBTA)	USFWS	Trigger: • Any Federal Agency issuing a permit or an approval must comply with these acts if applicable resources may be impacted. • Under the MBTA, taking, killing, or possessing migratory birds is unlawful, except as authorized under a valid permit. Process: • Measures are usually part of the construction specifications and include timing certain activities outside of nesting and mating season, removing trees outside of the nesting season, or conducting individual tree nest clearances.	Timeline: • The review under these additional acts is completed as part of other federal actions such as NEPA, CWA, and ESA Section 7.	Avoiding federal lands (BLM, USFS, etc) or agencies requiring federal permitting (including natural resource agencies).
Bald and Golden Eagle Protection Act	USFWS	Trigger: • The Bald and Golden Eagle Protection Act of 1940 protects bald and golden eagles from harassment or harm. Process: • If the project is determined to affect eagles, this should be documented in the Biological Assessment prepared for the ESA Section 7 consultation or other federal action.	Timeline: • The review under these additional acts is completed as part of other federal actions such as NEPA, CWA, and ESA Section 7.	Avoiding federal lands (BLM, USFS, etc) or agencies requiring federal permitting (including natural resource agencies).
USFWS Mitigation Policy	USFWS	Trigger: • The USFWS has it own policy regarding mitigation recommendations for losses of fish, wildlife, their habitats, and uses thereof, from land and water developments. The intended effect of the policy is to protect and conserve the most important and valuable fish and wildlife resources while facilitating balanced development of the Nation's natural resources. Process: • Incorporated into the Biological Assessment, NEPA, or CWA documentation.	Timeline: • No approvals are issued but the regulation is enforceable. Typically completed as part of other federal actions such as NEPA, CWA, and ESA Section 7.	Avoiding federal lands (BLM, USFS, etc) or agencies requiring federal permitting (including natural resource agencies).

Permit / Approval	Responsible Agency	Notes	Approximate Timeframe and Risks	Avoid Permit By:
State of Oregon				
Removal-Fill Permit	Oregon Department of State Lands (DSL)	Trigger: • Permanent or temporary removal or fill of more than 50 cubic yards in waters of the state (3 cubic yards in essential salmon habitat) requires authorization from DSL. Process: • An Individual Permit should likely be required. The application is processed through a joint application with the Corps Section 404 process. • Compensatory mitigation is required for both an Individual Permit and General Authorization for Certain Transportation Structures. • The application is processed through a joint application with the Corps Section 404 process.	Timeline: • Individual permit review by DSL is a legislative timeline of 120 days. • If a wetland delineation is required, DSL has 120 days to review and approve the delineation and this often times results in incomplete applications. Risks: • Level of complexity of project and severity of impacts to waters of the state.	Will be required if wetlands are impacted.
Oregon Submerged and Submersible Land Easement	DSL	Trigger: • Activities on state-owned submerged and submersible land such as industrial and/or commercial business areas, require a lease from DSL. Process: • Requires preparation of a lease agreement with DSL.	Timeline: • Processing time is approximately 60 days, including a 30 day public notice.	Based on project description, state owned submerged lands will be avoided.
Hazardous Substance Remedial Action Rules	ODEQ	Trigger: • Presence of contaminated soils. Process: • Not a permit or approval of itself, compliance avoids potential liability if contaminated soils or hazardous materials are located in the vicinity of, or at the project site. • Applicants typically conduct an ASTM Environmental Assessment to identify the potential presence of any contaminated soils or potential sources of soil contamination.	Timeline: • ASTM Environmental Assessments are typically conducted early to identify any issues that might constrain the layout or development of the project. Risks: • Potential liability for future remediation activities if the project developer has not identified contaminated sites before taking control of the property. • Soil contamination may require remediation.	Will be required.
State Endangered Species Act – Wildlife and Fish	Oregon Department of Fish (ODFW) and Wildlife and Oregon Natural Heritage Program (for invertebrates)	Trigger: • Potential impacts to state listed wildlife and fish species as a result of project implementation on state-owned land, state-leased land and land over which the state has a recorded easement.. Process: • ODFW has limited authority in requiring avoidance, minimization, or mitigation measures related to state listed wildlife and fish species. • There is no permit or obligatory requirements or restrictions for state listed ESA species. • State ESA protection it is limited to state-owned land, state-leased land and land over which the state has a recorded easement. If the solar facility does not occur on state land, the state ESA does not apply. If the project does occur on state land, the state ESA does not actually require an owner to take action to protect a threatened or endangered species or to impose additional requirements or restrictions on the use of that land. In effect, there is no permit or obligatory requirements or restrictions for state listed ESA species.	Timeline: • Concurrent with DSL Removal-Fill permit process. • If no DSL permit is required, additional coordination may occur during the ESA Section 7 consultation. Risks: • Potential adverse impact to a protected species or their habitat can significantly lengthen the overall permit/approval process.	Will be required.

Permit / Approval	Responsible Agency	Notes	Approximate Timeframe and Risks	Avoid Permit By:
State Endangered Species Act – Plants	Oregon Department of Agriculture (ODA)	Trigger: • Presence of listed plant species that can be potentially affected by project implementation. Process: • Oregon Department of Agriculture has authority to require avoidance, minimization, and mitigation measures for state listed plant populations as well as individual plants. • If state ESA listed species are found at the project site, a consultation with ODA should be required. The consultation may include documentation that includes rare plant surveys, avoidance and minimization measures, and possible mitigation measures.	Timeline: • Concurrent with DSL Removal-Fill permit process. • If no DSL permit is required, additional coordination may occur during ESA Section 7 consultation or other state and local permit processes. Risks: • Potential adverse impact to a protected species or their habitat can significantly lengthen the overall permit/approval process.	A survey will be needed.
Land Use Compatibility Statement (LUCS)	ODEQ & Coos County	Trigger: • Land Use Compatibility (LUCS) will be required for development of a new marine facility in Coos County on industrial zoned property. A LUCS is required for nearly all DEQ permits. • The Oregon land use planning program, administered through the Department of Land Conservation and Development, requires that state agencies act in accordance with State land use planning goals and approved city and county comprehensive land use plans. DEQ has adopted State Agency Coordination Rules (Division 18) which contain the policies and procedures for assuring that DEQ land use-related permit and approval activities are consistent with state goals and local land use plans. According to these rules, the affected local government must review and approve the proposed land use, assuring that it is compatible with the local land use plan before DEQ can process and issue a permit or approval. Process: • The Land Use Compatibility Statement (LUCS) form is distributed with DEQ Permit or approval applications. The business or individual applying for a DEQ permit completes the Applicant's Section of the LUCS, then submits the form to the local land use planning authority. The local planning staff reviews the LUCS, fills out the Local Government Section, signs and dates and returns the LUCS to the applicant. The completed LUCS is included in the permit or approval application submittal to DEQ.	Timeline: • Pre-application conference should be held with the County. It takes approximately 2 weeks to schedule a conference from the time an application is submitted. • A LUCS has no legally restricting timeline. Timelines can vary based on application completeness. Risks: • The process to obtain the LUCS includes approvals from multiple agencies (DEQ and Coos County) and multiple rounds of comment resolution may occur. • Mitigation may be required before a LUCS can be approved. This could involve a right of way process, depending on mitigation requirements.	Will be required.
ODFW Fish Passage, Recovery, and In-water Work Timing	ODFW	Trigger • ODFW is responsible for reviewing and approving projects that may affect fish passage. Any in-water work, whether temporary or permanent, should require adherence to the fish passage laws and in-water work timing. Process: • An application for fish passage is prepared and submitted to ODFW prior or concurrently with submittal of the DSL Removal-Fill Permit. ODFW will concur with the project and provide a recommendation to DSL. • An isolation and fish recovery plan should be required with the permit submittal (to both ODFW and DSL) and implemented during construction. • Fish capture and release efforts require a Scientific Sampling Permit from ODFW and NMFS (if federal ESA species are present).	Timeline: • No permit is required so there are no specific timelines. • Fish passage is implemented through the DSL Removal-Fill permit process.	May be avoided if the horizontal drilling under Coos Bay is completed and if the discharge outfall is not altered.

Permit / Approval	Responsible Agency	Notes	Approximate Timeframe and Risks	Avoid Permit By:
ODFW Fish and Wildlife Habitat Mitigation Rules	ODFW	Trigger: • Any activity ("Development Action") subject to regulation by local, state, or federal agencies that could result in the loss of fish and wildlife habitat. Active agricultural land could be considered Category 4, 5 or 6 wildlife habitat See Appendix B for further discussion of ODFW's Mitigation Policy and how it might apply to agricultural lands. Process: • Fish & Wildlife Habitat Mitigation provide goals and standards for individual development actions in compliance with state Wildlife Policy and Food Fish Management Policy. • ODFW can use any regulatory process provided by the implementation of federal, state, and local environmental laws and ordinance to administer these rules. • Mitigation for Category 4, 5 or 6 is not required and it is unlikely that any additional requirements for agricultural land should be mandated by ODFW. If Category 1-3 habitat is present and affected by the project, then mitigation should be required.	Timeline: • No permit is required so there are no specific timelines. • This policy is implemented as part of the National Environmental Policy Act (NEPA) and Oregon Energy Facility Siting Certification process (if a permit is required from this agency).	May be avoided if the horizontal drilling under Coos Bay is completed and if the discharge outfall is not altered. Wetlands area will need to be reviewed for impacts.
Coos Ciounty				
Conditional Use Permit	Coos County	Trigger: • Conditional Use Permit will be required for development of a new marine facility in Coos County on industrial zoned property. Process: • In general, the Conditional Use Permit includes completing an application and submitting a project description, narrative explaining compliance with the county code, and site plans. • If floodplains, wetlands, streams, or geological hazardous areas are present on or immediately adjacent to the site, the requirements of the overlay zones will need to be addressed in the Conditional Use Permit. • Special considerations will be required for sites located within the Coos Bay Estuary Management Plan area. • Access Permit can be addressed as part of the parking plan for industrial properties.	Timeline: • Pre-application conference is required. It takes approximately 2 weeks to schedule a conference from the time an application is submitted. • Conditional Use Permit is processed in a maximum 150 days from acceptance of a complete application. Public notice is required. A public hearing before the Hearings Officer is required. Risks: • The process to obtain the conditional use may be used by persons opposed to the project to slow down the overall approval process. • Anyone may request an appeal; however, the decision of an appealed case is made strictly on demonstrating that the project meets/does not meet the County code. • Appeals are made to the Board of Commissioners.	Will be required.
Building Permit	Coos County Oregon Building Codes Agency (OBCA)	Trigger: • A building permit should be required for construction of a marine facility. Process: • An application is submitted to Coos County for the permits. The County issues a Zoning Compliance Letter which is then submitted to the OBCA for review for compliance with state building codes. The application requires site specific information and engineering drawings.	Timeline: • Building permits are obtained following development review approval. • Processing time is generally 2 weeks but may be longer depending on the number of reviews required for the engineering drawings.	Final submittal will be required.
Electrical, Plumbing, and Mechanical Permits	Coos County OBCA	Trigger: • Electrical, plumbing, and mechanical permits should be required for construction of a new facility, as applicable. Process: • Each permit is processed separately and in the same manner as the Building Permit.	Timeline: • Permits are obtained following development review approval. • Processing time is generally 2 weeks but may be longer depending on the number of reviews required for the engineering drawings.	Will be required.

Permit / Approval	Responsible Agency	Notes	Approximate Timeframe and Risks	Avoid Permit By:
Utility Permit	Engineering	Trigger: • Placement of public or private utilities in County Right of Way. Process: • Submit a Utility Placement Application to County Engineering. Additional Information: • http://www.clackamas.us/docs/dtd/utilityplaceapp.pdf	Timeline: • Processing time is generally 2 weeks but may be longer depending on the number of reviews required for the engineering drawings.	Will be required.
Development Review	Engineering	Trigger: • Required for street and site improvements such as road, driveway, curb, sidewalk, drainage, parking, maneuvering area, and signage. Process: • Submit a Development Review application to County Engineering. Additional Information: • http://www.clackamas.us/docs/dtd/devpermitapp.pdf	Timeline: • Processing time is generally 2 weeks but may be longer depending on the number of reviews required for the engineering drawings.	Will be required.

Appendix D:
Environmental Species

Site Guide: Weyerhaeuser Settling Pond Site on the North Spit of Coos Bay

Tim Rodenkirk - garbledmodwit@yahoo.com

Introduction

This relatively new birding spot has proven to be on one the most diverse birding locations on the south coast. In addition, its location adjacent to the beach makes it a prime spot to find rarities which can occur in practically any month. Over the past nine years, I have recorded over 220 species of birds at this site, and that is not counting pelagic species observed from the dike on the northwest end of the site or species observed just east of the site in Coos Bay. Bird numbers and species diversity peak during the fall period when this spot is a must visit location for Oregon birders provided access is once again granted to bird this spot (see sidebar).

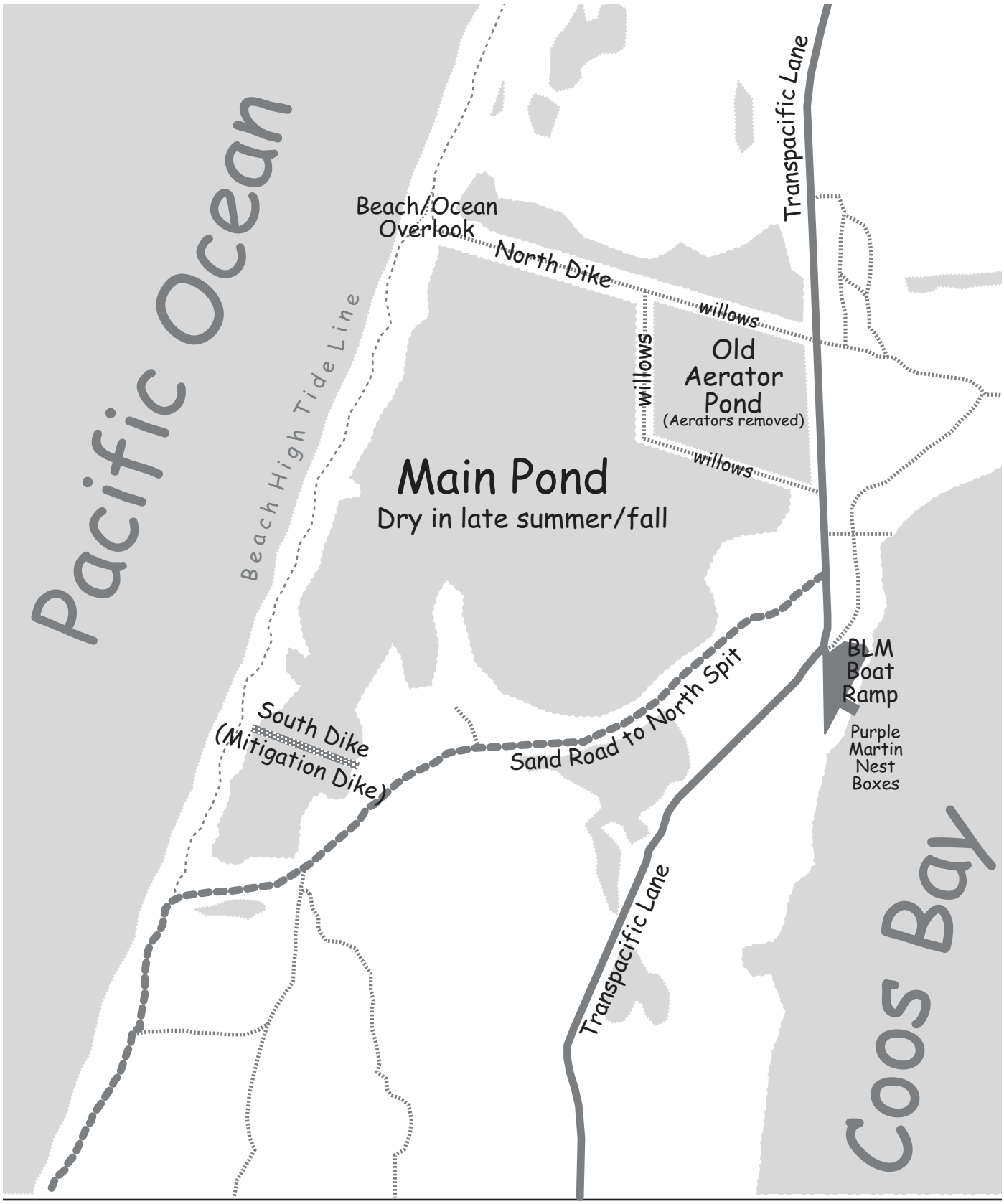
This site is located in the deflation plain on the North Spit of Coos Bay, Coos County, Oregon (see map). It is directly adjacent to the beach and sandwiched between the beach and Coos Bay by a very narrow strip of land. The area was diked off and leased from the Coos Bay Bureau of Land Management (BLM) to be used as an industrial effluent pond by Menasha in 1959. The Weyerhaeuser Company (Weyco) eventually bought the site from the BLM in the early 1990s and continued to use it as an industrial settling pond. In 1996, Weyco stopped using the area as a settling pond and instead pumped their mill effluent out to the aeration pond where it was then released via pipe a mile out into the ocean. Weyco shut down its mill on the North Spit in 2004 and the aerators were subsequently removed from the aeration pond. Weyco still pumps water through the aeration pond and out into the ocean so the aeration pond stays filled with water all year.

Since Weyco stopped using the large pond as a settling site in 1996, the area has naturally begun reclaiming itself. The settling pond fills with rainwater in the winter when it essentially becomes a lake. As the rains let up in spring, the water level begins to drop and by May there are sandy islands and a few mudflats exposed. By late June and July much of the water is normally gone and extensive sand and mudflats appear with scattered ponded water. In August and September, the area is almost entirely dry with sandy areas predominating and cracked mud on the northern end of the large pond where the last of the main pond water remains with a small pond also still present south of the mitigation dike. By October and November the winter rains have usually begun filling up the site with water and by December it is normally completely covered with water again. Once devoid of vegetation, hooker willows have begun growing in various locations at the site particularly around the aeration pond and in the southeast end of the main pond. Various sedges and forbs also appear as the water level drops in spring and summer. A forest primarily consisting of shore pine and Sitka spruce surrounds the site on three sides. The main pond area is not managed and could be described as in the early stages of natural pond succession. All other fresh water marsh sites in the deflation plain on the North Spit are more heavily vegetated so the open sand and mudflats make this a unique site on the spit.

The future of the site is uncertain. It is currently for sale by Weyco, and the International Port of Coos Bay (IPCB) looks like a likely buyer of the site as they have proposed acquiring all lands for sale on the North Spit to be used for industrial development. **On 24 April 2006, Weyco closed the site to public, along with all most of the rest of their land holdings on the North Spit.** Officials from Weyco said the land closure was a liability issue since they will not be monitoring the site anymore. A land deal with the IPCB is imminent and we can only hope that the new owner will once again open the site for public use. Cape Arago Audubon has been in contact with the IPCB on the future of the site which we hope could be used as a mitigation site and thus be left as is or managed for wildlife purposes. Hopefully, the IPCB would also permit public access to the site. If you would like to contact the IPCB to voice your opinion on the future of this site or to get more information about what is happening, you can contact them at: Phone: (541) 267-7678; Fax: (541) 269-1475; E-mail: www.portofcoosbay.com.

Spring Birds (April and May)

By mid- to late April all the swallows are back including Purple Martins which nest in boxes on pilings in Coos Bay right off the



Map of the Weyerhaeuser Settling Pond Site on the North Spit of Coos Bay
Map/S. Dowlan

BLM boat ramp site (see map). In mid-May this is the best spot to locate the rare but regular Bank Swallow in Coos County; I have seen all seven species of swallows that occur in Oregon in a single May morning here. Sora, Virginia Rails, and American Bittern breed here and can be heard calling early morning this time of year. Waterfowl, shorebird, and passerine migration really picks up in May. Hard to find species in the county like Greater White-fronted Goose, Redhead, and Blue-winged and Cinnamon Teal are fairly regular during May. If water levels are not too high and some sand and mudflats are exposed (varies from year to year), this is a good spot to see migrating shorebirds from late April throughout May. Since 2003, Wilson's Phalaropes have been nesting here (late May to early-July), the only known coastal breeding location for this species in Oregon. Mid- to late May is also an excellent time to find less common to rare county shorebirds like Pacific Golden-plover (annual), American Avocet (almost annual), and White-faced Ibis (one record). Passerine migration is always busy at the site in May, with many species of warblers, vireos, flycatchers, and sparrows funneling through. Uncommon to rare county passerines seen at the site in spring include: Sedge Wren (only Oregon record), Sage Thrasher (one spring record), Northern Mockingbird (almost regular), Western Kingbird (regular), Gray Catbird (one spring record), Nashville Warbler (almost regular), Vesper Sparrow (almost regular), Chipping Sparrow (rare on the coast), and Yellow-headed Blackbird (almost regular). Ring-necked Pheasant are particularly noticeable here during spring when the males can be heard calling from grassy areas.

Summer Birds (June and July)

This spot is the place to find waterfowl species that do not nest anywhere else in Coos County. Ring-necked Ducks have nested here every year but one since 1998 but nowhere else in the county. Other rare breeding records include: Blue-winged Teal (only county record in 2004); Cinnamon Teal (3 of 4 county records from here); Northern Shoveler (4 out of 5 county records from here); Green-winged Teal (only county record in 2004); Hooded Merganser (nest somewhere nearby; 2 of 3 county records from here); and Ruddy Duck (only county record in 2003). At least one pair of Black Phoebes now breed at the site and Yellow Warblers, absent as breeders in most areas of the Coos County along the coast, have recently been found breeding here. By June, Wilson's Phalaropes and Spotted Sandpipers are on nest and in early July, downy young birds of these species can usually be seen feeding with other shorebirds. June is a transition month for shorebirds with most birds on their breeding grounds in the Arctic. However, there always seems to be a few lingering shorebirds around through mid-June (probably nonbreeders that never make it to the breeding grounds) including both species of dowitchers, Semipalmated Plovers (which have bred further south on the North Spit before), and both Western and Least Sandpipers. By late June and early July the main pond area has been reduced to a series of puddles with sand and mudflat exposed, just in time for the beginning of fall migration. Short-billed Dowitchers, Western and Least Sandpipers, and Greater Yellowlegs are all in by the first week or so of July and things start to really pick up by mid-month when the first Semipalmated Sandpipers can normally be careful picked out of the huge flocks of peeps and striking breeding-plumaged Ruddy Turnstones show up in mixed flocks. July is the month to look for rare stints at the site; a Red-necked Stint was found amongst a large flock of peeps on 15 July 1999.

Fall Birds (August through mid-November)

This area is HOT during the fall migration. Shorebird numbers can exceed 10,000 at the site (generally Semipalmated Plovers and Western and Least Sandpipers making up the bulk of the numbers) during mid-August, September, and early October particularly when the bay is at high tide. It is important to walk the large sandy area between the north and south dikes as the shorebirds are often invisible from the north dike. The open sandy area is particularly attractive to both species of golden-plovers (with Pacifics decidedly more common), Baird's Sandpipers (mid-August is their peak), and Buff-breasted Sandpipers (last week of August through mid-September), the latter being fairly common here and often seen in multiple numbers including 13 on 28 August 2004! During this "dry" period in fall there is often little water except on the very northern edge of the main pond and south of the south mitigation dike. It can be rewarding to take the long walk to the pond south of the mitigation dike as this is a good way to jump Lapland Longspurs (September- October), Buff-breasted Sandpipers, golden-plovers, or to find rarities such as American Avocet (rare but regular) invisible from further north on the main dry pond area. Closely checking out the large flocks of peeps, often resting and well hidden in the dry cracked mud on the north-

Gyrfalcon at the North Spit of Coos Bay 20 February 2006. Photo/R. Namitz

west end of the main pond, is the best way to find Semipalmated Sandpipers (in August) which are regular in small numbers or other rarities such as Ruff (late August through mid-October), Sharp-tailed Sandpiper (mid-September through October), Stilt Sandpiper (mid-August through September), and Curlew Sandpiper (late September-October). Not only is the shorebirding outstanding this time of year, but passerine birding can be just as good. Check the willows around the aeration pond in early morning before the winds pick up, particularly in September. Yellow Warblers are thick in the willows during this time and rarities such as Magnolia and Virginia's Warbler have been seen in recent years. Palm Warblers are regular from mid-October into mid-November and are also fond of the willows. Check the powerlines around the site for Tropical Kingbirds which are almost annual here in the fall (late September-October) and maybe you will get lucky and see a couple with a Scissor-tailed Flycatcher as was witnessed by several birders in early November of 1997! Other rare finds include: Sage Thrasher (one fall record), Gray Catbird (one fall record), Grasshopper Sparrow (August), Chestnut-collared Longspur (multiple records from October to early November), and Bobolink (late September-early October). Large flocks of American Pipits are present in the main pond area in September and October, check these closely for Lapland Longspurs, Horned Larks, and Asian rarities such as Red-throated Pipit (a probable was heard and seen briefly in late September of 2003). Regular fall raptor migrants at the site include Rough-legged Hawks and Short-eared Owls (October-early November) with one record of Prairie Falcon in early August of 1999. Parasitic Jaegers and Common Terns (September) have also been seen over the main pond, and a Little Gull was found in September of 1999. Jaegers, terns, and other pelagic species are more often seen over the open ocean which can be scoped from the west end of the north dike which overlooks the ocean.

Winter Birds (mid-November through March)

Winter is the "slow" season at this site. Duck hunters use the large pond throughout the fall/winter hunting season so waterfowl numbers generally drop off as soon as the season starts. Hunting is not permitted on the aeration pond, so whatever ducks remain tend to congregate here. The aeration pond is one of the

most regular spots for wintering Eared Grebes in the county. Out on the main pond a Snow Goose or two are occasionally seen and there is one record of a Ross' Goose in December of 2005. If the main pond area has not filled up with water late fall rarities can sometime be found such as Snow Bunting (seen once in early December) and Lapland Longspur (more common in October). The willows around the aeration pond often host an overwintering Palm Warbler or two and should always be checked for rarities such as American Tree Sparrow (seen twice in recent years). "Myrtle" Yellow-rumped Warblers are abundant in the willows during winter and a few Black Phoebes are usually around. Bald Eagles, Red-shouldered Hawks, White-tailed Kites, Peregrine Falcons, Merlins, Osprey, and Northern Shrikes are seen off and on throughout the area during this period. Snowy Owls have been seen at the site during irruption years and Burrowing Owls have wintered in the area on more than one occasion. During recent winters, this has been a good location to spot the occasional Barn Swallow during December and January. After major December storms, it is not uncommon to find tens or hundreds of Red Phalaropes bobbing around on the main pond after being blown in off the ocean. Gyrfalcons have overwintered further south on the North Spit the past few years and have been seen on occasion at this site. By March the first swallows appear and some years a Say's Phoebe can be found flycatching from open perches along the north dike from mid-March through early April.

Directions to the Site and Birding Tips:

From Coos Bay, take Highway 101 north through North Bend and over the mile long bridge spanning Coos Bay. Just north of the bridge is the signed Horsfall Beach turnoff on the west side of Highway 101. Follow this diked road just over a mile until it crosses over some railroad tracks. Just past the railroad tracks stay left on Transpacific Lane. Follow Transpacific Lane 2.7 miles and park near the gate on the right (west side of the road, do not block the gate). This puts you at the north dike which passes along the north end of the aeration pond and then along the north end of the main pond. There is a diked trail around the aeration pond also. I've always had my best luck by getting down off the dikes and walking the main pond area. This gives you good birding access to the willows where passerines can be found and enables you to walk the sand and mudflats where many shorebirds cannot be seen from the dike. Birding the willows is best accomplished first thing in the morning, before the winds begin howling out of the north by late AM on a typical sunny late spring/summer day. The main pond is generally not walkable until late spring or early summer when water levels have dropped enough to permit access. Mud is not a problem except in the far north end of the main pond; otherwise it is mostly easy walking on sand. Mosquitoes are thick in spring and early summer especially in the morning before the winds have picked up, a repellant of some sort is almost always needed.

American Kestrel, 28 October, Ankeny N.W.R., Marion Co. Photo/S. Dowlan

Appendix E:
Potential Funding Sources

MEMO

Date: February 10, 2012

To: Muriel Gueissaz-Teufel, HDR Engineering
Elise Hammer, International Port of Coos Bay
Donna Nichols, International Port of Coos Bay

From: Tia Cavender, Chase Park Grants

Project: North Spit WWTF – Task 300 Grant and Funding Research

RE: Port of Coos Bay Grant Prospect Report

The following includes an update on progress and work completed to date on Task 300 Grant and Funding Research on the North Spit Wastewater Treatment Facility project.

Chase Park Grants (CPG) conducted targeted research to identify government and private funding opportunities for International Port of Coos Bay (Port of Coos Bay). Based on the focus areas of the North Spit project, we comprehensively researched opportunities specific to: 1) the construction of the North Spit wastewater treatment facility, and 2) wetlands/birds/natural resources.

The research process involved canvassing a variety of industry resources including Oregon state agencies and departments, Grants.gov, GrantSpy.com, Foundation Center, Charity Channel, Grant Station, to name a few.

After identifying initial prospects, we conducted three iterations of filtering and screening to determine which opportunities best aligned with Port of Coos Bay's initiatives, and which should be removed from the prospect pool. Opportunities were excluded if they were intended for rural or tribal communities.

Next, grant programs were assigned to one of three categories, and were divided into three different reports. Specifically,

1) **Primary Prospects**—opportunities that warrant further consideration of pursing in the near future (Attachment A)
2) **Secondary Prospects**—these may be worth looking into further after the primary prospects have been explored and/or to pursue as match funding (Attachment B)
3) **Ruled Out**—defined as inappropriate for the current project, not worthy of pursuit at this time, or Port of Coos Bay does not meet eligibility criteria (Attachment C)

With each report, grants are organized as pertaining to the wastewater treatment facility or wetlands/birds/natural resources.

A few items to consider when advancing the Port's grant-seeking efforts for these projects:

- Whenever possible, consider targeting funders that have already supported Port activities in the past. Assuming the projects were successfully completed and that the Port met all grant reporting requirements, funders that have provided support in the past are the best place to start with when new grant-seeking initiatives have commenced.

- Consider creating a comprehensive list of past support that emphasizes the Port's proven track record for securing government and private grants. Maintaining a history of past support is an easy way to prove that the Port has been endorsed by numerous federal, state, and private agencies. Funders often consider applicants with a successful history of securing external funding as more competitive than applicants without a proven history.
- It's possible that the Port may uncover information during future planning indicating that the categorization of these prospects should change. Thus, the designations reflected in these reports should be considered preliminary only, to provide a starting place to inform future efforts rather than a final assessment warranting immediate action.
- Given that the Port has not decided yet whether it will partner with the City of Coos Bay to construct the new wastewater treatment facility, we included funding options that could be explored in both scenarios. In general, however, publicly-owned facilities have more funding options than do privately-owned or industry wastewater treatment facilities.
- After the plans for the facility have been solidified, we recommend updating this list to confirm that the funding programs are still available. Each grant program has a corresponding website link to make this updating process easier.

Attachments:

Coos Bay Prospect Report 1 - Primary.pdf

Coos Bay Prospect Report 2 - Secondary.pdf

Coos Bay Prospect Report 3 - Ruled Out.pdf

Funding Prospect Report (1 of 3)
PRIMARY / TOP PROSPECTS
Prepared for Port of Coos Bay Project February 2012

Grant Opportunities are sorted into these categories: Wastewater Treatment Facility and Wetlands/Birds/Natural Resources.

Record #	Funder	Grant Program	Grant Purpose	Max Grant Amount	Eligibility Criteria	Website
Wastewater Treatment Facility						
CPG000086	Oregon Department of Energy	Energy Loan Program	To promote energy conservation and renewable energy resource development by offering low-interest loans for projects that: save energy; produce energy from renewable resources such as water, wind, geothermal, solar, biomass, waste materials or waste heat; use recycled materials to create products; and use alternative fuels.	$20,000,000	Individuals, businesses, schools, cities, counties, special districts, state and federal agencies, public corporations, cooperatives, tribes, and non-profits.	http://oregon.gov/ENERGY/LOANS/selphm.shtml
CPG000277	Economic Development Administration (EDA) and United States Department of Commerce (DOC)	Public Works and Economic Development Facilities	To support the construction or rehabilitation of essential public infrastructure and facilities necessary to generate or retain private sector jobs and investments, attract private sector capital, and promote regional competitiveness, including investments that expand and upgrade infrastructure to attract new industry, support technology-led development, accelerate new business development, and enhance the ability of regions to capitalize on opportunities presented by free trade.	$2,000,000	District Organization; Indian Tribe or a consortium of Indian Tribes; State, city, or other political subdivision of a State, including a special purpose unit of a State or local government engaged in economic or infrastructure development activities, or a consortium of political subdivisions; Institution of higher education or a consortium of institutions of higher education; or Public or private non-profit organization or association acting in cooperation with officials of a political subdivision of a State.	http://www.eda.gov/ImageCache/EDAPublic/documents/pdfdocs2008/13cfrchapter_20iii_2d2006andifr_2epdf/v1/13cfrchapter_20iii_2d2006andifr.pdf
CPG000395	U.S. Department of Energy	Renewable Energy Production Incentive (REPI) program	To provide financial incentive payments for electricity generated and sold by new qualifying renewable energy generation facilities. Qualifying generation technologies include: solar, wind, geothermal, biomass, landfill gas, livestock methane, ocean, fuel cells using hydrogen derived from eligible biomass facilities.	Varies; 1.5¢ to 2.1¢ per kWh	Not-for-profit electrical cooperatives; public utilities; state governments; Commonwealths; territories of the United States; the District of Columbia; Indian tribal governments, or a political subdivision thereof; or Native Corporations that sell the facility's electricity.	http://apps1.eere.energy.gov/repi/

Record #	Funder	Grant Program	Grant Purpose	Max Grant Amount	Eligibility Criteria	Website
CPG000804	Oregon Infrastructure Finance Authority	Special Public Works Fund	Provides funds for publicly owned facilities that support economic and community development in Oregon. Funds are available to public entities for: planning, designing, purchasing, improving and constructing publicly owned facilities, and emergency projects as a result of a disaster.	$500,000	Airport facilities; buildings and associated equipment; restoration of environmental conditions on publicly owned industrial lands; port facilities, wharves and docks; the purchase of land, rights of way and easements necessary for a public facility; telecommunications facilities; railroads; roadways and bridges; solid waste disposal sites; storm drainage systems; wastewater systems; and water systems. Public agencies that are eligible to apply for funding are: cities; counties; county service districts; tribal councils; ports; and airport districts.	http://www.orinfrastructure.org/Learn-About-Infrastructure-Programs/Interested-in-a-Community-Development-Project/Special-Public-Works-Fund/
CPG000805	Oregon Infrastructure Finance Authority	Water/Wastewater Financing Program	For the design and construction of public infrastructure needed to ensure compliance with the Safe Drinking Water Act or the Clean Water Act.	$750,000	Cities; counties; county service districts (organized under ORS Chapter 451); tribal councils; ports; and special districts as defined in ORS 198.010. The proposed project must be owned and operated by a public entity as listed above.	http://www.orinfrastructure.org/Learn-About-Infrastructure-Programs/Interested-in-a-Water-or-Wastewater-Improvement-Project/water-wastewater-financing/
CPG000807	Oregon Infrastructure Finance Authority	Port Revolving Fund	This is a loan program to assist Oregon ports in the planning and construction of facilities and infrastructure. Funds may be used for port development projects (facilities or infrastructure) or to assist port-related private business development projects. The variety of eligible projects is very broad and may include, but are not limited to: water-oriented facilities; industrial parks; and airports and commercial or industrial developments. Eligible project costs can include: engineering; acquisition; improvement; rehabilitation; construction; operation; and maintenance or pre-project planning.	$3,000,000	Any port incorporated under ORS Chapter 777 or 778 may apply for funding. Projects must be located within port district boundaries.	http://www.orinfrastructure.org/Learn-About-Infrastructure-Programs/Interested-in-a-Port-Project/Port-revolving-loan-fund/

Record #	Funder	Grant Program	Grant Purpose	Max Grant Amount	Eligibility Criteria	Website
Wetlands/Birds/Natural Resources						
CPG000998	U.S. Fish & Wildlife Service	North American Wetlands Conservation Act Standard Grants Program	This grant program supports projects that involve long-term protection, restoration, and/or enhancement of wetlands and associated uplands habitats. In Mexico, partners may also conduct projects involving technical training, environmental education and outreach, organizational infrastructure development, and sustainable-use studies. These projects must involve long-term protection, restoration, and/or enhancement of wetlands and associated uplands habitats for the benefit of all wetlands-associated migratory birds.	Based on project costs		http://www.fws.gov/birdhabitat/Grants/NAWCA/Standard/index.
CPG001056	National Fish and Wildlife Foundation	Five Star Restoration Grant	To bring together students, conservation corps, other youth organizations, citizen groups, corporations, landowners and government agencies to provide environmental education through projects that restore streambanks and wetlands. The program provides challenge grants, technical support, and opportunities for information exchange to enable community-based restoration projects.	$40,000	Any public or private entity that can receive grants.	Nonprofit organizations, universities, Native American tribes, and local, state, and federal agencies.
CPG001060	U.S. Fish and Wildlife Service	Endangered Species Grants	Funding is available for projects with a focus on species and habitat conservation actions on non-Federal lands and to help States and landowners plan and implement projects to conserve species.	$1,000,000	State agencies that have a current cooperative agreement with the Secretary of the Interior.	http://www.fws.gov/endangered/grants/index.html
CPG001062	U.S. Dept of Agriculture - Natural Resources Conservation Service	Wildlife Habitat Incentive Program (WHIP)	Funding is available for projects that: 1) Promote the restoration of declining or important native fish and wildlife habitats; 2) protect, restore, develop or enhance fish and wildlife habitat to benefit at-risk species; 3) reduce the impacts of invasive species on fish and wildlife habitats; 4) protect, restore, develop or enhance declining or important aquatic wildlife species' habitats; and 5) protect, restore, develop or enhance important migration and other movement corridors for wildlife.	Project specific	Land eligible for WHIP includes: Private agricultural land including cropland, grassland, rangeland, pasture, and other land determined by NRCS to be suitable for fish and wildlife habitat development; non-industrial private forest land including rural land that has existing tree cover or is suitable for growing trees and Indian land.	http://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/financial/whip

Record #	Funder	Grant Program	Grant Purpose	Max Grant Amount	Eligibility Criteria	Website
CPG000834	Together Green	Innovation Grants	To fund projects that: conserve or restore habitat and protect species, improve water quality or quantity, and reduce the threat of global warming; engage new and diverse audiences in conservation actions; and inspire and use innovative approaches and technologies to engage people and achieve conservation results.	$80,000	Eligible applicants are part of the National Audubon Society, are a 501(c)3 tax exempt public charity, have commitment from at least one partner organization to serve as a collaborator, and have adequate collective experience and organizational capacity to administer, implement, and evaluate the project.	http://www.togethergreen.org/Projects/Grants.aspx
CPG002231	US Dept of Interior - Fish and Wildlife Service	Coastal Program	The Coastal Program is a voluntary, incentive-based program that provides technical and financial assistance to coastal communities and landowners to protect and restore fish and wildlife habitat on public and private lands.		Unrestricted; the coastal program works with public agencies, non-governmental organizations and private land owners.	http://www.fws.gov/coastal/

Funding Prospect Report (2 of 3)
SECONDARY PROSPECTS
Prepared for Port of Coos Bay Project February 2012

Grant Opportunities are sorted into these categories: Wastewater Treatment Facility and Wetlands/Birds/Natural Resources.

Record #	Funder	Grant Program	Grant Purpose	Max Grant Amount	Eligibility Criteria	Website
Wastewater Treatment Facility						
CPG000809	Oregon Business Development Commission	Oregon Industrial Development Bonds and Oregon Express Bond Program	These bonds finance job creation and business growth for Oregon traded-sector, value-added manufacturers and processors by providing long-term debt financing for land, buildings and other fixed assets at a rate below prime.	$5,000,000	Generally, eligible activities include manufacturing, processing, warehousing, research and development, natural resource utilization and certain tourism-related facilities. A number of activities are specifically ineligible including retail outlets, shopping centers, food service facilities, athletic clubs, professional corporations and electrical energy facilities.	http://www.oregon4biz.com/Business-financing-resources/Oregon-Finance-Programs/Oregon-Industrial-Development-Bonds/
CPG000808	Oregon Infrastructure Finance Authority	Port Planning and Marketing Fund	To help ports fund planning or marketing studies related to expanding their trade and commerce activities. This includes developing and marketing facilities and services that support important industries in the state, including agriculture, aviation, fishing, maritime, commerce, transportation, tourism/recreation, wood products.	$50,000	Any port incorporated under ORS Chapter 777 or 778 may apply for funding. Projects must enhance the port's ability to conduct trade and commerce; lead to economic diversification, development or new or emerging industry, or redevelopment of existing public facilities; be consistent with any applicable county or city comprehensive planning; not be used to subsidize regular port operating expenses; and not require or rely on continuing subsidies from the IFA.	http://www.orinfrastructure.org/Learn-About-Infrastructure-Programs/Interested-in-a-Port-Project/Port-planning-and-marketing-fund/
CPG000626	State of Oregon	Community Renewable Energy Feasibility Fund Program	To support feasibility studies for renewable energy, heat, and fuel projects in Oregon. Eligible technologies include: 1) Passive Solar Space Heat, 2) Solar Water Heat, 3) Solar Space Heat, 4) Solar Thermal Electric, 5) Solar Thermal Process Heat, 6) Photovoltaics, 7) Landfill Gas, 5) Wind, 6) Biomass, 7) Hydroelectric, 8) Geothermal Electric, 9) Geothermal Heat Pumps, 10) CHP/Cogeneration, 11) Anaerobic Digestion, 12) Small Hydroelectric, 13) Tidal Energy, 14) Wave Energy, 15) Ethanol, Methanol, Biodiesel, and 16) Geothermal Direct-Use.	$50,000	Electric generation projects must aim to be sized 25 kW to 10 MW.	http://www.oregon.gov/ENERGY/RENEW/CREFF.shtml

Record #	Funder	Grant Program	Grant Purpose	Max Grant Amount	Eligibility Criteria	Website
Wetlands/Birds/Natural Resources						
CPG001906	Coastal Code	CODE Grants	Provides grant money to projects and activities that promote: Beach cleanup activities; Water Quality improvement; Sustainable fisheries; Ocean conservation education; and Ocean and coastal preservation.	$10,000	USA established Public Charities (including 501(c)3 designated organizations); Projects or Campaigns with a designated non-profit fiscal sponsor; and Other Organizations or Individuals with a demonstrable charitable purpose (special cases). Must be located along U.S. Western coastline.	http://www.coastalcode.org/code-grants/
CPG000521	Department of Commerce	Estuary Habitat Restoration Program Project Solicitation	To support estuary habitat restoration projects. All proposals address the potential effects of sea level change and other impacts related to climate change as they relate to the viability of the proposed restoration. Projects should demonstrate that climate change information has been or will be integrated into project design, and that the project overall is robust to climate change. Selected projects must provide ecosystem benefits, have scientific merit, be technically feasible, and be cost-effective.	$1,000,000	Institutions of higher education, U.S. Territories, state, local and Indian tribal governments, and non-governmental organizations.	http://www07.grants.gov/search/announce.do;jsessionid=ZQG1TV2hHvTGlPh7vCT1VLjRRm2psnYLhHSJYhSl9294DT4vgs7G!25223394
CPG000039	Hewlett Foundation, William and Flora	Environment Program Western Conservation	To conserve the Western U. S. and Canada for wildlife and people; to slow global climate change by reducing greenhouse gas emissions; and to ensure that the U.S. energy supply is clean and consumption is efficient.	$5,000,000	We support efforts that protect and improve the ecological integrity of the West in 12 states and 3 Canadian provinces: Alaska-Arizona-California-Colorado-Idaho-Montana-Nevada-New Mexico-Oregon-Washington-Wyoming-British Columbia-Alberta-Yukon.	http://www.hewlett.org/programs/environment-program/western-conservation
CPG000051	National Fish and Wildlife Foundation	Keystone Initiatives Grant	The Foundation provides funding on a competitive basis to projects that sustain, restore and enhance the Nation's fish, wildlife, plants and their habitats through our Keystone Initiative Grants and other Special Grant Programs. Under our new strategic plan the Foundation seeks to achieve measurable outcomes on a select set of conservation issues through our Keystone Initiatives. Within each of the initial Keystone Initiatives (i.e., Birds, Freshwater Fish, Wildlife & Habitat, Marine & Coastal), the Foundation has established specific funding priorities.	Based on project costs	Staff will identify the top 5% - 10% of investment opportunities within each Keystone that are strong candidates to become Initiatives. In preparing a list of Prospective Initiatives to bring to the Board for consideration, staff will undertake the following steps.	http://www.nfwf.org/Content/NavigationMenu/GrantPrograms/ProgramsOverview/Keystones/default.htm

Record #	Funder	Grant Program	Grant Purpose	Max Grant Amount	Eligibility Criteria	Website
CPG001058	National Fish and Wildlife Foundation	Oregon Governor's Fund for the Environment	Funding is available for projects with the goal of establishing a sustainable revenue source that is dedicated to local environmental clean-up and restoration efforts focused on preserving and protecting Oregon's rivers, watersheds and fish and wildlife.	$50,000	501(c)3 registered non-profit conservation organizations; local, state or federal government agencies; tribes; educational institutions; watershed councils, soil and water conservation districts, and other special districts.	http://www.nfwf.org/AM/Template.cfm?Section=Charter_Programs_List&CONTENTID=17313&TEMPLATE=/CM/ContentDisplay.cfm
CPG001050	Oregon Department of Fish and Wildlife	Access and Habitat Program	To fund projects that improve public hunting access and wildlife habitat on private lands in Oregon. Typical projects that receive grants include: Wildlife forage seeding; water development; riparian protection; meadow fertilization; wetland restoration; juniper removal; noxious weed control; regulated hunt programs; law enforcement patrols; travel management areas; public hunting leases.	Based on project	Anyone with a project meeting the general eligibility criteria may be interested in applying for an A & H grant. The first step is to contact the nearest regional A&H Program coordinator who can help determine if your project is a good match for A&H funding and get you started on the application process.	http://www.dfw.state.or.us/AH/
CPG001051	Oregon Department of Fish and Wildlife	Bird Stamp Program	To support projects focused on habitat development and improvement projects, equipment, surveys and/or research.	$50,000	Individual landowners, conservation organizations, hunting groups, watershed councils, state & federal agencies, school groups, corporations and academic institutions.	http://www.dfw.state.or.us/wildlife/grants/index.asp
CPG001052	Oregon Department of Fish and Wildlife	Oregon Conservation Strategy Implementation Grants	To help implement priority actions identified in the Conservation Strategy. Funding is available for projects focused on the fact that healthy habitats are the foundation for healthy wildlife and healthy communities.	$100,000	Private non-profit organizations, educational institutions, or state/local agencies.	http://www.dfw.state.or.us/conservationstrategy/oregon_150_grants.asp
CPG001068	Oregon Dept of Environmental Quality	Water Quality - Nonpoint Source Pollution	To fund projects that address nonpoint sources (NPS) of pollution affecting coastal, river, lake, drinking and ground-water resources of the state of Oregon.	Based on project costs	Federal, state and local governments; Public and private nonprofit organizations and institutions; Tribal nations within Oregon.	http://www.deq.state.or.us/wq/nonpoint/grants.htm

Record #	Funder	Grant Program	Grant Purpose	Max Grant Amount	Eligibility Criteria	Website
CPG001086	Plum Creek Foundation	Grant Program	To support projects that improve the quality of life in the communities where we operate and where our employees live and work and organizations that promote environmental stewardship and awareness as well as those that teach environmental education.	$10,000	501(c)(3) non-profit organizations and must operate in or offer services to the areas where Plum Creek operates.	http://www.plumcreek.com/CommunityInvolvement/GrantApplication/tabid/161/Default.aspx
CPG001930	The David & Lucile Packard Foundation	Conservation & Science Program	Projects that invest in action and ideas that conserve and restore ecosystems while enhancing human well-being.	$4,000,000	Non-profit organizations.	http://www.packard.org/what-we-fund/conservation-and-science/
CPG001274	The Lazar Foundation	Environmental Grant Program	We support programs relating to: Conservation of large, biologically significant terrestrial and aquatic ecosystems; Preservation of biological diversity; Broaden the environmental movement; and Strengthen or increase the capacity of the environmental movement's ability to develop, shape, and communicate its message.	$100,000	Organizations that have specific environmental interests in the Pacific Northwest.	http://lazarfoundation.org/guidelines
CPG001284	U.S. Dept. of Interior - Bureau of Land Management	BLM OR-WA: 2011 Challenge Cost Share Program	The objective of the Oregon CCS program is to have a cost effective, local-level cost share program with non-federal partners to implement conservation or other public land management projects for the good of the general public and public resources, including but not limited to, recreation, fish, wildlife, listed and non-listed plant species and their habitat, water quality, cultural sites and historical trails.	$285,000	All organizations are eligible.	http://www07.grants.gov/search/announce.do;jsessionid=9DLLTV7RphL248v3hlh9Thy2MRvRBzJdhD2KXczq0VGyggM5KYSH!25223394
CPG001235	U.S. Dept. of the Interior - Fish & Wildlife Service	NAWCA U. S. SMALL GRANTS	A competitive, matching grants program that supports public-private partnerships carrying out projects in the United States that further the goals of the North American Wetlands Conservation Act. These projects must involve long-term protection, restoration, enhancement and/or establishment of wetlands and associated uplands habitats for the benefit of all wetlands-associated migratory birds. A 1:1 match is required.	$75,000	All organizations are eligible.	http://www.fws.gov/birdhabitat/Grants/NAWCA/Small/index.shtm

Record #	Funder	Grant Program	Grant Purpose	Max Grant Amount	Eligibility Criteria	Website
CPG000943	U.S. Fish and Wildlife Service	Neotropical Migratory Bird Conservation Act	A matching grants program that promotes the long-term conservation of Neotropical migratory birds and their habitats. The goals of the Act include perpetuating healthy populations of these birds, providing financial resources for bird conservation initiatives, and fostering international cooperation for such initiatives.	$200,000	An individual, corporation, partnership, trust, association, or other private entity may apply.	http://www.grants.gov/search/search.do;jsessionid=f0pTTwbB7ncq1xJbwwhJ1T3CGgHHldFfctxvT6QyYZtyCXK6jmfQ!-271650999?oppId=121873&mode=VIEW
CPG001969	US Dept of the Interior - Bureau of Reclamation	WaterSMART Title XVI Water Reclamation and Reuse Program Funding for FY2012	Title XVI projects develop and supplement urban and irrigation water supplies through water reuse, thereby improving efficiency, providing flexibility during water shortages, and diversifying the water supply. Title XVI projects provide growing communities with new sources of clean water while promoting water and energy efficiency and environmental stewardship. A water reuse project is a project that reclaims and reuses municipal, industrial, domestic, or agricultural wastewater and naturally impaired groundwater and/or surface waters. Reclaimed water can be used for a variety of purposes, such as environmental restoration, fish and wildlife, groundwater recharge, municipal, domestic, industrial, agricultural, power generation, or recreation.	$4,000,000	Sponsors of water reclamation and reuse projects specifically authorized for funding under Title XVI of Public Law 102-575, as amended (43 United States Code [U.S.C] 390h through 390h-39) are eligible to apply for funding under this FOA.	http://www.grants.gov/search/announce.do;jsessionid=wTCRTBQfSJn12zJ4X6SnCS709qRQTTnB2LQPLTXY507vKCLI5xMd!-1373114776
CPG001939	US Dept of the Interior - Fish & Wildlife Service	Cooperative Endangered Species Conservation Fund	Provides grants to states and territories to support participation in a wide array of voluntary conservation projects for species on the federal list of threatened and endangered species, as well as for species that are either candidates or have been proposed for listing. These projects range from species status surveys, captive propagation, and public education to habitat acquisition, restoration, and the development of conservation plans. These grants provide critical funding for state and territory conservation efforts for threatened and endangered species.	$1,000,000	Participation in the program is limited to State or Territorial agencies that have a current cooperative agreement with the Secretary of the Interior. That is, only State or Territorial agencies that have a current cooperative agreement with the Secretary of the Interior may apply directly for CESCF grant funding. However, individuals or groups (for example land conservancies, community organizations, or conservation organizations) may work with a State or Territorial agency that has a cooperative agreement, on conservation efforts that are mutually beneficial, as a subgrantee.	http://www.fws.gov/endangered/grants/ http://us.vocuspr.com/Newsroom/Query.aspx?SiteName=FWS&Entity=PRAsset&SF_PRAsset_PRAssetID_EQ=128742&XSL=PressRelease&Cache=True

Record #	Funder	Grant Program	Grant Purpose	Max Grant Amount	Eligibility Criteria	Website
CPG001106	US Fish and Wildlife Service	Migratory Bird Monitoring, Assessment and Conservation	To support projects that focus on the monitoring, assessment and conservation of migratory birds.	$100,000	State governments; County governments; City or township governments; Public and State controlled institutions of higher education; Native American tribal governments (Federally recognized); Native American tribal organizations (other than Federally recognized tribal governments); Nonprofits having a 501(c)(3) status with the IRS, other than institutions of higher education; Nonprofits that do not have a 501(c)(3) status with the IRS, other than institutions of higher education; and Private institutions of higher education.	http://www07.grants.gov/search/search.do;jsessionid=Nv9TNpGGhc1CrMtSjyykLHF2vyypX7t6kQnJhP13dvrDb1Lq12nQ!-1834076665?oppId=79355&mode=VIEW
CPG001029	US DOI Fish and Wildlife Service	National Coastal Wetlands Conservation Grant	To support the long-term conservation of coastal wetland ecosystems and restore these valuable resources. Projects can include (1) acquisition of a real property interest in coastal lands or waters from willing sellers or partners for long-term conservation or (2) restoration, enhancement, or management of coastal wetlands ecosystems.	$1,000,000	Any State agency or State agencies designated by the Governor of a coastal State. It is usually a State natural resource or fish and wildlife agency.	http://www.fws.gov/coastal/coastalgrants/
CPG001484	Waitt Foundation	Grant Program	To support a variety of scientific and environmental programs with an emphasis on ocean conservation with an emphasis on marine protected areas and sustainable fishing practices. By raising global awareness about declining marine resources through scientific research, innovative sustainability solutions, and policy reform, it's our hope that people will be inspired to make informed decisions in support of a healthy marine environment.	No max, but minimum of $100,000	Federal tax-exempt 501(c)(3) non-profit organizations. If your organization does not have a 501(c)(3) tax status, you may apply for a grant using a fiscal sponsor who is a registered non-profit public charity.	http://waittfoundation.org/grant-guidelines

Record #	Funder	Grant Program	Grant Purpose	Max Grant Amount	Eligibility Criteria	Website
CPG001205	Wilburforce Foundation	Foundation Grant Program	A private, philanthropic foundation that protects wildlife habitat in Western North America by actively supporting organizations and leaders advancing conservation solutions.	$200,000	Nonprofit groups devoted to the protection of our remaining wild places.	http://www.wilburforce.org/

Funding Prospect Report (3 of 3)
RULED OUT
Prepared for Port of Coos Bay Project February 2012

Grant Opportunities are sorted into these categories: Wastewater Treatment Facility and Wetlands/Birds/Natural Resources.

Record #	Funder	Grant Program	Grant Purpose	Eligibility Criteria	Website
Wastewater Treatment Facility					
CPG001754	Bonneville Power Administration	Commercial and Industrial Lighting Efficiency Program	To reach conservation goals this year our efficiency program provides new opportunities targeting the T12 retrofit market to help support efficiency improvements before the July 14, 2012 federal minimum standard change.	Commercial customers of Bonneville Power.	http://www.bpa.gov/energy/n/projects/lighting/
CPG001755	Bonneville Power Administration	Energy Smart Industrial	To assist BPA utility customers and their industrial facility customers in increasing cost-effective energy efficiency savings. The program is a primary mechanism for BPA utility customers to achieve industrial load energy savings targets of 12 aMW in fiscal year 2010 and 15 aMW in fiscal year 2011 as found in the Sixth Power Plan, nearly double the energy savings that were achieved in the previous two years. The ESI program encompasses all BPA offered industrial sector programs moving forward.	Industrial customers of Bonneville Power.	http://www.bpa.gov/Energy/N/industrial/index.cfm
CPG001322	Business Oregon	Oregon Main Street Grant Program	Works with communities to develop comprehensive, incremental revitalization strategies based on a community's unique assets, character and heritage. Services are based on the successful Main Street Approach® developed by the National Trust for Historic Preservation and include training and technical assistance. The goal is to build high quality, livable and sustainable communities that will grow Oregon's economy.	Oregon Main Street provides assistance to all communities no matter where they are in the process. Currently, there are 63 communities participating in one of the three levels of the Oregon Main Street program.	http://www.oregon4biz.com/Grow-Your-Business/Business-services/Main-Street/

Record #	Funder	Grant Program	Grant Purpose	Eligibility Criteria	Website
CPG001359	Oregon Department of Land Conservation and Development	Grant Program	To fund grants to local and tribal governments to complete projects that update and modernize comprehensive plans, land use ordinances, development codes and other planning regulations. Periodic Review grants are used for completing tasks on currently established work programs. Technical Assistance awards are guided by a Grants Allocation Plan. The allocation plan lists priorities such as: Economic development; Streamlining planning processes; Intergovernmental agreements; Updates to coordinated county-wide population projections; and Infrastructure finance planning.	Local governments offices, cities and counties of Oregon	http://www.oregon.gov/LCD/grants.shtml
CPG001319	State of Oregon - Infrastructure Finance Authority	Community Development Block Grant Program	For a variety of community facilities, public works projects, housing rehabilitation, services to microenterprise and other businesses where the proposed project will primarily benefit low- and moderate-income persons.	Non-metropolitan cities and counties in rural Oregon can apply for and receive grants. (Oregon tribes, urban cities (Ashland, Bend, Corvallis, Eugene, Gresham, Hillsboro, Medford, Portland, Salem and Springfield) and counties (Clackamas, Multnomah, Washington) receive funds directly from HUD.)	http://www.orinfrastructure.org/Learn-About-Infrastructure-Programs/Interested-in-a-Community-Development-Project/
Wetlands/Birds/Natural Resources					
CPG001371	Bella Vista Foundation	Ecosystem Restoration	Focuses on protecting, restoring, and revitalizing high priority watershed ecosystems in California and Oregon. Within these key watersheds, the Foundation's priorities are promoting the sustainable management of forest and agricultural land, revitalizing streams, restoring riparian areas, and protecting biodiversity, with the goal of enhancing and maintaining self-sustaining watershed ecosystems.	Non-profit agencies.	http://www.pfs-llc.net/bellavista/bv_environment.html
CPG001315	Community Counsel Foundation	Abelard Foundation West	To support grassroots social change organizations that engage in community organizing which: Utilizes membership or grassroots participation to represent the interests of communities in which they are based; Expands community control over economic, social and environmental decisions affecting the community's well-being; and Builds a strong informed voice on public policy issues.	IRS 501 (c) 3 tax exempt status or a fiscal sponsor who has tax exempt status residing in listed geographic region of Northern Rockies, the Great Basin, the Northwest, the Southwest and California. Community. Must have total annual budget of $400,00 or less.	http://www.commoncounsel.org/Abelard%20Foundation%20West/9-Abelard%20Foundation%20West/4-Abelard%20Foundation%20Application%20Information

Record #	Funder	Grant Program	Grant Purpose	Eligibility Criteria	Website
CPG001316	Community Counsel Foundation	Acorn Foundation	Dedicated to supporting community-based organizations working to advance environmental conservation, sustainability and environmental justice.	Must have total annual budget of $400,00 or less and have IRS 501 (c) 3 tax exempt status or a fiscal sponsor who has tax exempt status residing in listed geographic region of western and southern U.S. & Appalachia.	http://www.commoncounsel.org/Acorn%20Foundation
CPG001311	Deacon Charitable Foundation	Grant Program	The Foundation funds organizations that benefit people in the communities where S.D. Deacon Corp. conducts business: Washington, Oregon and California. Our focus areas are human services, animal welfare and the environment.	Organizations in Washington, Oregon & California.	http://www.deaconcharitablefoundation.org/grant-donation.php
CPG001947	Dept of the Interior - US Fish & Wildlife Service	State Wildlife Grants Competitive Grant Program	For "the development and implementation of programs for the benefit of wildlife and their habitat, including species that are not hunted or fished…". Each SWAP identifies species of greatest conservation need (SGCN) that occur in a State and the habitats needed to conserve them. In addition, the SWAPs provide detailed information on issues affecting SGCN and their habitats and conservation actions and strategies to address these issues.	The State agency with primary responsibility for fish and wildlife management and conservation in each of the 50 States; the Commonwealths of Puerto Rico and the Northern Marianna Islands; the territories of the U.S. Virgin Islands, Guam, and America Samoa; and the District of Columbia are eligible. Only entities with Service-approved SWAPs are eligible to apply for SWG Competitive Grant Program funds.	http://wsfrprograms.fws.gov/Subpages/GrantPrograms/SWG/SWG.htm
CPG000550	Dept. of the Army -- Corps of Engineers	Broad Agency Announcement	To conduct research in the broad fields of hydraulics, dredging, coastal engineering, instrumentation, oceanography, remote sensing, geotechnical engineering, earthquake engineering, soil effects, vehicle mobility, self-contained munitions, military engineering, geophysics, pavements, protective structures, aquatic plants, water quality, dredged material, treatment of hazardous waste, wetlands, physical/mechanical/ chemical properties of snow and other frozen precipitation, infrastructure and environmental issues for installations, computer science, telecommunications management, energy, facilities maintenance, materials and structures, engineering processes, environmental processes, land and heritage conservation, and ecological processes.	Proposals are encouraged from Historically Black Colleges and Universities or Minority Institutions for students to provide research support to any of the research and development areas listed in this BAA. ERDC also encourages small business concerns, women owned small businesses, small disadvantaged business concerns, small businesses located in HUBZones, businesses participating in the Small Business Administration 8(a) program, and service disabled veteran-owned small businesses to submit research proposals for consideration.	http://www07.grants.gov/search/announce.do;jsessionid=RQnjTXxWqQr3RnP4wBHvHDnH0ThJyyx3w2mLbPRzxWphJhTCrjyY!-2085669396

Record #	Funder	Grant Program	Grant Purpose	Eligibility Criteria	Website
CPG001067	Fish America Foundation	Apply For Grants Marine and Anadromous Sportfish Habitat Restoration Grants	Funding is available for project to restore habitat for marine and anadromous fish species Successful proposals have community-based restoration efforts with outreach to the local communities. Emphasis is on using a hands-on, grassroots approach to restore fisheries habitat across coastal America, the Great Lakes region, and the US Virgin Islands and Puerto Rico.	Non-profit organizations, educational institutions, and local and state governments.	http://www.fishamerica.org/grants/
CPG001621	Georgia-Pacific Foundation	Environment Grant Program	The company invests in organizations that foster and promote environmental responsibility and provide environmental learning opportunities, including those that promote source reduction, recycling, reuse, and clean communities.	Organizations in geographic areas where Georgia-Pacific is located.	http://www.gp.com/gpfoundation/environment.html
CPG000340	Jubitz Family Foundation	Grant Program	To enhance the communities in which we live by strengthening families, by respecting the natural environment, and by fostering peace. Environmental stewardship, with an emphasis on rivers and their watershed ecosystems.	Oregon organizations that fall within the foundations areas of interest (Environmental stewardship).	http://www.jubitzff.org/
CPG001314	Kongsgaard/Goldman Foundation	Environment Grants Program	Environmental Protection and Conservation: Public policy, litigation, citizen involvement, public education, restoration, sustainable land use and environmental justice. Grants are awarded for both general operating expenses and special projects.	All applicant organizations must be classified as a 501 (c) (3) by the U.S. Internal Revenue Services or a 149 (1) (f) by Revenue Canada.	http://www.kongsgaard-goldman.org/program
CPG000176	National Fish and Wildlife Foundation	Acres for America	To provide funding for projects that conserve important habitat for fish, wildlife, and plants through acquisition of interest in real property. The goal of the Acres for America program is to offset the footprint of Wal-Mart's domestic facilities on at least an acre by acre basis through these acquisitions.	Endorsement by appropriate federal, state, and local government agencies that the acquisition is of high conservation value is a primary consideration. Preference will be given to acquisitions that are part of published conservation plans (North American Waterfowl Management Plan, Partners in Flight, etc.), State Wildlife Action Plans, or Endangered Species Act Recovery Plans. Endorsement by non-profit conservation organizations that the acquisition is of high conservation value using same criteria as above is also a primary consideration.	http://www.vcnva.org/anx/index.cfm/1,305,839,0,html/National-Fish-and-Wildlife-Foundation-Accepting-Pre-proposals-for-Wal-Mart-Acres-for-America-Grant-Program-Apr-1

Record #	Funder	Grant Program	Grant Purpose	Eligibility Criteria	Website
CPG001055	National Fish and Wildlife Foundation	Bring Back the Natives	To fund projects interested in restoring, protecting, and enhancing native populations of sensitive or listed aquatic species, especially on lands on or adjacent to federal agency lands. The Bring Back the Natives initiative (BBN) funds on-the-ground efforts to restore, protect, and enhance native aquatic species to their historic range. Projects should involve partnerships between communities, agencies, private landowners, and organizations that seek to rehabilitate streamside and watershed habitats. Projects should focus on habitat needs of species such as fish, invertebrates, and amphibians that originally inhabited the waterways across the country.	Nonprofit organizations, universities, Native American tribes, and local, state, and federal agencies.	http://www.nfwf.org/AM/Template.cfm?Section=Charter_Programs_List&CONTENTID=18470&TEMPLATE=/CM/ContentDisplay.cfm
CPG001057	National Fish and Wildlife Foundation	Native Plant Conservation Initiative	Funding is available for projects that focus on the conservation of native plants and pollinators under any of the following six focal areas: conservation, education, restoration, research, sustainability, and data linkages. In 2011, applicants are strongly encouraged to coordinate with federal agencies for projects that focus on and benefit eastern North American early successional habitat, prairie coteau grasslands, sky islands grasslands, deserts, Gunnison sage-grouse, southeastern grasslands (especially longleaf pine forest), seabirds, shortgrass prairie, and Colorado River fishes.	501(c) non-profit organizations and local, state, or federal government agencies.	http://www.nps.gov/plants/nfwf/rfp.htm
CPG001058	National Fish and Wildlife Foundation	Oregon Governor's Fund for the Environment	Funding is available for projects with the goal of establishing a sustainable revenue source that is dedicated to local environmental clean-up and restoration efforts focused on preserving and protecting Oregon's rivers, watersheds and fish and wildlife.	501(c)3 registered non-profit conservation organizations; local, state or federal government agencies; tribes; educational institutions; watershed councils, soil and water conservation districts, and other special districts.	http://www.nfwf.org/AM/Template.cfm?Section=Charter_Programs_List&CONTENTID=17313&TEMPLATE=/CM/ContentDisplay.cfm
CPG000980	National Forest Foundation	Matching Awards Program	To fund projects that focus on at least one of the following areas of programmatic emphasis: Wildlife habitat improvement; recreation; watershed health and restoration; and community-based forestry.	Non-federal partners, community-based organizations, Native American tribes and nonprofit organizations implementing action-oriented on-the-ground conservation and citizen-based monitoring projects on or around National Forests or Grasslands.	http://nationalforests.org/conserve/grantprograms/ontheground/map/application

Record #	Funder	Grant Program	Grant Purpose	Eligibility Criteria	Website
CPG001966	National Park Service	Land and Water Conservation Fund (LWCF)	To stimulate a nationwide action program to assist in preserving, developing, and assuring to all citizens of the United States of present and future generations such quality and quantity of outdoor recreation resources as may be available and are necessary and desirable for individual active participation. The program provides matching grants to States and through States to local units of government, for the acquisition and development of public outdoor recreation sites and facilities. Grant funds are also available, to States only, for fulfilling the statewide comprehensive outdoor recreation planning requirements of the program.	Only the State Liaison Officer is eligible to apply for planning assistance from LWCF. All 50 states, the District of Columbia and territories of the U.S. are eligible to apply.	http://www.nps.gov/lwcf/manual/lwcf.pdf
CPG000055	National Science Foundation	Environmental Engineering Program	To encourage transformative research that applies scientific principles to minimize solid, liquid, and gaseous discharges into land, inland and coastal waters, and air that result from human activity, and to evaluate adverse impacts of these discharges on human health and environmental quality.	Universities and colleges; non-profit, non-academic organizations; for-profit organizations; state and local governments; and scientists, engineers or educators.	http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=501029
CPG001054	Oregon Department of Fish and Wildlife	Fish Screening and Passage Grant	To support projects that assist water users with the installation of fish screens on diversions to prevent the loss of fish while allowing the water user to receive and use their water. ODFW has a fish screening cost-share program, a state tax credit, and technical assistance available through this program.	Agricultural water users, state agencies, municipal water suppliers, irrigation districts, and commercial industries.	http://www.dfw.state.or.us/fish/passage/grants.asp
CPG001302	Oregon Department of Fish and Wildlife	Riparian Lands Tax Incentive Program - Access and Habitat	To improve public hunting access and wildlife habitat on private lands in Oregon; to improve wildlife habitat and/or increase public hunting access to private land; to develop wetland habitat, noxious weed control, improving wildlife forage on private lands, developing water in arid regions, riparian fencing, seeding after wildfire, hunting leases, land acquisition, and seasonal road management.	Projects may be on private or public lands, through preference is given to projects on private lands.	http://www.wmswcd.org/content.cfm/What-We-Do/Grant-Funding/State-of-Oregon-Grants
CPG001053	Oregon Department of Fish and Wildlife	Salmon and Trout Enhancement Program (STEP)	Funding is available for projects focusing on: Habitat Restoration, Monitoring and Evaluation, Education, or Fish Culture. Project categories available for funding include: Habitat restoration; monitoring and evaluation; education; and fish culture.	Individual landowners, conservation organizations, hunting groups, watershed councils, state & federal agencies.	http://www.dfw.state.or.us/fish/STEP/

Record #	Funder	Grant Program	Grant Purpose	Eligibility Criteria	Website
CPG001049	Oregon Department of Fish and Wildlife	Western Oregon Stream Restoration Program (WOSRP)	To provide direct technical support to implement the Oregon Plan measures directing the restoration and enhancement of Oregon's salmonid habitats in the region. This includes projects to increase in-stream habitat complexity by adding large wood or boulders, enhancing riparian areas by protection or planting, and correcting fish passage problems.	Watershed Councils and private landowners in western Oregon	http://www.dfw.state.or.us/lands/wosrp.asp
CPG001301	Oregon Watershed Enhancement Board	OWEB Small Grants Program	Enables landowners across the state to contribute to the Oregon Plan for Salmon and Watersheds (the Oregon Plan) by committing "small acts of kindness" on their properties for the benefit of water quality, water quantity, and fish and wildlife. From planting native plants along stream sides to reducing sedimentation and erosion from upland farms and ranches, citizens everywhere can make a difference.	Any lands/projects that contribute to "the Oregon Plan". Cost share: up to 75%	http://www.wmswcd.org/content.cfm/What-We-Do/Grant-Funding/State-of-Oregon-Grants
CPG000288	Rockefeller Brothers Fund	Sustainable Development Program	To support environmental stewardship that is ecologically based, economically sound, socially just, culturally appropriate, and consistent with intergenerational equity. The Fund encourages government, business, and civil society to work collaboratively on environmental conservation and to make it an integral part of all development planning and activity.	To be eligible for a grant, organizations should be considered tax-exempt or seeking support for a project that would qualify as educational or charitable	http://www.rbf.org/grant/11239/international-institute-sustainable-development-0
CPG001308	The Bill Healy Foundation	Environmental Conservation Large Grant Program - Oregon	To support stewardship, education and sustainable solutions focused on preservation, appreciation and respect for the world around us.	No set "rules" for selection. Each project is given individual and thoughtful consideration. All organizations in Oregon are eligible.	http://www.billhealyfoundation.org/granting.html
CPG001306	The Bill Healy Foundation	Environmental Conservation Small Grant Program - Oregon	To support stewardship, education and sustainable solutions focused on preservation, appreciation and respect for the world around us.	No set "rules" for selection. Each project is given individual and thoughtful consideration. All organizations in Oregon are eligible.	http://www.billhealyfoundation.org/granting.html

Record #	Funder	Grant Program	Grant Purpose	Eligibility Criteria	Website
CPG001310	The Burning Foundation	Environmental Grant Program	Organizations addressing issues in Washington and Oregon. Priority issue areas include protecting threatened rivers and forests, nurturing native fish populations, and conserving land and open space for ecological and recreational purposes. Preference will be given to requests from local groups working to improve their immediate environment and from statewide groups addressing general conservation and protection issues, rather than national organizations with projects in the Pacific Northwest.	Environmental 501(c)(3) groups throughout Washington and Oregon who meet the stated areas of interest. (Most of the annual foundation grants will be made in the environmental category.) Nonprofit 501(c)(3) groups in Washington state that meet the stated areas of interest regarding teen pregnancy prevention.	http://foundationcenter.org/grantmaker/burning/guide.html
CPG000318	U.S. Department of Commerce	A Cooperative Institute to Support NOAA's N.W. Research Facilities in the Area of Marine Resources	The NOAA Office of Oceanic and Atmospheric Research (OAR) and the National Marine Fisheries Service (NMFS) invite applications for the establishment of a cooperative institute (CI) to support NOAA research facilities in the northwest U.S. in the area of marine resources that will focus on the themes of: (1) seafloor processes, (2) marine mammal acoustics, (3) marine ecosystems, and (4) protection and restoration of marine resources.	Eligibility is limited to non-Federal public and private non-profit universities, colleges and research institutions that offer accredited graduate level degree-granting programs in NOAA-related sciences and that are within a commuting distance to the NOAA facilities in Newport, Oregon that allows for direct and regular interactions. If the proposed CI is comprised of multiple member institutions, only the lead institution applying for the award (and where the CI will be established) must satisfy the commuting distance requirement.	http://www.grants.gov/search/announce.do;jsessionid=lSpnTXwQpcqLnL6h439lTXt15CpcVpGnlnR4K4CGZP2FXJnz00DC!-2085669396
CPG001125	U.S. Department of Commerce - National Oceanic and Atmospheric Administration	National Competitive Harmful Algal Bloom (HAB) Programs	Funding is available for projects that pertain to the Ecology and Oceanography of Harmful Algal Blooms Program, the Monitoring and Event Response for Harmful Algal Blooms Program and the Prevention, Control and Mitigation of Harmful Algal Blooms Program. Growing Problem of Harmful Algal Bloom Occurrence and Impacts Harmful Algal Blooms (HABs) are caused by diverse organisms, including toxic and noxious phytoplankton, some protists, cyanobacteria, benthic algae, and macroalgae. Blooms can extend over large geographic areas, be composed of more than one harmful or toxic species, and cause significant impacts on fisheries, recreation, human health, and the ecology of both marine and fresh water bodies.	Institutions of higher education, other non-profits, state, local, Indian Tribal Governments, commercial organizations, US Territories and Federal agencies that possess the statutory authority to receive financial assistance.	http://www07.grants.gov/search/announce.do;jsessionid=zdQqTXxY8zyyh5hwTDJx88Tdbt968tLK1jNNnKkvynJtYbP6jhZT!-2085669396

Record #	Funder	Grant Program	Grant Purpose	Eligibility Criteria	Website
CPG001063	U.S. Dept of Agriculture - Natural Resources Conservation Service	Environmental Quality Incentives Program Environmental Quality Incentives Program	To provide funds to help plan and implement conservation practices that address natural resource concerns and for opportunities to improve soil, water, plant, animal, air and related resources on agricultural land and non-industrial private forestland. In addition, a purpose of EQIP is to help producers meet Federal, State, Tribal and local environmental regulations.	Owners of land in agricultural or forest production or persons who are engaged in livestock, agricultural or forest production on eligible land and that have a natural resource concern on the land.	http://www.nrcs.usda.gov/wps/portal/nrcs/main/?ss=16&navid=100120310000000&pnavid=100120000000000&position=SUBNAVIGATION&ttype=main&navtype=SUBNAVIGATION&pname=Environmental Quality Incentives Program
CPG001062	U.S. Dept of Agriculture - Natural Resources Conservation Service	Wildlife Habitat Incentive Program (WHIP)	Funding is available for projects that: 1) Promote the restoration of declining or important native fish and wildlife habitats; 2) protect, restore, develop or enhance fish and wildlife habitat to benefit at-risk species; 3) reduce the impacts of invasive species on fish and wildlife habitats; 4) protect, restore, develop or enhance declining or important aquatic wildlife species' habitats; and 5) protect, restore, develop or enhance important migration and other movement corridors for wildlife.	Land eligible for WHIP includes: Private agricultural land including cropland, grassland, rangeland, pasture, and other land determined by NRCS to be suitable for fish and wildlife habitat development; non-industrial private forest land including rural land that has existing tree cover or is suitable for growing trees and Indian land.	http://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/financial/whip
CPG001677	U.S. Dept. of Commerce - The National Marine Fisheries Service	Species Recovery Grants to States (Section 6 Program)	To support the development and implementation of States' programs to conserve and recover threatened and endangered species under NMFS' jurisdiction. Funding may also support monitoring of candidate species, species proposed for listing, and recently de-listed species. Proposed activities may involve management, research, monitoring, and outreach activities or any combination thereof.	State agencies that have entered into an agreement with NMFS pursuant to section 6(c) of the ESA. The terms "state" and "state agency" are used as defined in section 3 of the ESA (16 U.S.C. 1532). Currently eligible state agencies are listed here: http://www.nmfs.noaa.gov/pr/conservation/states/. Any state agency that enters into a section 6(c) agreement with NMFS by the grant application deadline is also eligible to apply.	http://www.grants.gov/search/announce.do;jsessionid=hn8mTd2LR4NDwsFTGY7T3NGvpfb8L191vzyj5PQn75zGZbcJyYlS!410430200
CPG001506	US Dept of Commerce - National Oceanic and Atmospheric Administration, National Marine Fisheries Service	Community-based Marine Debris Removal Project Grants	To provide federal financial and technical assistance to grass-roots, community-based activities that improve living marine resource habitats through the removal of marine debris and promote stewardship and a conservation ethic for NOAA trust resources.	Institutions of higher education, other non-profits, commercial (for profit) organizations, organizations under the jurisdiction of foreign governments, international organizations, and state, local and Indian tribal governments whose projects have the potential to benefit NOAA trust resources.	- http://www07.grants.gov/search/announce.do;jsessionid=pVwvTVdJMWtBp1621zkbcgzXSRTPhvt4gJPmvldqpxvKH20nW29Z!747832409

Record #	Funder	Grant Program	Grant Purpose	Eligibility Criteria	Website
CPG002230	US Dept of Interior - Fish and Wildlife Service	Avian Health and Disease Surveillance and Monitoring Support			http://www07.grants.gov/search/search.do?&mode=VIEW&oppId=138293
CPG000944	US Fish and Wildlife Service	Tribal Wildlife Grants	For the development and implementation of programs that benefit wildlife and their habitat, including species of Native American cultural or traditional importance and that are not hunted or fished.	Federally recognized Indian tribal governments.	http://www.fws.gov/nativeamerican/grants.html
CPG000894	Wildlife Conservation Society	Climate Adaptation Fund	To support projects that demonstrate effective interventions for wildlife adaptation to climate change. Grants awarded will support wildlife adaptation projects that are designed to implement landscape-scale strategic habitat conservation plans and achieve the following types of results: Demonstrate land management techniques to assist wildlife adaptation to climate change; Protect or expand core habitat areas; Create new protected areas or change land use designations to secure intact habitat; Assure connectivity for wildlife between core habitat areas; and Protect keystone species at risk from the impacts of climate change.	This program provides grants to U.S.-based non-profit conservation organizations with approved IRS 501c(3) status. Grants can be awarded for projects only within the 50 USstates and six USterritories. The WCS Climate Adaptation Fund is unable to make grants to for-profit corporations, individuals, universities, public agencies, municipalities or other types of governments. Public agencies, tribal governments and universities may partner on proposals submitted by an eligible non-profit conservation organization or work as paid contractors on funded projects.	http://www.wcsnorthamerica.org/ClimateAdaptationFund/tabid/4813/Default.aspx

Appendix F:
Water Quality Analysis

F. Water Quality Impacts & Regulatory Outlook

F.1 Introduction

Communities in the Coos Bay area, including Coos Bay and North Bend, currently discharge secondary treated effluent to the Coos Estuary. The Estuary is in the South Coast basin and includes numerous beneficial uses including shellfish harvesting. The Estuary is facing increasing water quality concerns and the communities discharging to it face large investments in wastewater infrastructure to meet water quality standards at their current outfalls. The Port of Coos Bay (Port) is interested in evaluating another alternative, which would instead convey wastewater effluents from the Coos Estuary for treatment and/or discharge to the Pacific Ocean via the North Spit and its existing ocean outfall. The thought is that water quality standards and effluent requirements may be more easily met at an ocean outfall while protecting beneficial uses of the discharge water body: this ocean discharge opportunity may allow the City of Coos Bay and other neighboring cities to meet effluent requirements with less extensive plant improvements. It is also believed that water quality in the Coos Estuary would be enhanced by diverting all or portions of wastewater effluent discharges to a less sensitive and non-shellfish producing water body. Expansion of the shellfish industry is one opportunity to diversify county employment opportunities.

The main objective of this technical memorandum is to identify water quality discharge requirements related to the ocean outfall, which will form the basis of planning for the level and type of treatment likely required for domestic discharge. A secondary objective of this memorandum is to compare wastewater discharge requirements for the Coos Estuary and the Pacific Ocean, as a way to evaluate potential regulatory benefits from an ocean discharge. A compelling result of the analysis is summarized at the end of this technical memorandum in Table F-1, where effluent discharge criteria for different ocean outfalls are compared with Coos Estuary discharge requirements.

[Note that this document contains active hyperlinks for ease of reference, which appear underlined through this document.]

F.2 Receiving Water Characteristics

The Coos Bay area lies on the South-central Oregon coast in Coos County, where the communities of Coos Bay, Charleston, and North Bend, and Bunker Hill border the Coos Estuary within along the Pacific Coast in Southern Oregon in the western United States. The Coos Bay area is in the South Coast Basin, which includes both the Coos Estuary and the Pacific Ocean within territorial limits, which is within 3 miles of the State of Oregon. (ORS 468B.005 (10)). Two discharges are evaluated in this memorandum:

a. Estuary discharges (status quo, as a basis for comparison)

b. Pacific Ocean discharge via former Weyerhaeuser outfall 001a:

- The Port owns the 30-inch outfall and diffusers from the former Weyerhaeuser property located on the North Spit. The outfall and diffusers extend about 4,800 feet off shore and were originally constructed to discharge up to 10 mgd of effluent from the mill's industrial wastewater treatment lagoons. The former mill's treatment lagoons were decommissioned in 1996 and the area since restored as wetlands (Aerial photo), while a 30-acre aeration stabilization basin in the northeast corner of the site remains functional. The industrial NPDES discharge permit has been maintained and is still valid (NPDES permit no. 101499).

- The Weyerhaeuser permit also identifies outfalls 002 and 003. These represent indirect discharges via seepage through the wetlands (also identified as the "former lagoons", and a "deflation plain" by DEQ). The wetland is considered jurisdictional and not a "water of the State" since it was originally created for the purpose of complying with the Clean Water Act. DEQ states in its 2004 Weyerhaeuser evaluation that discharges from outfalls 002 and 003 are regulated as state-only discharges under Oregon's groundwater protection rules and ORS 468B.050, not the Federal Clean Water Act. For the purpose of this evaluation, indirect effluent discharge is not considered, since the Pacific Ocean is not listed for temperature nor does it have nutrient TMDL (Total Maximum Daily Load) compliance issues, two typical drivers for considering indirect discharge (more on indirect discharges permitting can be found in DEQ's Internal Management Directive for hyporheic[1] discharges).

F.2.1 Beneficial Uses

Water quality standards for wastewater effluent discharges are established to protect beneficial uses (such as drinking water, fish habitat, recreation and irrigation) of the waters. Designation of beneficial uses is the responsibility of the Oregon Department of Water Resources. Designated Beneficial uses for the South Coast Basin are listed in Table 300A of OAR 340-041-0300, with fish use designations shown on Figure 300A and Figure 300B of OAR 340-041-0300. Beneficial uses are summarized below:

- Industrial Water Supply
- Fish and Aquatic Life:

[1] The hyporheic zone is the subsurface volume of sediment and porous spaces adjacent to a stream through which stream water readily exchanges. See DEQ's Internal Management Directive.

- Anadromous Fish Passage
- Salmonid Spawning and Rearing
- Resident Fish and Aquatic Life

- Wildlife and Hunting
- Fishing
- Boating
- Water Contact Recreation
- Aesthetic Quality
- Commercial Navigation and Transportation

F.2.2 Water Quality Limitations

The Oregon 2006 List of Water Quality Limited Water Bodies (303(d) List), does not list the Pacific Ocean in the South Coast Basin as water quality limited for any parameters, and there are no indications of concerns for this location. Past evaluations of the Weyerhaeuser outfall indicate that there were no known adverse water quality impacts associated with this discharge. While an Antidegradation review was not found for the North Spit outfall location, a similar study was recently completed by DEQ in the Mid Coast Basin for the IP Gardiner outfall, where DEQ identified the Pacific Ocean as a "High Quality Water during the period of allowed discharge".

Upper Coos Bay is water quality limited from Jordan Cove to the Marshfield Channel for violating the fecal coliform criteria for marine and shellfish growing areas. Also, DEQ's website indicates that a "TMDL has been initiated for the South Coast/Coos Subbasin", however it does not list the parameter(s) causing the impairment. A telephone conversation in May 2011 with DEQ staff (Mark Hamlin) failed to identify the parameters of concern, or the timing of the TMDL, as it appeared DEQ was still early in the development of the TMDL. One potential indicator of likely load allocations can be seen in the permit evaluation reports for the City of Coos Bay STP#2 and STP#1, and for the City of North Bend. These reports include references to, and recommendations for, reopener clauses on bacteria and temperature based on pending TMDLs for these parameters for this basin.

Based on these evaluation reports, it appears likely that TMDLs for temperature and bacteria will be developed for the basin, however the timing is uncertain. Also, it is not known if the allocations will be limited to the Estuary, or if they will also include the coastal dischargers which are part of the basin.

F.2.3 Mixing Zone

Mixing zones are permitted areas of a water body where pollutants from a point source discharge are mixed with the receiving water. Within the mixing zone, the

concentration of toxic pollutants is allowed to be higher than the water quality standards defined for the listed beneficial use. The size and boundaries of a mixing zone are defined by DEQ via a reasonable potential analysis (RPA) to exceed water quality standards; they are generally based on the physical characteristics of the outfall, the hydraulics and topography of the receiving body, and the proximity to and types of beneficial uses. In its reasonable potential analysis, DEQ divides mixing zones into two categories which relate to a parameter's acute and chronic effects: (1) acute mixing zones, also known as the "zone of initial dilution" (ZID); and (2) chronic mixing zones, also known as "the mixing zone."

For the Weyerhaeuser ocean outfall 001a, a mixing zone analysis was last performed in 1996. It is likely that those findings still apply. In its 2004 NPDES Evaluation Report, DEQ reported that the outfall flow rate averaged about 2 mgd since the facility shut down and that mixing zone modeling was performed assuming the least amount of mixing would occur under maximum ocean stratification. Under these low flow conditions with six or eight ports functioning, the dilution at the edge of the mixing zone was estimated to be on the order of 140, and the mixing zone for that effluent was then defined as that portion of the Pacific Ocean extending from the ocean floor to the surface and 500 feet laterally in all directions from the diffuser outfall.

An update of the mixing zone study may be required for the projected flows and loads of the new treatment facilities. A comparison with other mixing zones dilution factors, including those of Coos Bay and North Bend, is provided in Table F-1.

F.3 Compliance History

This section summarizes the discharge compliance history of the ocean outfall and various Coos Bay Estuary dischargers. The goal of this discussion is to identify past issues in meeting water quality standards in either discharge locations. This in turn will guide the development of regional conveyance and treatment scenarios that focus on alleviating these compliance issues.

F.3.1 North Spit/Weyerhaeuser Ocean Discharge Compliance

Past evaluations of the Weyerhaeuser permit indicate that there were no known adverse water quality impacts associated with this discharge.

F.3.2 Coos Bay Estuary Discharges Compliance

This section summarizes water quality requirements and compliance history for the City of Coos Bay and the City of North Bend which both discharge to the Coos Estuary.

The City of Coos Bay owns and operates two wastewater treatment plants: Coos Bay STP#1 and Coos Bay STP#2. Coos Bay STP#1 discharges to a military exclusion area within the north reach of the Estuary, while Coos Bay STP#2 discharges directly to an unrestricted area within the southwest shore of the Estuary. The City of North Bend

operates one WWTP (North Bend STP) that discharges to the northern tip of the Estuary, adjacent to the airport. All three plants are municipal conventional activated sludge plants which provide secondary treatment (no nitrification) and use chlorine for disinfection. The plant capacities are similar and are in the range of 2 to 3 mgd average flows, and peaks up to 15 mgd. Coos Bay STP#1 and North Bend are currently in compliance with their respective NPDES permits, although Coos Bay STP#1 is currently operating under a Mutual Agreement Order (MAO) for chlorine residual compliance, which shall not exceed a monthly average concentration of 0.03 mg/L and a daily maximum concentration of 0.06 mg/L at the end of pipe. STP#1 also has been assigned a thermal load allocation until a waste load allocation is developed via TMDL for the sub basin.

In 2003, Coos Bay STP#2 was also put under a MAO which was modified in 2009 and addresses compliance with three water quality parameters, listed below. With the MAO, the City is required to take action to comply with its discharge in the Coos Estuary. The City is currently developing a facilities plan to address these compliance issues along with normal growth and infrastructure needs:

- Ammonia : Shall not exceed a monthly average concentration of 20 mg/L and a daily maximum concentration of 30 mg/L at the end of the pipe
- Chlorine residual: Shall not exceed a monthly average concentration of 0.02 mg/L and a daily maximum concentration of 0.05 mg/L at the end of the pipe
- Bacteria and Temperature: limits based on state standard for shellfishing and recreational use, at the end of the pipe. However a reopener clause is included, pending a basin bacterial Total Maximum Daily Load (TMDL) and/or a basin Temperature TMDL, which could include Waste Load Allocations (WLA) or best management practice requirements for point source dischargers.

Compliance with the water quality parameters above is typically addressed by providing additional or upgraded treatment, or by moving the discharge where water quality standards may be easier to meet.

F.4 Regulations for NPDES Permit Limits

Because the current discharge permit for the Ocean outfall is industrial, a permit transfer is needed to allow discharge of domestic treated effluent via the same outfall. Proposed domestic wastewater effluent permit limits need to be included with the transfer application. DEQ is required by EPA to evaluate permits based on water quality standards limits and on technology-based limits. DEQ's permit writer then applies the characteristics of the outfall's mixing zone and ambient water quality data to finalize the permit limitations, reporting, and monitoring requirements. The following section discusses these considerations for a preliminary screening of effluent limits that may be enforced for domestic wastewater discharge at the Ocean outfall.

F.4.1 Water Quality Based Effluent Limits

Water quality based effluent limits are designed to be protective of the beneficial uses of the receiving water and are independent of the available treatment technology. In water quality based effluent limits, pollutant parameters are limited if there is a reasonable potential for the discharge to cause or contribute to an excursion above any state water quality standard.

F.4.2 Technology Based Effluent Limits

Technology based effluent limits have been established by EPA rules and require a minimum level of treatment for industrial or municipal sources using available technology. In accordance with the South Coast Basin minimum design criteria, wastewater treatment resulting in a monthly average effluent concentration of 20 mg/L for BOD5 and TSS must be provided from May 1 - October 31. From November 1 - April 30 a minimum of secondary treatment or equivalent control is required. The Clean Water Act defines secondary treatment as biological treatment technology that achieves effluent monthly average concentration limits of 30 mg/L for BOD5 and TSS; this represents the minimum level of effluent quality attainable by secondary treatment. However lagoons, like the existing aerated stabilization ponds in place on the North Spit, are usually given special consideration in setting concentration limits for TSS, where the limit of technology for monthly average TSS concentration limit is set higher at 50 mg/L and the weekly average limit at 75 mg/L. At this time, it is unknown if the aerated stabilization pond will be used for treatment and it would be prudent to assume the standard secondary treatment levels limits would apply.

Finally, the percentage of BOD and TSS removed through a treatment facility must be at least 85 percent. If raw wastewater is sent to the North Spit, treatment at the North Spit must remove at least 85 percent of influent BOD and TSS. If facilities on the North Spit are providing polishing to partially treated effluent from the City of Coos Bay and/or North Bend, the 85 percent removal criteria would apply over the boundary where wastewater treatment begins.

F.4.3 Antidegradation Policy

New wastewater discharges and additions to existing discharges are subject to limitations based on antidegration regulations. Historically, states have implemented the Antidegradation policy from the perspective of "*How much pollution can be incorporated into a waterbody before it loses one of its designated uses?*" More recently, EPA (2007b) has emphasized moving states to a focus on current water quality and how can it be protected from any further degradation. In Oregon, the Environmental Quality Commission has adopted the Antidegradation policy for surface waters under OAR 340-041-0004.

For High Quality Waters, the policy reads as follow:

Where the existing water quality meets or exceeds those levels necessary to support propagation of fish, shellfish, and wildlife and recreation in and on the water, and other designated beneficial uses, that level of water quality must be maintained and protected. However, the Environmental Quality Commission, after full satisfaction of the intergovernmental coordination and public participation provisions of the continuing planning process, and with full consideration of sections (2) and (9) of this rule, and 340-041-0007(4), may allow a lowering of water quality in these high quality waters if it finds:

(a) No other reasonable alternatives exist except to lower water quality; and

(b) The action is necessary and benefits of the lowered water quality outweigh the environmental costs of the reduced water quality. This evaluation will be conducted in accordance with DEQ's "Antidegradation Policy Implementation Internal Management Directive for NPDES Permits and section 401 water quality certifications," pages 27, and 33-39 (March 2001) incorporated herein by reference;

(c) All water quality standards will be met and beneficial uses protected; and

(d) Federal threatened and endangered aquatic species will not be adversely affected.

In 2010, DEQ completed a similar NPDES transfer for the Gardiner Sanitary District near Reedsport, OR. The District previously sent its wastewater to Reedsport for treatment and discharge to the Umpqua River. After conveyance system failure, the District purchased the abandoned IP Company treatment site and facilities to use as their domestic wastewater treatment facility. The IP Company site had unused lagoons and a Pacific Ocean outfall. DEQ's evaluation for the domestic wastewater permit indicated no water quality concerns for the Mid Coast basin discharge that would result in more restrictive effluent limits than standard secondary effluent. Further, DEQ's Antidegradation review for the ocean outfall concluded that "the discharge will not result in lowering of water quality and does not constitute a new and/or increased discharge". This resulted in domestic effluent limits for Gardiner's Ocean outfall based on secondary treatment standards for aerated lagoons. These limits are presented in Table F-1 at the end of this report.

If Gardiner is used as an example, there are no apparent water quality concerns that point to more restrictive effluent limits than standard secondary effluent limits for domestic discharge through the North Spit outfall.

F.4.4 Bacteria Criteria

F.4.4.1 State Standard

The choice of indicator organism used in Oregon's water quality standards has changed over time from total coliform to fecal coliform to enterococci as new studies determined which indicator best correlated with human illness. In 1996, Oregon adopted an Escherichia coli (E. coli) standard for fresh and estuarine waters not subject to commercial shellfish harvest and a fecal coliform standard for marine and estuarine/shellfish producing waters. Because the Coos Bay Estuary is subject to commercial shellfishing, the fecal coliform standard is enforced to determine the risk of illness to people from consumption of shellfish. As such, the bacteria state standard is set so that a geometeric mean of fecal coliform concentrations shall not exceed 14 organisms per 100 ml, with no more than 10% of samples exceeding 43 fecal coliform organisms per 100 ml. DEQ's internal management directive identifies "marine waters" as "all oceanic, offshore waters outside of estuaries or bays, and within the territorial limits of the State of Oregon". Therefore, an ocean discharge would also have to meet the 14 organisms per 100 ml fecal coliform criterion.

F.4.4.2 Federal Standard

Where Oregon's bacteria criteria address a variety of beneficial uses, especially the protection of growing shellfish for human consumption, the Federal criteria are focused on the protection of the waters that the public might ingest while recreating.

The Beaches Environmental Assessment and Coastal Health Act of 2000 (BEACH Act) required coastal states to adopt and implement pathogen and pathogen indicator (bacteria) criteria for coastal recreation waters. The primary intent of the Act was to protect the public from gastrointestinal illness contracted while engaged in primary contact recreation in coastal recreation waters contaminated with human or animal waste. As a result of the BEACH Act, both ocean and Coos Estuary discharges are subject to the Federal marine criteria for Enterococcus, with a geometric mean concentration of less than 35 organisms per 100 ml, and up to 501 organisms per 100 ml in a single sample from an Infrequent Use Coastal Recreation Water.

F.4.4.3 Mixing Zone for Bacteria Criteria

Mixing zones for bacteria are usually not allowed, which means that the bacteria standard would need to be met at the end of pipe. However, DEQ's Internal Management Directive for the State criteria indicates that:

> "In rare cases, it is possible to have waters suitable for shellfish-growing, but due to various constraints (i.e., deep ocean outfall, military installations, shipping channel, etc.), cannot support active shellfish harvesting. In this case, a mixing zone may be considered, as long as there is no impact to human recreational use or neighboring shellfish harvesting areas".

This exemption is potentially applicable to the City of Coos Bay treatment plant No.1, which discharges in a designated military exclusion. Coos Bay treatment plant No.2, however has no exemptions allowed for bacteria because the outfall is within a shellfish harvesting area. The North Spit ocean outfall is 4,800 ft offshore and at a depth of more than 60 feet may qualify for the mixing zone exemption for bacteria.

Regarding the BEACH/Enterococci bacteria criteria, EPA does not prohibit the use of mixing zones in marine or estuarine waters, but advises against them where the location may pose a significant health risk. Therefore the North Spit ocean outfall may qualify for the mixing zone exemption for bacteria. This would present an advantage over Coos Estuary discharges in that the criteria can be met at the edge of the mixing zone as opposed to the end of pipe, and lower disinfection requirements and controls may be sufficient prior to discharge.

F.4.5 Chlorine Residual Criterion

For facilities disinfecting with chlorine and then dechlorinating, the chlorine residual is regulated as both an acute and chronic aquatic toxin. For typical freshwater discharges, the residual results are referred to as Total Residual Chlorine (TRC). However, for facilities that discharge chlorinated/dechlorinated freshwater into estuaries or oceans, the residual oxidants in the discharge are TRC but after combining with the saline receiving water, the residuals are chlorine-produced-oxidants (CPO). This is why the standards for freshwater are referred to as TRC, while the standards for marine or estuarine waters are referred to as CPO in DEQ's Table 20 for Water Quality Standards. Criteria for chlorine residual for marine discharges are stricter than for fresh water discharges. Oregon's water quality criteria for chlorine residual are as follows:

- Acute: 0.019 mg/L for fresh water and 0.013 mg/L for marine waters, typically at the edge of the zone of immediate dilution (ZID)
- Chronic: 0.011 mg/L for fresh water and 0.0075 mg/L for marine waters, typically at the edge of the mixing zone (RMZ)The dilution for the North Spit ocean outfall, even when calculated with a reasonable potential analysis conducted at low wastewater discharge flows of 2.0 mgd, is relatively high at 140:1 at the mixing zone.

Toxicity from chlorine discharge is not expected to present a reasonable potential of exceedance for a primarily domestic wastewater discharge. Because of this, chlorine residual control at the ocean outfall appears to be less stringent than for Coos Estuary discharges.

F.4.6 Ammonia Criterion

Ammonia is regulated as an acute and chronic aquatic toxin. Ammonia criteria are site/water specific, depending on pH, temperature, and whether the receiving body is freshwater or marine water. With the exception of Coos Bay STP#2, none of the Coos

Bay estuarine discharges have shown a reasonable potential to cause excursions above the state water quality standards in accordance with their specific mixing zones.

Coos Bay STP#2 was found to have reasonable potential to cause an excursion above the state water quality standards for ammonia during the summer permit season and to prevent such an excursion, the permit limits for ammonia are currently set at 20 mg/L (monthly average concentration) and 30 mg/L as a daily maximum. Coos Bay STP#2 currently does not have nitrification treatment capability to reduce ammonia. The city is currently developing a facilities plan to evaluate implementation options for compliance, along with other plant improvements.

F.4.6.1 Reference Outfall Discharge Permit Conditions for Ammonia

In its permit evaluation report for the Gardiner Sanitary District (2010), DEQ is re-permitting the ocean outfall from a former paper mill use to a new domestic wastewater effluent. Because it discharges to the Pacific Ocean north of Coos Bay, the recent permit application for Gardiner Sanitary District is used as a guide on how DEQ may approach a permit transfer for the North Spit. In the permit evaluation report, DEQ sets forth secondary treatment limits, as follows: "the permit will set limits on the following pollutants: Five-day Biochemical Oxygen Demand (BOD5), Total Suspended Solids (TSS), Chlorine and Fecal Coliform Bacteria. The discharge will also be regulated for pH and pollutant removal efficiency." No limits for ammonia are anticipated for this domestic discharge to the Pacific Ocean within the Mid Coast basin.

Based on current water quality information and dilution potential, it appears unlikely that the North Spit ocean discharge will be subject to ammonia limits by DEQ.

F.4.7 Temperature Criterion

Presently, neither Coos Bay nor the Pacific Ocean appear on DEQ's List of Water Quality Limited Water Bodies (303(d) List) for temperature.

The Oregon temperature standard includes a requirement of no measurable temperature increase outside the mixing zone in stream segments containing federally listed Threatened and Endangered species if the increase would impair the biological integrity of the threatened population. Fish distribution maps from Oregon Department of Fish and Wildlife (ODF&W) and National Oceanic and Atmospheric Administration's (NOAA) National Marine Fisheries, indicate that for the South Coast basin, the Chinook, Coho, Chum, and Steelhead species are currently ESA listed, while Green Sturgeon is listed as a "Species of Concern". Coho is specifically listed as Threatened in the Oregon Coast Evolutionarily Significant Unit.

Past interpretation from DEQ for facilities discharging to the Pacific Ocean has been that "the applicable temperature standard for the Pacific Ocean is, no significant increase above natural background temperature shall be allowed. It is not likely that a significant impact will occur given the dilution available in the Pacific Ocean." These statements are

found in most, if not all, Pacific Ocean discharges' permits identified as references and listed in Table F-1 . The discharges listed in Table F-1 are compatible with the high dilution ratio reported for the North Spit outfall, even at low flows.

However, dilution is less in the Coos Estuary and thermal loadings to protect the population of Coho salmon have been developed for the North Bend and Coos Bay discharges, as shown in Table 1-1. Although the South Coast basin and the Coos Estuary is not 303(d) listed for temperature, permit evaluation reports for Coos Bay discharges include references to, and recommendations for, reopener clauses for temperature based on pending TMDLs for these parameters.

Based on current information, it appears unlikely that discharge temperature from domestic wastewater through the North Spit outfall to the Pacific Ocean would present a reasonable potential to exceed state standards and that a thermal load limit be developed.

F.4.8 pH

Compliance with a pH range is generally not an issue for municipal dischargers or any treatment plant using a secondary activated sludge process. However, treatment facilities that are required to nitrify to control ammonia frequently require supplemental alkalinity dosing to meet effluent pH limit due to alkalinity being consumed as part of the nitrification process. In its MAO, Coos Bay Plant No.2 is being required to provide nitrification. According to OAR 340-041-0305, pH values in the south coast basin must fall in the 7.0 – 8.5 range, although the assigned end-of-pipe permit limit is typically 6.0 to 9.0 due to the effect of the mixing zone.

The NPDES permit for the North Spit/Weyerhaeuser Ocean outfall was modified in 2006 to increase the upper end of the permitted pH range from 9.0 to 10.0. It is unclear why the range was expanded. However, for a municipal discharge it is expected that DEQ will require the permitted pH range to be reduced to the basin standard. If the North Spit receives a significant portion of industrial discharges in the future, it may be necessary to implement a pH control to meet the typical domestic pH standard.

F.4.9 Toxics

The South Coast basin is not 303(d) listed for toxics, and it is not known if ambient data is available for the Pacific Ocean. In its current NPDES permit, the North Spit/Weyerhaeuser discharge has whole effluent toxicity testing requirements and other monitoring requirements waived due to the small flow of leachate and high dilution at the outfall.

The existing permits to the Coos Estuary include whole effluent toxicity testing requirements and toxics monitoring in an effort to collect information where there is a potential for water quality concerns. Toxics of concern in the permit evaluation reports included 11 metals, silver, mercury, and cyanide. There are water quality standards for

these parameters which cannot be exceeded, and Oregon has recently adopted more restrictive rules on toxics discharges, as described below

F.4.9.1 Revised Toxics Rulemaking

On June 16, 2011, the Oregon Environmental Quality Commission approved new water quality standards "designed to reduce or prevent toxic pollutants in Oregon waterways and add health protections for people using state rivers and streams for fishing, drinking water and other purposes. " The new state standards went into effect following approval from the U.S. Environmental Protection Agency in the fall of 2011.

The impact of the rulemaking generally is that stricter toxics limits are being implemented in Oregon based on increased fish consumption rates and the application of the stricter human health criterion. Toxic levels listed in DEQ's revised Table 20, 33A, 33B, and the new Table 40, apply both for Estuary and ocean discharges and should be carefully examined when considering the reasonable potential of prospective industrial dischargers to exceed these revised water quality standards.

The true impacts of the ruling are not yet known on wastewater facilities, however DEQ has modified its approach to permit renewal with an increased focus on mixing zones, toxic data collection (influent, effluent, and ambient) and reasonable potential analysis.

F.4.10 Future Water Quality Considerations

The impact of personal care products and pharmaceuticals on wastewater treatment and discharges is being actively investigated. In Oregon, attempts to minimize discharges for persistent pollutants focus on pollution prevention, notably via the adoption of Senate Bill 737, although implementation of the bill has had mixed results to date. A long term outlook may include treatment requirements for specific pollutants, but those are difficult to predict at this time, as would their implementation strategy. Some studies across the U.S. and the world suggest that long sludge residence time in the secondary treatment system (on the order of 10 to 15 days) may achieve significant reductions for a number of pharmaceuticals and personal care products. At this point though, treatment facilities are not required to meet these conditions. The North Spit presents the advantage of having a large footprint, which could be used to expand the facilities if required.

F.5 Stormwater

The Port is considering allowing discharge of stormwater from prospective North Spit industries along with domestic wastewater and potentially industrial wastewater, through its ocean outfall. In Oregon, the Industrial Stormwater General Permit No. 1200-Z covers industrial stormwater discharges from a broad range of industries. These permits expire every five years. The current 1200-Z permit went into effect on July 1, 2007 and expires on June 30, 2012. DEQ also has made revisions to its stormwater

permits, notably revising the benchmark concentrations for toxic pollutants and some monitoring requirements.

Stormwater discharges are typically intermittent and result in short term exposures, the reference concentrations of the toxic pollutants are based on acute aquatic life criteria for toxicity. For the few pollutants without aquatic life criteria (which include arsenic), DEQ uses the human health criteria (DEQ, 2011 Stormwater permit Overview), which has been revised as discussed in the previous section.

F.6 Potential Ocean Outfall Effluent Discharge Limits

Until a formal application is submitted to DEQ, it is uncertain what the specific limits will be for the ocean discharge. However, limits can be derived from the observations in this technical memorandum and from what DEQ has approved for similar dischargers. Table F-1 presents the ocean outfall effluent limits in the existing industrial NPDES permit, along with a group of reference domestic effluent discharge permits for comparison. Five Mid and South Coast municipal wastewater discharge permits for Pacific Ocean discharge have been analyzed; Brookings, Depoe Bay, Gardiner Sewer District, Newport, and Yachats. All of the reference permits include standard secondary treatment and disinfection, typical effluent limits for BOD and TSS, and no ammonia or temperature limits. The impact of the BEACH Act for bacteria needs to be discussed with DEQ for clarifications on disinfection requirements; most conservatively is would remain at the same level as that required for Coos Estuary dischargers. Chlorine residual requirements may be easier to meet for the ocean outfall due to the characteristics of the mixing zone.

Table F-1: Comparison of Monthly NPDES Permit Requirements for Coos Bay Estuary and Pacific Ocean Discharges

Plant	Basin/ Receiving body	Last Permit Evaluation (Hyperlinks provided)	Mixing Zone Dilution Ratio (MZ, ft)	Avg. Flow mgd	TSS/ BOD Summer[g] (Winter) mg/L	Bacteria per 100 ml			pH	BOD/TSS Removal	Chlorine Residual mg/L	NH3 (Summer) mg/L-N	Thermal (Summer) Mkcals/d[d]
						Fecal	E.coli	Enterococci[f]					
North Spit/Weyerhaeuser Pacific Ocean Discharge – Industrial NPDES													
Weyerhaeuser Lagoons – prior to closure[a]	South Coast/ Coos Bay	2004	140 chronic	10.0	29/41[b]	N/A	N/A	N/A	6-9	N/A	N/A	N/A	N/A
Weyerhaeuser Lagoons- current[a]	South Coast/ Coos Bay	2006	140 chronic	~2.0	**-/-**	-	-	-	6-10	-	-	-	-
Other Pacific Ocean Discharge – Domestic wastewater NPDES													
Brookings	South Coast/ Pacific	1999	120 chronic 70 acute	3.0	30/30 (25/15)	-	126	-	6-9	85%	0.4 (n/a after UV)	-	-
Depoe Bay	Mid Coast/ Pacific	2002	N/A	0.85	20/30	200	-	-	6-9	85%	n/a (UV)	-	-
Gardiner Sanitation District	Mid Coast/ Pacific	2010	36 chronic 24 acute	0.11	30/50	14	-	35	6-9	85% BOD 65% TSS	0.21	-	-
Newport	Mid Coast/ Pacific	2002	172 chronic 36 acute	3.5	30/30	126	-	-	6-9	85%	0.47	-	-
Yachats	Mid Coast/ Pacific	2010	33 chronic 4.5 acute[c]	0.33	20/30	14	-	35	6-9	85%	n/a (UV)	-	-
Coos Estuary Discharge – Domestic wastewater NPDES													
Coos Bay 2	South Coast/ Coos Bay	2003	41 chronic 4 acute	2.02	20/30	14	-	-	6-9	85%	0.02	20/ N/A	37
Coos Bay 1	South Coast/ Coos Bay	2002	60 chronic 5 acute	2.9	20/30	126	-	-	6-9	85%	0.03	-	57

North Bend	South Coast/ Coos Bay	2003	105 chronic 30 acute	2.2	20/30	126	-	-	6-9	85%	0.22	-	35

Notes:

(a) The NPDES permit is based on an industrial discharge for a permanently closed mill.

(b) The previous NPDES permit could not be found and the BOD and TSS concentration limits are based on the mass loads listed in the 2004 evaluation report, and a flow of 10.0 mgd.

(c) The Yachats outfall extends 300 feet off shore and is exposed at minus tides conditions and does not compare well, for dilution purposes, to the North Spit Outfall.

(d) Thermal limits are on a weekly basis

(e) Brookings has applied for load increase with expansion, new permit will lower concentrations to 25/15

(f) With the passing of the 2005 Oregon Beach Bill, Enterococci is being regulated in all new NPDES permits for recreational contact at 35/100 ml

(g) Summer is defined as : May 1 – October 31; Winter is defined as: November 1 – April 30

F.7 Conclusion and Recommendations

Final determination of permit conditions requires formal application to Oregon DEQ for the renewal of the NPDES permit, pending completion of facilities planning, and environmental studies, including a public review process, to establish effluent discharge limits. A complete characterization of the effluent would be required for chemical constituents. An update to the effluent mixing zone study could be a requirement that accompanies processing of the permit application. Environmental impact analyses may be required to assess the potential impact on natural resources, aquatic life and human health.

Based on this analysis, it appears unlikely that ammonia limits be required for the Ocean discharge from the North Spit, while temperature, bacteria, and chlorine residual standards are expected to be met with standard treatment facilities based on the characteristics of the receiving water body (the Pacific Ocean). While a mixing zone exemption may be allocated for the deep ocean outfall bacteria criterion, this first planning stage assumes that the standard needs to be met at the end of the pipe. This should be revisited and discussed with DEQ as planning progresses. Table F-2 lists anticipated permit limits which forms the basis of planning for this study.

Table F-2: Anticipated NPDES Permit Requirements for North Spit/Weyerhaeuser Pacific Discharge Based on Reference Discharges

TSS/ BOD year round mg/L	Bacteria		pH	BOD/TSS Removal	Chlorine Residual mg/L	NH3 mg/L-N	Thermal Mkcals/d
	Fecal per 100 ml	Enterococci per 100 ml					
30/50	14	135	6-9	85%	0.21	-	-

Based on these assumptions and comparing with other Coos Estuary discharges, the main advantage of an ocean outfall may be the avoidance of effluent limits for ammonia nitrogen; nitrogen being an “all or nothing” type of treatment, it typically requires significant upgrade and/or expansion of existing facilities. In the long term, an ocean outfall offers the benefit of high receiving water dilution, which is less likely to result in a reasonable potential for exceedence of water quality standards. Mixing zones and dilution is likely to remain a challenge for Coos Estuary discharges because of the particulars of the water body and its shellfishing activities. After the recent adoption of the most stringent toxics criteria in the nation, these concerns are expected to remain over the long term. TMDLs on the basin may add to the burden of additional treatment requirements for the Estuary dischargers, but the Pacific Ocean may also be subjected to the allocations since it is part of the basin. More difficult to demonstrate may be to quantify the environmental and economical benefits of taking municipal discharges (all or partial, depending on peaking factors) out of the Estuary to the ocean where cooler temperatures and greater dilution are expected to alleviate shellfishing impacts from wastewater discharges.

F.7.1 Recommendations

The Ocean outfall presents benefits from a water quality standpoint, where higher dilution and lower temperatures exists. In moving forward with discharging effluent from the Ocean outfall, the Port would need to go through the following steps:

- Meet with DEQ to discuss draft report and permitting assumptions for municipal and industrial discharge
- Run Reasonable Potential Analysis (RPA):
    - Assuming a mainly domestic discharge, confirm expected effluent limits.
    - Identify potential toxics of concern
- Outfall inspection and dilution factor confirmation (if required by DEQ or if RPA results show potential gains from better mixing)
- Submit effluent discharge permit application to DEQ, including flows and loads, mixing zone information, and preliminary RPA.

Appendix G:
Detailed Financial Analysis

City of Coos Bay and North Bend
Wastewater Utility Financial Plan
Exhibit 1
Data Assumptions

	Actual	Budget	PROJECTED (FY)						
	2011	2012	2013	2014	2015	2016	2017	2018	
Escalation Factors									
Revenues									
Customer Growth		0.00%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	As Customer Growth
Other Revenues		1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	As Other Revenues
Expenses									
Labor		0.00%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	As Labor
Medical		6.00%	6.00%	6.00%	6.00%	6.00%	6.00%	6.00%	As Medical
Benefits		2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%	As Benefits
Power		3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	As Power
Materials & Supplies		3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	As Materials & Supplies
Equipment		3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	As Equipment
Miscellaneous		3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	As Miscellaneous
Investment Interest Income		0.75%	0.75%	0.75%	1.00%	1.00%	1.00%	1.00%	
New Debt Service									
Revenue Bond Issue									
Term in Years		20	20	20	20	20	20	20	
Rate		4.75%	4.75%	4.75%	4.75%	4.75%	4.75%	4.75%	
Low Interest Loans									
Term in Years		20	20	20	20	20	20	20	
Rate		1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	
Coos Bay									
Number of Customers	5,941	5,941	5,971	6,001	6,031	6,061	6,091	6,121	As Customer Growth
Average dry weather flow MGD	2.5	2.5	2.5	2.5	2.5	2.6	2.6	2.6	As Customer Growth
Population Census (2010)	15,697								
FTE's	**# Employees**								
Treatment Plant 1	1.24								
Treatment Plant 2	1.51								
Collection	1.50								
Administration	1.66								

Total FTE's	**5.91**								
New $24.4 Treatment Improvement	**$0**	$0	$0	$0	$0	$0	$0	$0	
	$24,400,000								
North Bend									
Number of Customers	4,389	4,389	4,411	4,433	4,455	4,477	4,500	4,522	As Customer Growth
Average dry weather flow MGD	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	As Customer Growth
Population Census (2010)	9,657								
FTE's	**# Employees**								
Plant	3.00								
Wastewater	6.00								
Administration	1.50								

Total FTE's	**10.50**								
Regional Plant									
Number of Customers	10,330	10,330	10,382	10,434	10,486	10,538	10,591	10,644	As Customer Growth
Average dry weather flow MGD	4.1	4.1	4.1	4.1	4.2	4.2	4.2	4.2	As Customer Growth
FTE's	**# Employees**								
Public Works & Building	7.6								
Wastewater	4								

Total FTE's	**11.6**								
Regional Plant	**$75,878,000**								
Bond Cost	3.0%								
Revenue Bond	100.0%	$6,139,060	$6,139,060	$6,139,060	$6,139,060	$6,139,060	$6,139,060	$6,139,060	
Low Interest Bond	0.0%	$0	$0	$0	$0	$0	$0	$0	
Phase 1 Coos Bay Only	**$10,760,000**								
Bond Cost	3.0%								
Revenue Bond	100.0%	$870,559	$870,559	$870,559	$870,559	$870,559	$870,559	$870,559	
Low Interest Bond	0.0%	$0	$0	$0	$0	$0	$0	$0	

[1] Based on recent water and wastewater rate studies.
[2] Customer data information from City of Coos Bay staff and City websites.

City of Coos Bay
Wastewater Utility Financial Plan
Exhibit 2
Sources and Applications of Funds

		PROJECTED (FY)							
		2012	2013	2014	2015	2016	2017	2018	*Notes*
REVENUE									
Rate Revenues									
Sewer Use Fees		$4,544,600	$4,449,035	$4,471,280	$4,493,637	$4,516,105	$4,538,685	$4,561,379	As Customer Growth
Charleston Sanitary District		120,000	120,000	120,600	121,203	121,809	122,418	123,030	As Customer Growth
Bunker Hill Sanitary District		55,000	55,000	55,275	55,551	55,829	56,108	56,389	As Customer Growth
Total Rate Revenues		$4,719,600	$4,624,035	$4,647,155	$4,670,391	$4,693,743	$4,717,212	$4,740,798	
Other Revenues									
Sewer Permits/Connection Fees		$5,000	$5,000	$5,050	$5,101	$5,152	$5,203	$5,255	As Other Revenues
R.V. Dump Fees		2,500	2,500	2,525	2,550	2,576	2,602	2,628	As Other Revenues
Alum Sludge Disposal Payments		80,000	80,000	80,800	81,608	82,424	83,248	84,081	As Other Revenues
Miscellaneous Revenue		0	0	0	0	0	0	0	As Other Revenues
Interest Income		13,000	5,100	0	0	0	0	0	Calculated on Reserves
Total Other Revenues		$100,500	$92,600	$88,375	$89,259	$90,151	$91,053	$91,963	
TOTAL REVENUE		**$4,820,100**	**$4,716,635**	**$4,735,530**	**$4,759,650**	**$4,783,894**	**$4,808,264**	**$4,832,761**	
EXPENSES									
Operation & Maintenance Expense (Wastewater only; stormwater expenses not included)									
Treatment - Plant 1	1.24								FTEs
Salaries	$59,363	$73,610	$76,624	$78,540	$80,503	$82,516	$84,579	$86,693	As Labor
Employee Insurance	$11,657	14,455	16,107	17,073	18,098	19,184	20,335	21,555	As Medical
Personnel Benefits	$22,406	27,784	25,773	26,288	26,814	27,351	27,898	28,455	As Benefits
Materials & Services		127,151	133,755	138,436	143,282	148,297	153,487	158,859	As Materials & Supplies
OMI Contract		853,647	862,183	883,738	905,831	928,477	951,689	975,481	As Labor
Total Treatment Plant 1		$1,096,647	$1,114,442	$1,144,075	$1,174,528	$1,205,823	$1,237,986	$1,271,043	
Treatment - Plant 2	1.51								FTEs
Salaries	$61,287	$92,544	$96,698	$99,115	$101,593	$104,133	$106,736	$109,405	As Labor
Employee Insurance	$11,658	17,604	18,969	20,107	21,314	22,592	23,948	25,385	As Medical
Personnel Benefits	$22,500	33,975	32,869	33,526	34,197	34,881	35,578	36,290	As Benefits
Materials & Services		107,392	126,463	130,889	135,470	140,212	145,119	150,198	As Materials & Supplies
OMI Contract		446,225	450,687	461,954	473,503	485,341	497,474	509,911	As Labor
Total Treatment Plant 2		$697,740	$725,686	$745,592	$766,077	$787,159	$808,856	$831,189	
Collection	1.50								FTEs
Salaries	$71,847	$107,770	$115,622	$118,513	$121,475	$124,512	$127,625	$130,816	As Labor
Employee Insurance	$13,426	20,139	22,581	23,936	25,372	26,894	28,508	30,218	As Medical
Personnel Benefits	$24,469	36,703	42,853	43,710	44,584	45,476	46,385	47,313	As Benefits
Materials & Services		176,550	187,914	194,491	201,298	208,344	215,636	223,183	As Materials & Supplies
OMI Contract		485,027	489,877	502,124	514,677	527,544	540,733	554,251	As Labor
Total Collection		$826,189	$858,847	$882,773	$907,407	$932,770	$958,887	$985,781	
Administration	1.66								FTEs
Salaries	$47,540	$78,727	$80,287	$82,294	$84,352	$86,460	$88,622	$90,837	As Labor
Employee Insurance	$9,347	15,479	17,462	18,510	19,620	20,798	22,045	23,368	As Medical
Personnel Benefits	$13,989	23,165	26,163	26,686	27,220	27,764	28,320	28,886	As Benefits
Materials & Services	$35,085	58,100	68,328	70,719	73,195	75,756	78,408	81,152	As Materials & Supplies
Insurance		20,000	20,000	20,700	21,425	22,174	22,950	23,754	As Miscellaneous
Technology		6,500	6,500	6,728	6,963	7,207	7,459	7,720	As Miscellaneous
Contingency		0	0	0	0	0	0	0	As Miscellaneous
Total Administration		$201,971	$218,740	$225,637	$232,774	$240,160	$247,804	$255,717	
Total Operating & Maintenance Expense		**$2,822,547**	**$2,917,715**	**$2,998,078**	**$3,080,786**	**$3,165,912**	**$3,253,534**	**$3,343,731**	

City of Coos Bay
Wastewater Utility Financial Plan
Exhibit 2
Sources and Applications of Funds

		PROJECTED (FY)							
		2012	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	***Notes***
Capital Funded Through Rates		$643,916	$666,453	$689,779	$713,921	$738,908	$764,770	$791,537	Estimated Depreciation
Debt Service									
Debt Service		$520,000	$520,000	$520,000	$520,000	$520,000	$520,000	$520,000	Budget Transfer
New Low Interest Debt		0	0	0	0	0	0	0	Calculated 20 yrs @ 1.00%
New Revenue Bond		0	0	0	0	0	0	0	Calculated 20 yrs @ 4.75%
Total Debt Service		$520,000	$520,000	$520,000	$520,000	$520,000	$520,000	$520,000	
Less: Capital Facility Charges		$0	$0	$0	$0	$0	$0	$0	As Customer Growth
Net Debt Service		**$520,000**	**$520,000**	**$520,000**	**$520,000**	**$520,000**	**$520,000**	**$520,000**	
Contingency		638,526	631,051	653,138	675,998	699,658	724,146	749,491	As Miscellaneous
TOTAL REVENUE REQUIREMENT		**$4,624,989**	**$4,735,219**	**$4,860,995**	**$4,990,705**	**$5,124,478**	**$5,262,449**	**$5,404,759**	
Total Balance/(Deficiency) of Funds		$195,111	($18,584)	($125,465)	($231,055)	($340,584)	($454,185)	($571,998)	
Rate Adjustment as a % of Rate Revenues		0.0%	0.4%	2.7%	4.9%	7.3%	9.6%	12.1%	
Debt Service Coverage Ratio (All Debt)									
Before Rate Adjustment		3.84	3.46	3.34	3.23	3.11	2.99	2.86	
After Possible Rate Adjustment		3.47	3.50	3.58	3.67	3.77	3.86	3.96	
Average Residential 3/4" with 10 ccf	2012 6.5% increase	$61.61							
Customer Rate Adjustment Needed		$61.61	$61.86	$63.27	$64.66	$66.08	$67.54	$69.04	
Rate Difference - Monthly		$0.00	$0.25	$1.42	$1.38	$1.42	$1.46	$1.50	
Accumulated Difference		$0.00	$0.25	$1.66	$3.05	$4.47	$5.93	$7.43	
Operating Fund									
Beginning Fund Balance		$254,889	$450,000	$431,416	$445,366	$450,633	$446,177	$430,902	
Plus: Balance		195,111	(18,584)	13,950	5,267	(4,455)	(15,275)	(1,346)	
Less: Uses of Funds		0	0	0	0	0	0	0	
Ending Fund Balance		$450,000	$431,416	$445,366	$450,633	$446,177	$430,902	$429,556	
Minimum 45 days O&M		$347,985	$359,718	$369,626	$379,823	$390,318	$401,121	$412,241	

[1] City of Coos Bay 2012-2013 Budget.
[2] Reserve balance target based on 2012-2013 budget information.

City of North Bend
Wastewater Utility Financial Plan
Exhibit 3
Sources and Applications of Funds

		Budget	PROJECTED (FY)						
		2012	2013	2014	2015	2016	2017	2018	*Notes*
REVENUE									
Rate Revenues									
Sewer Use Fees		$1,500,000	$1,507,500	$1,515,038	$1,522,613	$1,530,226	$1,537,877	$1,545,566	As Customer Growth
Total Rate Revenues		$1,500,000	$1,507,500	$1,515,038	$1,522,613	$1,530,226	$1,537,877	$1,545,566	
Other Revenues									
Transfer from Storm Fund		$20,000	$20,200	$20,402	$20,606	$20,812	$21,020	$21,230	As Other Revenues
Miscellaneous Revenue		20,000	20,200	20,402	20,606	20,812	21,020	21,230	As Other Revenues
Interest Income		12,000	0	0	0	0	0	0	Calculated on Reserves
Total Other Revenues		$52,000	$40,400	$40,804	$41,212	$41,624	$42,040	$42,461	
TOTAL REVENUE		**$1,552,000**	**$1,547,900**	**$1,555,842**	**$1,563,825**	**$1,571,850**	**$1,579,917**	**$1,588,027**	
EXPENSES									
Operation & Maintenance Expense									
Treatment	10.50								FTEs
Salaries	$41,789	$438,789	$449,759	$461,003	$472,528	$484,341	$496,449	$508,861	As Labor
Employee Insurance	$10,261	107,745	114,210	121,062	128,326	136,026	144,187	152,838	As Medical
Personnel Benefits	$14,497	152,222	155,266	158,372	161,539	164,770	168,065	171,427	As Benefits
Materials & Services		477,403	494,112	511,406	529,305	547,831	567,005	586,850	As Materials & Supplies
Total Treatment		$1,176,159	$1,213,347	$1,251,843	$1,291,698	$1,332,967	$1,375,707	$1,419,976	
Total Operating & Maintenance Expense		**$1,176,159**	**$1,213,347**	**$1,251,843**	**$1,291,698**	**$1,332,967**	**$1,375,707**	**$1,419,976**	
Capital Funded Through Rates		$1,060,000	$1,097,100	$1,135,499	$1,175,241	$1,216,374	$1,258,947	$1,303,011	Estimated Depreciation
Debt Service									
Debt Service		$0	$0	$0	$0	$0	$0	$0	
New Low Interest Debt		0	0	0	0	0	0	0	
New Revenue Bond		0	0	0	0	0	0	0	
Total Debt Service		$0	$0	$0	$0	$0	$0	$0	
Less: Capital Facility Charges		$0	$0	$0	$0	$0	$0	$0	As Customer Growth
Net Debt Service		**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	
TOTAL REVENUE REQUIREMENT		**$2,236,159**	**$2,310,447**	**$2,387,341**	**$2,466,939**	**$2,549,342**	**$2,634,654**	**$2,722,987**	
Total Balance/(Deficiency) of Funds		($684,159)	($762,547)	($831,500)	($903,114)	($977,492)	($1,054,737)	($1,134,960)	
Rate Adjustment as a % of Rate Revenues		45.6%	50.6%	54.9%	59.3%	63.9%	68.6%	73.4%	
Debt Service Coverage Ratio (All Debt)									
Before Rate Adjustment		0.00	0.00	0.00	0.00	0.00	0.00	0.00	
After Possible Rate Adjustment		0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Average Residential Flat Fee		$25.25							
Customer Rate on Adjustment Needed		$36.77	$38.02	$39.11	$40.23	$41.38	$42.57	$43.79	
Rate Difference - Monthly		$11.52	$1.26	$1.09	$1.12	$1.15	$1.19	$1.22	
Accumulated Difference		$11.52	$12.77	$13.86	$14.98	$16.13	$17.32	$18.54	

[1]. City of North Bend 2011-2012 Budget.

Regional
Wastewater Utility Financial Plan - Regional
Exhibit 4
Applications of Funds

		2012	2013	2014	2015	2016	2017	2018	
APPLICATIONS OF FUNDS									
Operation & Maintenance Expense									
Treatment	4.00								
Salaries	$61,287	$245,150	$251,278	$257,560	$263,999	$270,599	$277,364	$284,298	As Labor
Employee Insurance	$11,658	46,633	49,431	52,397	55,541	58,873	62,406	66,150	As Medical
Personnel Benefits	$22,500	90,000	91,800	93,636	95,509	97,419	99,367	101,355	As Benefits
Materials & Services		79,578	82,363	85,246	88,230	91,318	94,514	97,822	As Materials & Supplies
Energy		82,695	85,589	88,585	91,685	94,894	98,216	101,653	As Miscellaneous
OMI Contract		0	0	0	0	0	0	0	As Labor
Total Treatment		$544,056	$560,462	$577,424	$594,964	$613,103	$631,867	$651,278	
Administration	7.60								
Salaries	$47,540	$190,162	$194,916	$199,789	$204,783	$209,903	$215,151	$220,529	As Labor
Employee Insurance	$9,347	37,389	39,632	42,010	44,531	47,203	50,035	53,037	As Medical
Personnel Benefits	$13,989	55,954	57,073	58,215	59,379	60,567	61,778	63,013	As Benefits
Materials & Services		58,100	60,134	62,238	64,417	66,671	69,005	71,420	As Materials & Supplies
Insurance		20,000	20,700	21,425	22,174	22,950	23,754	24,585	As Miscellaneous
Technology		6,500	6,728	6,963	7,207	7,459	7,720	7,990	As Miscellaneous
Contingency		0	0	0	0	0	0	0	As Miscellaneous
Total Administration		$368,105	$379,182	$390,639	$402,491	$414,753	$427,442	$440,575	
Total Operating & Maintenance Expense		**$912,161**	**$939,644**	**$968,063**	**$997,455**	**$1,027,856**	**$1,059,308**	**$1,091,853**	
Total Operating & Maintenance Expense Engineering Estimates		**$890,059**	**$913,933**	**$938,461**	**$963,661**	**$989,552**	**$1,016,152**	**$1,043,484**	
Capital Funded Through Rates	$75.87 M for 50yrs	$1,520,000	$1,570,000	$1,620,000	$1,680,000	$1,740,000	$1,800,000	$1,860,000	Estimated Depreciation
Debt Service									
Debt Service		$0	$0	$0	$0	$0	$0	$0	
New Low Interest Debt		870,559	870,559	870,559	870,559	870,559	870,559	870,559	Calculated 20 yrs @ 1.00%
New Revenue Bond		6,139,060	6,139,060	6,139,060	6,139,060	6,139,060	6,139,060	6,139,060	Calculated 20 yrs @ 4.75%
Total Debt Service		$7,009,619	$7,009,619	$7,009,619	$7,009,619	$7,009,619	$7,009,619	$7,009,619	
Less: Capital Facility Charges		$0	$0	$0	$0	$0	$0	$0	As Customer Growth
Net Debt Service		**$7,009,619**	**$7,009,619**	**$7,009,619**	**$7,009,619**	**$7,009,619**	**$7,009,619**	**$7,009,619**	

Regional
Wastewater Utility Financial Plan - Regional
Exhibit 4
Applications of Funds

	2012	2013	2014	2015	2016	2017	2018	
Contingency	0	0	0	0	0	0	0	As Miscellaneous
TOTAL REVENUE REQUIREMENT	**$9,441,780**	**$9,519,263**	**$9,597,682**	**$9,687,074**	**$9,777,475**	**$9,868,927**	**$9,961,472**	
Regional								
Number of Customers	**10,330**	**10,382**	**10,434**	**10,486**	**10,538**	**10,591**	**10,644**	
Annual Cost per Customer	**$914**	**$917**	**$920**	**$924**	**$928**	**$932**	**$936**	
Average Dry Weather Flow	**4.1**	**4.1**	**4.1**	**4.2**	**4.2**	**4.2**	**4.2**	
Cost per gallon	**$2.30**	**$2.31**	**$2.32**	**$2.33**	**$2.34**	**$2.35**	**$2.36**	
Coos Bay Total Revenue Requirement	$4,624,989	$4,735,219	$4,860,995	$4,990,705	$5,124,478	$5,262,449	$5,404,759	
Number of Customers	5,941	5,971	6,001	6,031	6,061	6,091	6,121	
Annual Cost per Customer	$778	$793	$810	$828	$846	$864	$883	
Average Dry Weather Flow	2.5	2.5	2.5	2.5	2.6	2.6	2.6	
Coos Bay Treatment & Admin. Requirement, Cost per gallon	$1.85	$1.88	$1.93	$1.97	$2.01	$2.05	$2.10	
North Bend Total Revenue Requirement	$2,236,159	$2,310,447	$2,387,341	$2,466,939	$2,549,342	$2,634,654	$2,722,987	
Number of Customers	4,389	4,411	4,433	4,455	4,477	4,500	4,522	
Cost per Customer	$509	$524	$539	$554	$569	$586	$602	
Average Dry Weather Flow	1.6	1.6	1.6	1.6	1.6	1.6	1.6	
Cost per gallon	$1.40	$1.44	$1.48	$1.52	$1.56	$1.61	$1.65	
COMBINED	**$6,861,148**	**$7,045,666**	**$7,248,336**	**$7,457,644**	**$7,673,820**	**$7,897,104**	**$8,127,745**	
Number of Customers	**10,330**	**10,382**	**10,434**	**10,486**	**10,538**	**10,591**	**10,644**	
Cost per Customer	**$664**	**$679**	**$695**	**$711**	**$728**	**$746**	**$764**	
Average Dry Weather Flow	**4.1**	**4.1**	**4.1**	**4.2**	**4.2**	**4.2**	**4.2**	
Cost per gallon	**$1.67**	**$1.71**	**$1.75**	**$1.79**	**$1.83**	**$1.88**	**$1.92**	

[1] Regional construction costs and operating expenses based on engineering estimates in 2012 dollars.

Phase 1 - Coos Bay Only
Wastewater Utility Financial Plan
Exhibit 5
Applications of Funds

		2012	2013	2014	2015	2016	2017	2018	
APPLICATIONS OF FUNDS									
Operation & Maintenance Expense									
Lift Stations	1.25								FTEs
Salaries	$61,287	$76,609	$78,525	$80,488	$82,500	$84,562	$86,676	$88,843	As Labor
Employee Insurance	$11,658	14,573	15,447	16,374	17,356	18,398	19,502	20,672	As Medical
Personnel Benefits	$22,500	28,125	28,688	29,261	29,846	30,443	31,052	31,673	As Benefits
Materials & Services	From Engineering	8,427	8,722	9,027	9,343	9,670	10,009	10,359	As Materials & Supplies
Energy	From Engineering	59,769	61,861	64,026	66,267	68,586	70,987	73,471	As Miscellaneous
OMI Contract		0	0	0	0	0	0	0	As Labor
Total Treatment		$187,503	$193,242	$199,176	$205,313	$211,660	$218,226	$225,019	
Administration									
Salaries		$0	$0	$0	$0	$0	$0	$0	As Labor
Employee Insurance		0	0	0	0	0	0	0	As Medical
Personnel Benefits		0	0	0	0	0	0	0	As Benefits
Materials & Services		0	0	0	0	0	0	0	As Materials & Supplies
Insurance		0	0	0	0	0	0	0	As Miscellaneous
Technology		0	0	0	0	0	0	0	As Miscellaneous
Contingency		0	0	0	0	0	0	0	As Miscellaneous
Total Administration		$0	$0	$0	$0	$0	$0	$0	
Total Operating & Maintenance Expense		**$187,503**	**$193,242**	**$199,176**	**$205,313**	**$211,660**	**$218,226**	**$225,019**	
Total Operating & Maintenance Expense Engineering Estimates		**$187,610**	**$193,156**	**$198,871**	**$204,759**	**$210,827**	**$217,080**	**$223,524**	
Capital Funded Through Rates	$10.7 M for 50yrs 50% of $24.4 M for 50yrs.	$460,000	$480,000	$500,000	$520,000	$540,000	$560,000	$580,000	As Miscellaneous
Debt Service									
Debt Service		$0	$0	$0	$0	$0	$0	$0	
New Low Interest Debt		0	0	0	0	0	0	0	Calculated 20 yrs @ 1.00%
New Revenue Bond		870,559	870,559	2,787,191	2,787,191	2,787,191	2,787,191	2,787,191	Calculated 20 yrs @ 4.75%
Total Debt Service		$870,559	$870,559	$2,787,191	$2,787,191	$2,787,191	$2,787,191	$2,787,191	
Less: Capital Facility Charges		$0	$0	$0	$0	$0	$0	$0	As Customer Growth
Net Debt Service		**$870,559**	**$870,559**	**$2,787,191**	**$2,787,191**	**$2,787,191**	**$2,787,191**	**$2,787,191**	
Contingency		0	0	0	0	0	0	0	As Miscellaneous
TOTAL REVENUE REQUIREMENT		**$1,518,062**	**$1,543,801**	**$3,486,367**	**$3,512,503**	**$3,538,851**	**$3,565,416**	**$3,592,209**	
Phase 1 - Coos Only Pump Station Phase 1 and City WWTP Project									
Number of Customers		5,941	5,971	6,001	6,031	6,061	6,091	6,121	
Annual Cost per Customer		$256	$259	$581	$582	$584	$585	$587	
Average Dry Weather Flow		2.5	2.5	2.5	2.5	2.6	2.6	2.6	
Cost per gallon		$0.61	$0.61	$1.38	$1.38	$1.39	$1.39	$1.39	
Coos Bay Total Revenue Requirement - Existing Projection		$4,624,989	$4,735,219	$4,860,995	$4,990,705	$5,124,478	$5,262,449	$5,404,759	
Number of Customers		5,941	5,971	6,001	6,031	6,061	6,091	6,121	
Annual Cost per Customer		$778	$793	$810	$828	$846	$864	$883	
Average Dry Weather Flow		2.5	2.5	2.5	2.5	2.6	2.6	2.6	
Cost per gallon		$1.85	$1.88	$1.93	$1.97	$2.01	$2.05	$2.10	
COMBINED with Pump Station and Coos Bay WWTP		**$6,143,051**	**$6,279,020**	**$8,347,362**	**$8,503,208**	**$8,663,328**	**$8,827,866**	**$8,996,968**	
Number of Customers		**5,941**	**5,971**	**6,001**	**6,031**	**6,061**	**6,091**	**6,121**	
Cost per Customer		**$1,034**	**$1,052**	**$1,391**	**$1,410**	**$1,429**	**$1,449**	**$1,470**	
Average Dry Weather Flow		**2.5**	**2.5**	**2.5**	**2.5**	**2.6**	**2.6**	**2.6**	
Cost per gallon		**$2.46**	**$2.50**	**$3.31**	**$3.35**	**$3.40**	**$3.44**	**$3.49**	

[1] Phase I Coos Bay only lift stations. Phase I construction costs and operating expenses based on engineering estimates in 2012 dollars.

Appendix H:
Cost Estimates

North Spit Regional WWTF Planning

COST SUMMARY BY PROCESS AREA

AREA	AMOUNT
Site and Civil	$1,506,111
Wetland Restoration	$500,000
Piling	$2,255,767
Influent screening	$4,571,088
grit removal	$1,613,292
High rate primary Treatment	$1,870,000
Primary Clarfiers	$4,571,088
Areation Basins	$2,218,224
Blowers	$714,174
Seconcary Clarifiers	$4,562,802
Chlorine Contact	$1,919,712
Effluent Pump Station	$1,669,147
Sludge Thickening	$300,000
Anaerobic Digesters	$1,015,683
Sludge Storage Tank	$424,612
Dewatering	$1,049,676
Operations and Admin Building	$5,000,000
Utilities	$1,230,000
Backup Generator	$100,000
Outfall	$5,500,000
Cogen	$600,000
SUBTOTAL ESTIMATED CONSTRUCTION AMOUNT (1)	**$43,191,000**
MOBILIZATION, BONDS AND INSURANCE (10%)	$4,319,000.00
CONTRACTOR'S OVERHEAD AND PROFIT (10%)	$4,319,000.00
SUBTOTAL	$51,829,000.00
MISCELLANEOUS ITEMS NOT ITEMIZED (30%)	$10,366,000.00
SUBTOTAL	$62,195,000.00
ENGINEERING LEGAL AND FISCAL (22%)	$13,683,000.00
Total	**$75,878,000.00**

COOS BAY, OREGON
REGIONAL WASTEWATER TREATMENT
REGIONAL BIOSOLIDS FACILITY

Project name	REGIONAL WWTP-BIOSOLIDS Coos Bay OR 97420 Fill In
Labor rate table	CONC2012
Equipment rate table	CONC2012
Project Name 1	Regional WWTP
Project Name 2	Regional Biosolids
Project Info 1	Facilitiy Plans
Project Location 1	Coos Bay, OR
Design Stage 1	Planning Level
Estimate Version	1.0
Upper Range +%	40
Lower Range -%	20
Labor Rate Table	2nd Qtr 2012
Equip Rate Table	2nd Qtr 2012
Notes	Any opinions of probable construction cost or cost estimates provided by HDR, Inc. are made on the basis of information available to HDR, Inc. and on the basis of cost estimator's experience and qualifications, and represents its judgment as an experienced and qualified professional engineer. However, since HDR, Inc. has no control over the cost of labor, materials, equipment or services furnished by others, or over the contractor(s') methods of determining prices, or over competitive bidding or market conditions, HDR, Inc. does not guarantee that proposals, bids or actual project or construction cost will not vary from opinions of probable cost or cost estimates prepared by HDR, Inc.
Report format	Sorted by 'WBS_MAIN/MF95_DIV/HDR95SPEC/Group phase/Phase' 'HDR95SPEC' summary Allocate addons Print sort level notes

AACE Classification Accuracy Range

Upper Range +40% **Lower Range -20%**

Description	Quantity		Labor Amount	Material Amount	Subcontract Amount	Equipment Amount	Other Amount	Total Unit Cost	Total Amount
RBSM AD	***ANAEROBIC DIGESTERS (RBSM)***								
DIVISION 01	**GENERAL REQUIREMENTS**								
01500.100	Non-Task Specific Equipment	2.00 mo	26,862			48,254		37,558.04 /mo	75,116
DIVISION 01 GENERAL REQUIREMENTS			**26,862**			**48,254**			**75,116**
426.400	Labor hours								
2,158.400	Equipment hours								
DIVISION 02	**SITE CONSTRUCTION**								
02200.000	Earthwork	1.00 ls	105			73		178.17 /ls	178
02200.500	Earthwork, Structural Excavation	323.00 cy	1,232			2,065		10.21 /cy	3,298
02200.600	Earthwork, Structural Backfill, Native Material includes compaction	158.00 cy	267			562		5.25 /cy	829
02930.000	Seeding, Sodding, and Landscaping	1.00 ls	180	30		25		235.06 /ls	235
DIVISION 02 SITE CONSTRUCTION			**1,785**	**30**		**2,725**			**4,540**
31.96	Labor hours								
45.633	Equipment hours								
DIVISION 03	**CONCRETE**								
03002.100	Concrete_Foundations	63.00 cy	11,705	14,909		997		438.27 /cy	27,611
03002.300	Concrete_Walls Exterior	212.00 cy	86,132	47,635		1,712		639.054/cy	135,480
03002.500	Concrete_Columns	108.00 cy	58,835	28,380		1,094		817.673/cy	88,309
03002.615	Concrete_Elevated Slab Odor Cover	112.00 cy	51,368	31,622		808		748.204/cy	83,799
03002.885	Concrete_Grout/Flowable Fill Topping	3.00 cy	80	258		19		119.04 /cy	357
DIVISION 03 CONCRETE			**208,120**	**122,804**		**4,631**			**335,555**
3,338.78	Labor hours								
130.214	Equipment hours								
DIVISION 05	**METALS**								
05522.000	Aluminum Railings	87.00 lf	1,506	6,015		85		87.43 /lf	7,606
DIVISION 05 METALS			**1,506**	**6,015**		**85**			**7,606**
20.28	Labor hours								
5.07	Equipment hours								
DIVISION 11	**EQUIPMENT**								
11373.000	Mixers	1.00 ea	4,718	75,099	1,850		359	82,026.44 /ea	82,026
DIVISION 11 EQUIPMENT			**4,718**	**75,099**	**1,850**		**359**		**82,026**
64.00	Labor hours								
DIVISION 13	**SPECIAL CONSTRUCTION**								

AACE Classification Accuracy Range

Upper Range +40% **Lower Range -20%**

Description		Quantity		Labor Amount	Material Amount	Subcontract Amount	Equipment Amount	Other Amount	Total Unit Cost	Total Amount
13440.000	Instrumentation for Process Control: Basic Requirements	1.00	ls			25,326			25,326.43 /ls	25,326
DIVISION 13 SPECIAL CONSTRUCTION						**25,326**				**25,326**
DIVISION 15	**MECHANICAL**									
15062.000	Pipe: Ductile	70.00	lf	9,929	5,967		1,098		242.763/lf	16,993
DIVISION 15 MECHANICAL				**9,929**	**5,967**		**1,098**			**16,993**
175.180	Labor hours									
21.704	Equipment hours									
DIVISION 16	**ELECTRICAL**									
16010.000	Electrical: Basic Requirements	1.00	ls			75,979			75,979.26 /ls	75,979
DIVISION 16 ELECTRICAL						**75,979**				**75,979**
RBSM AD ANAEROBIC DIGESTERS (RBSM)				***252,921***	***209,915***	***103,156***	***56,792***	***359***	***3,894,641.38 /MG***	***623,143***
0.16	***MG***									
4,056.59	Labor hours									
2,361.02	Equipment hours									

Partial Totals

Description	Amount	Totals	Hours	Rate
Labor	252,921		4,056.589 hrs	
Material	209,915			
Subcontract	103,156			
Equipment	56,792		2,361.019 hrs	
Other	359			
Direct Cost - Subtotal		**623,143**		
Contractor's Fld Ovhd & Mob	49,851			8.000
Sales Tax Estimate (Mat & Eq)	20,079			7.750
Field Const Cost - Subtotal		**693,073**		
Contractor's Fee	69,307			10.000
Undefined SOW (Contingency)	152,476			20.000
Subtotal		**914,856**		
Escalation (NONE INCLUDED)				0.000
Subtotal		**914,856**		
Contractor's Bonds & Insurance	13,723			1.500
Current OPCC Estimate Budget		**928,579**		

AACE Classification Accuracy Range

Upper Range +40% **Lower Range -20%**

COOS BAY, OREGON
REGIONAL WASTEWATER TREATMENT
REGIONAL BIOSOLIDS FACILITY

Project name	REGIONAL WWTP-BIOSOLIDS Coos Bay OR 97420 Fill In
Labor rate table	CONC2012
Equipment rate table	CONC2012
Project Name 1	Regional WWTP
Project Name 2	Regional Biosolids
Project Info 1	Facilitiy Plans
Project Location 1	Coos Bay, OR
Design Stage 1	Planning Level
Estimate Version	1.0
Upper Range +%	40
Lower Range -%	20
Labor Rate Table	2nd Qtr 2012
Equip Rate Table	2nd Qtr 2012
Notes	Any opinions of probable construction cost or cost estimates provided by HDR, Inc. are made on the basis of information available to HDR, Inc. and on the basis of cost estimator's experience and qualifications, and represents its judgment as an experienced and qualified professional engineer. However, since HDR, Inc. has no control over the cost of labor, materials, equipment or services furnished by others, or over the contractor(s') methods of determining prices, or over competitive bidding or market conditions, HDR, Inc. does not guarantee that proposals, bids or actual project or construction cost will not vary from opinions of probable cost or cost estimates prepared by HDR, Inc.
Report format	Sorted by 'WBS_MAIN/MF95_DIV/HDR95SPEC/Group phase/Phase' 'HDR95SPEC' summary Allocate addons Print sort level notes

AACE Classification Accuracy Range

Upper Range +40% **Lower Range -20%**

Description	Quantity		Labor Amount	Material Amount	Subcontract Amount	Equipment Amount	Other Amount	Total Unit Cost	Total Amount
RBSM CENT 1	***DEWATERING CENTRIFUGE 1 (RBSM)***								
DIVISION 01	**GENERAL REQUIREMENTS**								
01500.100	Non-Task Specific Equipment	2.00 mo	27,211			48,854		38,032.120/mo	76,064
DIVISION 01 GENERAL REQUIREMENTS			**27,211**			**48,854**			**76,064**
432.00	Labor hours								
2,192.00	Equipment hours								
DIVISION 02	**SITE CONSTRUCTION**								
02200.500	Earthwork, Structural Excavation	1,117.00 cy	1,593			2,300		3.49 /cy	3,893
02200.600	Earthwork, Structural Backfill, Native Material includes compaction	689.00 cy	1,162			2,449		5.241/cy	3,611
DIVISION 02 SITE CONSTRUCTION			**2,755**			**4,749**			**7,504**
47.04	Labor hours								
43.56	Equipment hours								
DIVISION 03	**CONCRETE**								
03002.100	Concrete_Foundations	123.00 cy	23,685	30,980		2,041		461.024/cy	56,706
03002.300	Concrete_Walls Exterior	56.00 cy	28,744	14,181		452		774.594/cy	43,377
03002.500	Concrete_Columns	1.00 cy	712	790		11		1,512.61 /cy	1,513
DIVISION 03 CONCRETE			**53,141**	**45,951**		**2,504**			**101,596**
839.923	Labor hours								
62.51	Equipment hours								
DIVISION 07	**THERMAL& MOISTURE PROTECTION**								
07501.000	Built-Up Roofing System (BUR)	900.00 sf	6,340	11,182		354		19.862/sf	17,876
DIVISION 07 THERMAL& MOISTURE PROTECTION			**6,340**	**11,182**		**354**			**17,876**
108.15	Labor hours								
7.91	Equipment hours								
DIVISION 08	**DOORS & WINDOWS**								
08120.030	Aluminum Doors & Frames (3070)	2.00 ea	1,357	3,400				2,378.510/ea	4,757
08334.000	Aluminum Rolling Overhead Doors	1.00 ea	1,216	4,511				5,727.04 /ea	5,727
DIVISION 08 DOORS & WINDOWS			**2,573**	**7,911**					**10,484**
37.275	Labor hours								
DIVISION 09	**FINISHES**								
09905.000	Painting and Protective Coatings	1.00 ls			22,327			22,326.70 /ls	22,327
DIVISION 09 FINISHES					**22,327**				**22,327**
DIVISION 11	**EQUIPMENT**								

Description		Quantity		Labor Amount	Material Amount	Subcontract Amount	Equipment Amount	Other Amount	Total Unit Cost	Total Amount
11069.000	Pumping Equipment: Progressing Cavity	3.00	ea	3,981	93,525			1,650	33,052.063/ea	99,156
11365.000	Dewatering Centrifuges	2.00	ea	16,074	250,000		3,351		134,712.58 /ea	269,425
DIVISION 11 EQUIPMENT				**20,055**	**343,525**		**3,351**	**1,650**		**368,581**
334.00	Labor hours									
35.00	Equipment hours									
DIVISION 13	**SPECIAL CONSTRUCTION**									
13440.000	Instrumentation for Process Control: Basic Requirements	1.00	ls			40,606			40,605.70 /ls	40,606
DIVISION 13 SPECIAL CONSTRUCTION						**40,606**				**40,606**
DIVISION 14	**CONVEYING SYSTEMS**									
14305.000	Bridge Cranes	1.00	ea	3,365	27,290		175		30,830.27 /ea	30,830
14552.000	Conveyors: Belt	45.00	lf	12,979	67,500			270	1,794.42 /lf	80,749
DIVISION 14 CONVEYING SYSTEMS				**16,344**	**94,790**		**175**	**270**		**111,579**
281.350	Labor hours									
5.00	Equipment hours									
DIVISION 15	**MECHANICAL**									
15062.000	Pipe: Ductile	40.00	lf	4,189	19,988		774		623.774/lf	24,951
15062.100	Pipe: Ductile - Interior with Valves, Couplings, Hangers and Supports	1.00	ls	13,326	63,932		1,123		78,380.98 /ls	78,381
15605.000	HVAC: Equipment	1.00	ls			9,898			9,898.35 /ls	9,898
DIVISION 15 MECHANICAL				**17,515**	**83,920**	**9,898**	**1,897**			**113,230**
306.504	Labor hours									
24.45	Equipment hours									
DIVISION 16	**ELECTRICAL**									
16010.000	Electrical: Basic Requirements	1.00	ls			121,817			121,817.08 /ls	121,817
DIVISION 16 ELECTRICAL						**121,817**				**121,817**
RBSM CENT 1 DEWATERING CENTRIFUGE 1 (RBSM)				***145,933***	***587,279***	***194,648***	***61,884***	***1,920***	***104.39 /LB/D***	***991,664***
9,500.00	***LB/D***									
2,386.24	Labor hours									
2,370.42	Equipment hours									

Partial Totals

Description	Amount	Totals	Hours	Rate
Labor	145,933		2,386.239 hrs	
Material	587,279			
Subcontract	194,648			
Equipment	61,884		2,370.418 hrs	
Other	1,920			
Direct Cost - Subtotal		**991,664**		
Contractor's Fld Ovhd & Mob	79,333			8.000
Sales Tax Estimate (Mat & Eq)	49,405			7.750
Field Const Cost - Subtotal		**1,120,402**		
Contractor's Fee	112,040			10.000
Undefined SOW (Contingency)	246,489			20.000
Subtotal		**1,478,931**		
Escalation (NONE INCLUDED)				0.000
Subtotal		**1,478,931**		
Contractor's Bonds & Insurance	22,184			1.500
Current OPCC Estimate Budget		**1,501,115**		

AACE Classification Accuracy Range

Upper Range +40% **Lower Range -20%**

COOS BAY, OREGON
REGIONAL WASTEWATER TREATMENT
REGIONAL BIOSOLIDS FACILITY

Project name	REGIONAL WWTP-BIOSOLIDS Coos Bay OR 97420 Fill In
Labor rate table	CONC2012
Equipment rate table	CONC2012
Project Name 1	Regional WWTP
Project Name 2	Regional Biosolids
Project Info 1	Facilitiy Plans
Project Location 1	Coos Bay, OR
Design Stage 1	Planning Level
Estimate Version	1.0
Upper Range +%	40
Lower Range -%	20
Labor Rate Table	2nd Qtr 2012
Equip Rate Table	2nd Qtr 2012
Notes	Any opinions of probable construction cost or cost estimates provided by HDR, Inc. are made on the basis of information available to HDR, Inc. and on the basis of cost estimator's experience and qualifications, and represents its judgment as an experienced and qualified professional engineer. However, since HDR, Inc. has no control over the cost of labor, materials, equipment or services furnished by others, or over the contractor(s') methods of determining prices, or over competitive bidding or market conditions, HDR, Inc. does not guarantee that proposals, bids or actual project or construction cost will not vary from opinions of probable cost or cost estimates prepared by HDR, Inc.
Report format	Sorted by 'WBS_MAIN/MF95_DIV/HDR95SPEC/Group phase/Phase' 'HDR95SPEC' summary Allocate addons Print sort level notes

AACE Classification Accuracy Range

Upper Range +40% **Lower Range -20%**

Description	Quantity		Labor Amount	Material Amount	Subcontract Amount	Equipment Amount	Other Amount	Total Unit Cost	Total Amount
RBSM CENT 2	***DEWATERING CENTRIFUGE 2 (RBSM)***								
DIVISION 01	**GENERAL REQUIREMENTS**								
01500.100	Non-Task Specific Equipment	2.00 mo	27,211			48,854		38,032.120/mo	76,064
DIVISION 01 GENERAL REQUIREMENTS			**27,211**			**48,854**			**76,064**
432.00	Labor hours								
2,192.00	Equipment hours								
DIVISION 02	**SITE CONSTRUCTION**								
02200.500	Earthwork, Structural Excavation	1,117.00 cy	1,593			2,300		3.49 /cy	3,893
02200.600	Earthwork, Structural Backfill, Native Material includes compaction	689.00 cy	1,162			2,449		5.241/cy	3,611
DIVISION 02 SITE CONSTRUCTION			**2,755**			**4,749**			**7,504**
47.04	Labor hours								
43.56	Equipment hours								
DIVISION 03	**CONCRETE**								
03002.100	Concrete_Foundations	123.00 cy	23,685	30,980		2,041		461.024/cy	56,706
03002.300	Concrete_Walls Exterior	56.00 cy	28,744	14,181		452		774.594/cy	43,377
03002.500	Concrete_Columns	1.00 cy	712	790		11		1,512.62 /cy	1,513
DIVISION 03 CONCRETE			**53,141**	**45,951**		**2,504**			**101,596**
839.923	Labor hours								
62.51	Equipment hours								
DIVISION 07	**THERMAL& MOISTURE PROTECTION**								
07501.000	Built-Up Roofing System (BUR)	900.00 sf	6,340	11,182		354		19.862/sf	17,876
DIVISION 07 THERMAL& MOISTURE PROTECTION			**6,340**	**11,182**		**354**			**17,876**
108.15	Labor hours								
7.91	Equipment hours								
DIVISION 08	**DOORS & WINDOWS**								
08120.030	Aluminum Doors & Frames (3070)	2.00 ea	1,357	3,400				2,378.52 /ea	4,757
08334.000	Aluminum Rolling Overhead Doors	1.00 ea	1,216	4,511				5,727.04 /ea	5,727
DIVISION 08 DOORS & WINDOWS			**2,573**	**7,911**					**10,484**
37.275	Labor hours								
DIVISION 09	**FINISHES**								
09905.000	Painting and Protective Coatings	1.00 ls			22,327			22,326.70 /ls	22,327
DIVISION 09 FINISHES					**22,327**				**22,327**
DIVISION 11	**EQUIPMENT**								

Description		Quantity		Labor Amount	Material Amount	Subcontract Amount	Equipment Amount	Other Amount	Total Unit Cost	Total Amount
11069.000	Pumping Equipment: Progressing Cavity	3.00	ea	3,981	93,525			1,650	33,052.06 /ea	99,156
11365.000	Dewatering Centrifuges	2.00	ea	16,074	250,000		3,351		134,712.58 /ea	269,425
DIVISION 11 EQUIPMENT				**20,055**	**343,525**		**3,351**	**1,650**		**368,581**
334.00	Labor hours									
35.00	Equipment hours									
DIVISION 13	**SPECIAL CONSTRUCTION**									
13440.000	Instrumentation for Process Control: Basic Requirements	1.00	ls			40,524			40,523.57 /ls	40,524
DIVISION 13 SPECIAL CONSTRUCTION						**40,524**				**40,524**
DIVISION 14	**CONVEYING SYSTEMS**									
14305.000	Bridge Cranes	1.00	ea	3,365	27,290		175		30,830.28 /ea	30,830
14552.000	Conveyors: Belt	45.00	lf	12,979	67,500			270	1,794.42 /lf	80,749
DIVISION 14 CONVEYING SYSTEMS				**16,344**	**94,790**		**175**	**270**		**111,579**
281.350	Labor hours									
5.00	Equipment hours									
DIVISION 15	**MECHANICAL**									
15062.000	Pipe: Ductile	40.00	lf	3,815	18,631		732		579.422/lf	23,177
15062.100	Pipe: Ductile - Interior with Valves, Couplings, Hangers and Supports	1.00	ls	13,326	63,932		1,123		78,380.98 /ls	78,381
15605.000	HVAC: Equipment	1.00	ls			9,898			9,898.35 /ls	9,898
DIVISION 15 MECHANICAL				**17,140**	**82,563**	**9,898**	**1,854**			**111,456**
299.931	Labor hours									
23.95	Equipment hours									
DIVISION 16	**ELECTRICAL**									
16010.000	Electrical: Basic Requirements	1.00	ls			121,571			121,570.70 /ls	121,571
DIVISION 16 ELECTRICAL						**121,571**				**121,571**
RBSM CENT 2 DEWATERING CENTRIFUGE 2 (RBSM)				***145,559***	***585,922***	***194,319***	***61,841***	***1,920***	***104.164/LB/D***	***989,561***
9,500.00	***LB/D***									
2,379.67	Labor hours									
2,369.92	Equipment hours									

Partial Totals

Description	Amount	Totals	Hours	Rate
Labor	145,559		2,379.667 hrs	
Material	585,922			
Subcontract	194,319			
Equipment	61,841		2,369.916 hrs	
Other	1,920			
Direct Cost - Subtotal		**989,561**		
Contractor's Fld Ovhd & Mob	79,165			8.000
Sales Tax Estimate (Mat & Eq)	49,307			7.750
Field Const Cost - Subtotal		**1,118,033**		
Contractor's Fee	111,803			10.000
Undefined SOW (Contingency)	245,967			20.000
Subtotal		**1,475,803**		
Escalation (NONE INCLUDED)				0.000
Subtotal		**1,475,803**		
Contractor's Bonds & Insurance	22,137			1.500
Current OPCC Estimate Budget		**1,497,940**		

AACE Classification Accuracy Range

Upper Range +40% **Lower Range -20%**

COOS BAY, OREGON
REGIONAL WASTEWATER TREATMENT
REGIONAL BIOSOLIDS FACILITY

Project name	REGIONAL WWTP-BIOSOLIDS Coos Bay OR 97420 Fill In
Labor rate table	CONC2012
Equipment rate table	CONC2012
Project Name 1	Regional WWTP
Project Name 2	Regional Biosolids
Project Info 1	Facilitiy Plans
Project Location 1	Coos Bay, OR
Design Stage 1	Planning Level
Estimate Version	1.0
Upper Range +%	40
Lower Range -%	20
Labor Rate Table	2nd Qtr 2012
Equip Rate Table	2nd Qtr 2012
Notes	Any opinions of probable construction cost or cost estimates provided by HDR, Inc. are made on the basis of information available to HDR, Inc. and on the basis of cost estimator's experience and qualifications, and represents its judgment as an experienced and qualified professional engineer. However, since HDR, Inc. has no control over the cost of labor, materials, equipment or services furnished by others, or over the contractor(s') methods of determining prices, or over competitive bidding or market conditions, HDR, Inc. does not guarantee that proposals, bids or actual project or construction cost will not vary from opinions of probable cost or cost estimates prepared by HDR, Inc.
Report format	Sorted by 'WBS_MAIN/MF95_DIV/HDR95SPEC/Group phase/Phase' 'HDR95SPEC' summary Allocate addons Print sort level notes

AACE Classification Accuracy Range

Upper Range +40% **Lower Range -20%**

Description		Quantity		Labor Amount	Material Amount	Subcontract Amount	Equipment Amount	Other Amount	Total Unit Cost	Total Amount
RBSM DCB	***DIGESTER CONTROL BUILDING (RBSM)***									
DIVISION 02	**SITE CONSTRUCTION**									
02200.000	Earthwork	1.00	ls	156			108		263.57 /ls	264
02200.500	Earthwork, Structural Excavation	917.00	cy	3,799			6,748		11.501/cy	10,546
02200.600	Earthwork, Structural Backfill, Native Material includes compaction	361.00	cy	609			1,283		5.241/cy	1,892
02930.000	Seeding, Sodding, and Landscaping	1.00	ls	575	95		80		750.09 /ls	750
DIVISION 02 SITE CONSTRUCTION				**5,138**	**95**		**8,218**			**13,452**
93.54	Labor hours									
144.42	Equipment hours									
DIVISION 03	**CONCRETE**									
03002.100	Concrete_Foundations	121.00	cy	24,501	29,497		1,671		460.07 /cy	55,668
03002.300	Concrete_Walls Exterior	104.00	cy	45,626	24,756		840		684.83 /cy	71,222
03002.600	Concrete_Elevated Slab	84.00	cy	19,645	19,051		574		467.503/cy	39,270
03002.825	Concrete_Stairs	1.00	ls	4,730	733		45		5,508.28 /ls	5,508
03002.850	Concrete_Topping	19.00	cy	2,230	3,365		59		297.55 /cy	5,653
03431.000	Precast and Prestressed Concrete	1.00	ls	2,553	27,102	104,580	962		135,197.52 /ls	135,198
DIVISION 03 CONCRETE				**99,284**	**104,504**	**104,580**	**4,151**			**312,519**
1,568.160	Labor hours									
113.61	Equipment hours									
DIVISION 04	**MASONRY**									
04220.000	Concrete Masonry	3,186.00	sf	34,379	15,530		676		15.88 /sf	50,585
DIVISION 04 MASONRY				**34,379**	**15,530**		**676**			**50,585**
564.83	Labor hours									
38.62	Equipment hours									
DIVISION 05	**METALS**									
05505.000	Metal Fabrications	1.00	ls	5,237	36,505		295		42,036.28 /ls	42,036
DIVISION 05 METALS				**5,237**	**36,505**		**295**			**42,036**
70.51	Labor hours									
17.63	Equipment hours									
DIVISION 07	**THERMAL& MOISTURE PROTECTION**									
07534.000	Adhered Elastomeric (EPDM) Sheet Roofing	1,500.00	sf	2,361	4,740		224		4.884/sf	7,325

Description	Quantity		Labor Amount	Material Amount	Subcontract Amount	Equipment Amount	Other Amount	Total Unit Cost	Total Amount
DIVISION 07 THERMAL& MOISTURE PROTECTION			**2,361**	**4,740**		**224**			**7,325**
50.00 Labor hours									
10.01 Equipment hours									
DIVISION 08 DOORS & WINDOWS									
08121.000 Fiberglass Reinforced Polymer (FRP) Panel Alum Doors and Alum Frames	4.00	ea	2,311	12,806				3,779.103/ea	15,116
08305.000 Access Doors	1.00	ea	244	2,800				3,043.91 /ea	3,044
08334.000 Aluminum Rolling Overhead Doors	2.00	ea	1,961	4,609				3,284.70 /ea	6,569
DIVISION 08 DOORS & WINDOWS			**4,516**	**20,214**					**24,730**
68.67 Labor hours									
DIVISION 09 FINISHES									
09905.000 Painting and Protective Coatings	1.00	ls	9,257	2,033	13,968			25,257.31 /ls	25,257
DIVISION 09 FINISHES			**9,257**	**2,033**	**13,968**				**25,257**
162.422 Labor hours									
DIVISION 10 SPECIALTIES									
* unassigned *			1,471	9,500					10,971
DIVISION 10 SPECIALTIES			**1,471**	**9,500**					**10,971**
24.00 Labor hours									
DIVISION 11 EQUIPMENT									
13220.000 Digester Equipment: Basic Requirements	1.00	ls	114,175	246,600				360,774.60 /ls	360,775
DIVISION 11 EQUIPMENT			**114,175**	**246,600**					**360,775**
DIVISION 15 MECHANICAL									
15062.100 Pipe: Ductile - Interior with Valves, Couplings, Hangers and Supports	1.00	ls	30,747	44,542		1,185		76,474.12 /ls	76,474
DIVISION 15 MECHANICAL			**30,747**	**44,542**		**1,185**			**76,474**
537.30 Labor hours									
12.67 Equipment hours									
RBSM DCB DIGESTER CONTROL BUILDING (RBSM)			***306,566***	***484,263***	***118,548***	***14,749***	***0***	***616.084/SF***	***924,125***
1,500.00 SF									
3,139.412 Labor hours									
336.94 Equipment hours									

AACE Classification Accuracy Range

Upper Range +40% **Lower Range -20%**

Partial Totals

Description	Amount	Totals	Hours	Rate
Labor	306,566		3,139.412 hrs	
Material	484,263			
Subcontract	118,548			
Equipment	14,749		336.937 hrs	
Other				
Electrical as a Percent	135,225			15.000
I & C as a Percent	45,075			5.000
Direct Cost - Subtotal		**1,104,426**		
Contractor's Fld Ovhd & Mob	88,354			8.000
Sales Tax Estimate (Mat & Eq)	37,573			7.750
Field Const Cost - Subtotal		**1,230,353**		
Contractor's Fee	123,035			10.000
Undefined SOW (Contingency)	270,677			20.000
Subtotal		**1,624,065**		
Escalation (NONE INCLUDED)				0.000
Subtotal		**1,624,065**		
Contractor's Bonds & Insurance	24,361			1.500
Current OPCC Estimate Budget		**1,648,426**		

AACE Classification Accuracy Range

Upper Range +40% **Lower Range -20%**

COOS BAY, OREGON
REGIONAL WASTEWATER TREATMENT
REGIONAL BIOSOLIDS FACILITY

Project name	REGIONAL WWTP-BIOSOLIDS Coos Bay OR 97420 Fill In
Labor rate table	CONC2012
Equipment rate table	CONC2012
Project Name 1	Regional WWTP
Project Name 2	Regional Biosolids
Project Info 1	Facilitiy Plans
Project Location 1	Coos Bay, OR
Design Stage 1	Planning Level
Estimate Version	1.0
Upper Range +%	40
Lower Range -%	20
Labor Rate Table	2nd Qtr 2012
Equip Rate Table	2nd Qtr 2012
Notes	Any opinions of probable construction cost or cost estimates provided by HDR, Inc. are made on the basis of information available to HDR, Inc. and on the basis of cost estimator's experience and qualifications, and represents its judgment as an experienced and qualified professional engineer. However, since HDR, Inc. has no control over the cost of labor, materials, equipment or services furnished by others, or over the contractor(s') methods of determining prices, or over competitive bidding or market conditions, HDR, Inc. does not guarantee that proposals, bids or actual project or construction cost will not vary from opinions of probable cost or cost estimates prepared by HDR, Inc.
Report format	Sorted by 'WBS_MAIN/MF95_DIV/HDR95SPEC/Group phase/Phase' 'HDR95SPEC' summary Allocate addons Print sort level notes

AACE Classification Accuracy Range

Upper Range +40% **Lower Range -20%**

Description	Quantity		Labor Amount	Material Amount	Subcontract Amount	Equipment Amount	Other Amount	Total Unit Cost	Total Amount
RBSM POLYMER	***POLYMER FEED EMULSION (RBSM)***								
DIVISION 03	**CONCRETE**								
03002.100	Concrete_Foundations	26.00 cy	5,603	7,775		449		531.843/cy	13,828
03002.300	Concrete_Walls Exterior	6.00 cy	3,601	1,473		48		853.74 /cy	5,122
03002.800	Concrete_Equipment Pads	6.00 cy	1,129	1,220		34		397.153/cy	2,383
DIVISION 03 CONCRETE			**10,333**	**10,469**		**532**			**21,333**
162.51	Labor hours								
14.87	Equipment hours								
DIVISION 06	**WOODS & PLASTICS**								
06610.000	Fiberglass Reinforced Plastic Fabrications	1.00 ls	1,035	7,544				8,578.76 /ls	8,579
DIVISION 06 WOODS & PLASTICS			**1,035**	**7,544**					**8,579**
15.09	Labor hours								
DIVISION 09	**FINISHES**								
09905.000	Painting and Protective Coatings	1.00 ls			13,968			13,967.80 /ls	13,968
DIVISION 09 FINISHES					**13,968**				**13,968**
DIVISION 11	**EQUIPMENT**								
11800.000	Chemical Feed: Sodium Hypochlorite	1.00 ls	1,475	12,396			177	14,047.51 /ls	14,048
11810.000	Chemical Mixing Units	1.00 ea	1,769	50,000				51,769.41 /ea	51,769
11926.000	Chemical Feed: Liquid Systems	1.00 ls	1,769	9,797	3,700			15,266.42 /ls	15,266
DIVISION 11 EQUIPMENT			**5,013**	**72,193**	**3,700**		**177**		**81,083**
84.000	Labor hours								
21.00	Equipment hours								
DIVISION 13	**SPECIAL CONSTRUCTION**								
13420.000	Fiberglass Reinforced Plastic Tanks	1.00 ea	557	2,100				2,657.44 /ea	2,657
13440.000	Instrumentation for Process Control: Basic Requirements	1.00 ls			6,948			6,947.59 /ls	6,948
DIVISION 13 SPECIAL CONSTRUCTION			**557**	**2,100**	**6,948**				**9,605**
8.00	Labor hours								
DIVISION 15	**MECHANICAL**								
15064.000	Pipe: Plastic	1.00 lf	3,539	11,000				14,538.83 /lf	14,539
DIVISION 15 MECHANICAL			**3,539**	**11,000**					**14,539**
48.000	Labor hours								
DIVISION 16	**ELECTRICAL**								
16010.000	Electrical: Basic Requirements	1.00 ls			20,843			20,842.76 /ls	20,843

AACE Classification Accuracy Range

Upper Range +40% **Lower Range -20%**

Description	Quantity	Labor Amount	Material Amount	Subcontract Amount	Equipment Amount	Other Amount	Total Unit Cost	Total Amount
DIVISION 16 ELECTRICAL				20,843				20,843
RBSM POLYMER POLYMER FEED EMULSION (RBSM)		***20,477***	***103,306***	***45,458***	***532***	***177***	***24,278.54 /LB/H***	***169,950***
	7.00 LB/H							
	317.60 Labor hours							
	35.87 Equipment hours							

Partial Totals

Description	Amount	Totals	Hours	Rate
Labor	20,477		317.597 hrs	
Material	103,306			
Subcontract	45,458			
Equipment	532		35.865 hrs	
Other	177			
Direct Cost - Subtotal		**169,950**		
Contractor's Fld Ovhd & Mob	13,596			8.000
Sales Tax Estimate (Mat & Eq)	7,926			7.750
Field Const Cost - Subtotal		**191,472**		
Contractor's Fee	19,147			10.000
Undefined SOW (Contingency)	42,124			20.000
Subtotal		**252,743**		
Escalation (NONE INCLUDED)				0.000
Subtotal		**252,743**		
Contractor's Bonds & Insurance	3,791			1.500
Current OPCC Estimate Budget		**256,534**		

AACE Classification Accuracy Range

Upper Range +40% **Lower Range -20%**

COOS BAY, OREGON
REGIONAL WASTEWATER TREATMENT
REGIONAL BIOSOLIDS FACILITY

Project name	REGIONAL WWTP-BIOSOLIDS Coos Bay OR 97420 Fill In
Labor rate table	CONC2012
Equipment rate table	CONC2012
Project Name 1	Regional WWTP
Project Name 2	Regional Biosolids
Project Info 1	Facilitiy Plans
Project Location 1	Coos Bay, OR
Design Stage 1	Planning Level
Estimate Version	1.0
Upper Range +%	40
Lower Range -%	20
Labor Rate Table	2nd Qtr 2012
Equip Rate Table	2nd Qtr 2012
Notes	Any opinions of probable construction cost or cost estimates provided by HDR, Inc. are made on the basis of information available to HDR, Inc. and on the basis of cost estimator's experience and qualifications, and represents its judgment as an experienced and qualified professional engineer. However, since HDR, Inc. has no control over the cost of labor, materials, equipment or services furnished by others, or over the contractor(s') methods of determining prices, or over competitive bidding or market conditions, HDR, Inc. does not guarantee that proposals, bids or actual project or construction cost will not vary from opinions of probable cost or cost estimates prepared by HDR, Inc.
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AACE Classification Accuracy Range

Upper Range +40% **Lower Range -20%**

Description	Quantity		Labor Amount	Material Amount	Subcontract Amount	Equipment Amount	Other Amount	Total Unit Cost	Total Amount
RBSM SP	***DEWATERING SCREW PRESS***								
DIVISION 01	**GENERAL REQUIREMENTS**								
01500.100 Non-Task Specific Equipment	2.00	mo	27,211			48,854		38,032.120/mo	76,064
DIVISION 01 GENERAL REQUIREMENTS			**27,211**			**48,854**			**76,064**
432.00 Labor hours									
2,192.00 Equipment hours									
DIVISION 02	**SITE CONSTRUCTION**								
02200.500 Earthwork, Structural Excavation	1,117.00	cy	1,593			2,300		3.49 /cy	3,893
02200.600 Earthwork, Structural Backfill, Native Material includes compaction	689.00	cy	1,162			2,449		5.241/cy	3,611
DIVISION 02 SITE CONSTRUCTION			**2,755**			**4,749**			**7,504**
47.04 Labor hours									
43.56 Equipment hours									
DIVISION 03	**CONCRETE**								
03002.100 Concrete_Foundations	123.00	cy	23,685	30,980		2,041		461.024/cy	56,706
03002.300 Concrete_Walls Exterior	56.00	cy	28,744	14,181		452		774.594/cy	43,377
03002.500 Concrete_Columns	1.00	cy	712	790		11		1,512.62 /cy	1,513
DIVISION 03 CONCRETE			**53,141**	**45,951**		**2,504**			**101,596**
839.923 Labor hours									
62.51 Equipment hours									
DIVISION 07	**THERMAL& MOISTURE PROTECTION**								
07501.000 Built-Up Roofing System (BUR)	900.00	sf	6,340	11,182		354		19.862/sf	17,876
DIVISION 07 THERMAL& MOISTURE PROTECTION			**6,340**	**11,182**		**354**			**17,876**
108.15 Labor hours									
7.91 Equipment hours									
DIVISION 08	**DOORS & WINDOWS**								
08120.030 Aluminum Doors & Frames (3070)	2.00	ea	1,357	3,400				2,378.52 /ea	4,757
08334.000 Aluminum Rolling Overhead Doors	1.00	ea	1,216	4,511				5,727.04 /ea	5,727
DIVISION 08 DOORS & WINDOWS			**2,573**	**7,911**					**10,484**
37.275 Labor hours									
DIVISION 09	**FINISHES**								
09905.000 Painting and Protective Coatings	1.00	ls			22,327			22,326.70 /ls	22,327
DIVISION 09 FINISHES					**22,327**				**22,327**
DIVISION 11	**EQUIPMENT**								

Description		Quantity		Labor Amount	Material Amount	Subcontract Amount	Equipment Amount	Other Amount	Total Unit Cost	Total Amount
11069.000	Pumping Equipment: Progressing Cavity	3.00	ea	3,981	93,525			1,650	33,052.06 /ea	99,156
11365.100	Screw Press	2.00	ea	16,074	300,000		3,351		159,712.58 /ea	319,425
DIVISION 11 EQUIPMENT				**20,055**	**393,525**		**3,351**	**1,650**		**418,581**
334.00	Labor hours									
35.00	Equipment hours									
DIVISION 13	**SPECIAL CONSTRUCTION**									
13440.000	Instrumentation for Process Control: Basic Requirements	1.00	ls			43,028			43,028.07 /ls	43,028
DIVISION 13 SPECIAL CONSTRUCTION						**43,028**				**43,028**
DIVISION 14	**CONVEYING SYSTEMS**									
14305.000	Bridge Cranes	1.00	ea	3,365	27,290		175		30,830.28 /ea	30,830
14552.000	Conveyors: Belt	45.00	lf	12,979	67,500			270	1,794.42 /lf	80,749
DIVISION 14 CONVEYING SYSTEMS				**16,344**	**94,790**		**175**	**270**		**111,579**
281.350	Labor hours									
5.00	Equipment hours									
DIVISION 15	**MECHANICAL**									
15062.000	Pipe: Ductile	40.00	lf	3,903	18,631		740		581.84 /lf	23,274
15062.100	Pipe: Ductile - Interior with Valves, Couplings, Hangers and Supports	1.00	ls	13,326	63,932		1,123		78,380.98 /ls	78,381
15605.000	HVAC: Equipment	1.00	ls			9,898			9,898.35 /ls	9,898
DIVISION 15 MECHANICAL				**17,228**	**82,563**	**9,898**	**1,863**			**111,553**
301.53	Labor hours									
24.213	Equipment hours									
DIVISION 16	**ELECTRICAL**									
16010.000	Electrical: Basic Requirements	1.00	ls			129,084			129,084.20 /ls	129,084
DIVISION 16 ELECTRICAL						**129,084**				**129,084**
RBSM SP DEWATERING SCREW PRESS				***145,647***	***635,922***	***204,337***	***61,850***	***1,920***	***174.95 /LB/D***	***1,049,676***
6,000.00	***LB/D***									
2,381.263	Labor hours									
2,370.183	Equipment hours									

AACE Classification Accuracy Range

Upper Range +40% **Lower Range -20%**

Partial Totals

Description	Amount	Totals	Hours	Rate
Labor	145,647		2,381.263 hrs	
Material	635,922			
Subcontract	204,337			
Equipment	61,850		2,370.183 hrs	
Other	1,920			
Direct Cost - Subtotal		**1,049,676**		
Contractor's Fld Ovhd & Mob	83,974			8.000
Sales Tax Estimate (Mat & Eq)	53,182			7.750
Field Const Cost - Subtotal		**1,186,832**		
Contractor's Fee	118,683			10.000
Undefined SOW (Contingency)	261,103			20.000
Subtotal		**1,566,618**		
Escalation (NONE INCLUDED)				0.000
Subtotal		**1,566,618**		
Contractor's Bonds & Insurance	23,499			1.500
Current OPCC Estimate Budget		**1,590,117**		

AACE Classification Accuracy Range

Upper Range +40% **Lower Range -20%**

COOS BAY, OREGON
REGIONAL WASTEWATER TREATMENT
REGIONAL BIOSOLIDS FACILITY

Project name	REGIONAL WWTP-BIOSOLIDS Coos Bay OR 97420 Fill In
Labor rate table	CONC2012
Equipment rate table	CONC2012
Project Name 1	Regional WWTP
Project Name 2	Regional Biosolids
Project Info 1	Facilitiy Plans
Project Location 1	Coos Bay, OR
Design Stage 1	Planning Level
Estimate Version	1.0
Upper Range +%	40
Lower Range -%	20
Labor Rate Table	2nd Qtr 2012
Equip Rate Table	2nd Qtr 2012
Notes	Any opinions of probable construction cost or cost estimates provided by HDR, Inc. are made on the basis of information available to HDR, Inc. and on the basis of cost estimator's experience and qualifications, and represents its judgment as an experienced and qualified professional engineer. However, since HDR, Inc. has no control over the cost of labor, materials, equipment or services furnished by others, or over the contractor(s') methods of determining prices, or over competitive bidding or market conditions, HDR, Inc. does not guarantee that proposals, bids or actual project or construction cost will not vary from opinions of probable cost or cost estimates prepared by HDR, Inc.
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AACE Classification Accuracy Range

Upper Range +40% **Lower Range -20%**

Description		Quantity		Labor Amount	Material Amount	Subcontract Amount	Equipment Amount	Other Amount	Total Unit Cost	Total Amount
RBSM_SS	***SLUDGE STORAGE (RBSM)***									
DIVISION 02	**SITE CONSTRUCTION**									
02200.000	Earthwork	1.00	ls	105			73		178.17 /ls	178
02200.500	Earthwork, Structural Excavation	323.00	cy	1,232			2,065		10.21 /cy	3,298
02200.600	Earthwork, Structural Backfill, Native Material includes compaction	158.00	cy	267			562		5.25 /cy	829
02930.000	Seeding, Sodding, and Landscaping	1.00	ls	180	30		25		235.05 /ls	235
DIVISION 02 SITE CONSTRUCTION				**1,785**	**30**		**2,725**			**4,540**
31.96	Labor hours									
45.633	Equipment hours									
DIVISION 03	**CONCRETE**									
03002.100	Concrete_Foundations	42.00	cy	8,953	10,808		865		491.11 /cy	20,627
03002.300	Concrete_Walls Exterior	212.00	cy	86,132	47,635		1,713		639.054/cy	135,480
03002.500	Concrete_Columns	108.00	cy	58,835	28,380		1,094		817.673/cy	88,309
03002.615	Concrete_Elevated Slab Odor Cover	112.00	cy	51,368	31,622		808		748.204/cy	83,799
03002.700	Concrete_Slab on Grade	21.00	cy	2,751	4,101		132		332.593/cy	6,984
03002.885	Concrete_Grout/Flowable Fill Topping	3.00	cy	80	258		19		119.04 /cy	357
DIVISION 03 CONCRETE				**208,120**	**122,804**		**4,631**			**335,555**
3,338.78	Labor hours									
130.214	Equipment hours									
DIVISION 05	**METALS**									
05522.000	Aluminum Railings	87.00	lf	1,506	6,015		85		87.43 /lf	7,606
DIVISION 05 METALS				**1,506**	**6,015**		**85**			**7,606**
20.28	Labor hours									
5.07	Equipment hours									
DIVISION 13	**SPECIAL CONSTRUCTION**									
13440.000	Instrumentation for Process Control: Basic Requirements	1.00	ls			17,469			17,469.30 /ls	17,469
DIVISION 13 SPECIAL CONSTRUCTION						**17,469**				**17,469**
DIVISION 15	**MECHANICAL**									
15062.000	Pipe: Ductile	70.00	lf	9,929	5,967		1,098		242.763/lf	16,993

AACE Classification Accuracy Range

Upper Range +40% **Lower Range -20%**

Description	Quantity		Labor Amount	Material Amount	Subcontract Amount	Equipment Amount	Other Amount	Total Unit Cost	Total Amount
DIVISION 15 MECHANICAL			**9,929**	**5,967**		**1,098**			**16,993**
175.180 Labor hours									
21.704 Equipment hours									
DIVISION 16 ELECTRICAL									
16010.000 Electrical: Basic Requirements	1.00	ls			52,408			52,407.88 /ls	52,408
DIVISION 16 ELECTRICAL					**52,408**				**52,408**
RBSM_SS SLUDGE STORAGE (RBSM)			***221,340***	***134,816***	***69,877***	***8,538***	***0***	***2,716,072.44 /MG***	***434,572***
0.16 MG									
3,566.19 Labor hours									
202.62 Equipment hours									

Partial Totals

Description	Amount	Totals	Hours	Rate
Labor	221,340		3,566.189 hrs	
Material	134,816			
Subcontract	69,877			
Equipment	8,538		202.619 hrs	
Other				
Direct Cost - Subtotal		**434,571**		
Contractor's Fld Ovhd & Mob	34,766			8.000
Sales Tax Estimate (Mat & Eq)	10,519			7.750
Field Const Cost - Subtotal		**479,856**		
Contractor's Fee	47,986			10.000
Undefined SOW (Contingency)	105,568			20.000
Subtotal		**633,410**		
Escalation (NONE INCLUDED)				0.000
Subtotal		**633,410**		
Contractor's Bonds & Insurance	9,501			1.500
Current OPCC Estimate Budget		**642,911**		

AACE Classification Accuracy Range

Upper Range +40% **Lower Range -20%**

COOS BAY, OREGON
REGIONAL WASTEWATER TREATMENT
REGIONAL BIOSOLIDS FACILITY

Project name	REGIONAL WWTP-BIOSOLIDS Coos Bay OR 97420 Fill In
Labor rate table	CONC2012
Equipment rate table	CONC2012
Project Name 1	Regional WWTP
Project Name 2	Regional Biosolids
Project Info 1	Facilitiy Plans
Project Location 1	Coos Bay, OR
Design Stage 1	Planning Level
Estimate Version	1.0
Upper Range +%	40
Lower Range -%	20
Labor Rate Table	2nd Qtr 2012
Equip Rate Table	2nd Qtr 2012
Notes	Any opinions of probable construction cost or cost estimates provided by HDR, Inc. are made on the basis of information available to HDR, Inc. and on the basis of cost estimator's experience and qualifications, and represents its judgment as an experienced and qualified professional engineer. However, since HDR, Inc. has no control over the cost of labor, materials, equipment or services furnished by others, or over the contractor(s') methods of determining prices, or over competitive bidding or market conditions, HDR, Inc. does not guarantee that proposals, bids or actual project or construction cost will not vary from opinions of probable cost or cost estimates prepared by HDR, Inc.
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AACE Classification Accuracy Range

Upper Range +40% **Lower Range -20%**

Description		Quantity		Labor Amount	Material Amount	Subcontract Amount	Equipment Amount	Other Amount	Total Unit Cost	Total Amount
RBSM THK FT	***THK FEED TANK (RBSM)***									
DIVISION 02	**SITE CONSTRUCTION**									
02200.000	Earthwork	1.00	ls	72			49		121.07 /ls	121
02200.500	Earthwork, Structural Excavation	250.00	cy	800			1,365		8.66 /cy	2,164
02200.600	Earthwork, Structural Backfill, Native Material includes compaction	134.00	cy	226			476		5.241/cy	702
02930.000	Seeding, Sodding, and Landscaping	1.00	ls	151	25		21		197.04 /ls	197
DIVISION 02 SITE CONSTRUCTION				**1,248**	**25**		**1,911**			**3,184**
22.22	Labor hours									
30.42	Equipment hours									
DIVISION 03	**CONCRETE**									
03002.100	Concrete_Foundations	33.00	cy	6,996	8,363		614		484.04 /cy	15,973
03002.300	Concrete_Walls Exterior	171.00	cy	69,248	38,418		1,381		637.700/cy	109,047
03002.500	Concrete_Columns	108.00	cy	58,835	28,380		1,094		817.674/cy	88,309
03002.615	Concrete_Elevated Slab Odor Cover	94.00	cy	45,558	26,379		684		772.57 /cy	72,621
03002.700	Concrete_Slab on Grade	11.00	cy	1,449	2,149		69		333.381/cy	3,667
03002.885	Concrete_Grout/Flowable Fill Topping	2.00	cy	53	172		12		119.04 /cy	238
DIVISION 03 CONCRETE				**182,139**	**103,861**		**3,855**			**289,855**
2,925.76	Labor hours									
108.05	Equipment hours									
DIVISION 05	**METALS**									
05522.000	Aluminum Railings	67.00	lf	1,162	4,643		65		87.63 /lf	5,871
DIVISION 05 METALS				**1,162**	**4,643**		**65**			**5,871**
15.65	Labor hours									
3.912	Equipment hours									
DIVISION 13	**SPECIAL CONSTRUCTION**									
13440.000	Instrumentation for Process Control: Basic Requirements	1.00	ls			15,104			15,103.51 /ls	15,104
DIVISION 13 SPECIAL CONSTRUCTION						**15,104**				**15,104**
DIVISION 15	**MECHANICAL**									
15062.000	Pipe: Ductile	64.00	lf	9,577	5,692		1,009		254.34 /lf	16,278

AACE Classification Accuracy Range

Upper Range +40% **Lower Range -20%**

Description	Quantity		Labor Amount	Material Amount	Subcontract Amount	Equipment Amount	Other Amount	Total Unit Cost	Total Amount
DIVISION 15 MECHANICAL			**9,577**	**5,692**		**1,009**			**16,278**
168.811 Labor hours									
19.95 Equipment hours									
DIVISION 16 ELECTRICAL									
16010.000 Electrical: Basic Requirements	1.00	ls			45,311			45,310.51 /ls	45,311
DIVISION 16 ELECTRICAL					**45,311**				**45,311**
RBSM THK FT THK FEED TANK (RBSM)			***194,126***	***114,221***	***60,414***	***6,841***	***0***	***3,756,023.70 /MG***	***375,602***
0.10 MG									
3,132.435 Labor hours									
162.323 Equipment hours									

Partial Totals

Description	Amount	Totals	Hours	Rate
Labor	194,126		3,132.435 hrs	
Material	114,221			
Subcontract	60,414			
Equipment	6,841		162.323 hrs	
Other				
Direct Cost - Subtotal		**375,602**		
Contractor's Fld Ovhd & Mob	30,048			8.000
Sales Tax Estimate (Mat & Eq)	8,885			7.750
Field Const Cost - Subtotal		**414,535**		
Contractor's Fee	41,454			10.000
Undefined SOW (Contingency)	91,198			20.000
Subtotal		**547,187**		
Escalation (NONE INCLUDED)				0.000
Subtotal		**547,187**		
Contractor's Bonds & Insurance	8,208			1.500
Current OPCC Estimate Budget		**555,395**		

AACE Classification Accuracy Range

Upper Range +40% **Lower Range -20%**

COOS BAY, OREGON
REGIONAL WASTEWATER TREATMENT
REGIONAL BIOSOLIDS FACILITY

Project name	REGIONAL WWTP-BIOSOLIDS Coos Bay OR 97420 Fill In
Labor rate table	CONC2012
Equipment rate table	CONC2012
Project Name 1	Regional WWTP
Project Name 2	Regional Biosolids
Project Info 1	Facilitiy Plans
Project Location 1	Coos Bay, OR
Design Stage 1	Planning Level
Estimate Version	1.0
Upper Range +%	40
Lower Range -%	20
Labor Rate Table	2nd Qtr 2012
Equip Rate Table	2nd Qtr 2012
Notes	Any opinions of probable construction cost or cost estimates provided by HDR, Inc. are made on the basis of information available to HDR, Inc. and on the basis of cost estimator's experience and qualifications, and represents its judgment as an experienced and qualified professional engineer. However, since HDR, Inc. has no control over the cost of labor, materials, equipment or services furnished by others, or over the contractor(s') methods of determining prices, or over competitive bidding or market conditions, HDR, Inc. does not guarantee that proposals, bids or actual project or construction cost will not vary from opinions of probable cost or cost estimates prepared by HDR, Inc.
Report format	Sorted by 'WBS_MAIN/MF95_DIV/HDR95SPEC/Group phase/Phase' 'HDR95SPEC' summary Allocate addons Print sort level notes

AACE Classification Accuracy Range

Upper Range +40% **Lower Range -20%**

Description	Quantity		Labor Amount	Material Amount	Subcontract Amount	Equipment Amount	Other Amount	Total Unit Cost	Total Amount
RWWTP AB ***AERATION BASIN (RWWTP)***									
DIVISION 01 **GENERAL REQUIREMENTS**									
01500.100 Non-Task Specific Equipment	4.00	mo	53,725			96,508		37,558.04 /mo	150,232
DIVISION 01 GENERAL REQUIREMENTS			**53,725**			**96,508**			**150,232**
852.800 Labor hours									
4,316.800 Equipment hours									
DIVISION 02 **SITE CONSTRUCTION**									
02200.000 Earthwork	1.00	ls	1,188			820		2,007.55 /ls	2,008
02200.500 Earthwork, Structural Excavation			44,166			74,075			118,241
02200.600 Earthwork, Structural Backfill, Native Material includes compaction			10,836	2,851		20,835			34,522
02221.000 Trenching, Backfilling and Compacting for Utilities	470.00	cy	15,642	2,803		2,158		43.84 /cy	20,603
02930.000 Seeding, Sodding, and Landscaping	1.00	ls	2,493	414		346		3,252.71 /ls	3,253
DIVISION 02 SITE CONSTRUCTION			**74,325**	**6,068**		**98,233**			**178,626**
1,339.135 Labor hours									
1,682.29 Equipment hours									
DIVISION 03 **CONCRETE**									
03002.100 Concrete_Foundations	846.00	cy	145,386	203,240		11,191		425.314/cy	359,816
03002.300 Concrete_Walls Exterior	701.00	cy	351,903	169,414		5,872		752.052/cy	527,188
03002.600 Concrete_Elevated Slab	41.00	cy	12,610	10,945		228		580.08 /cy	23,783
DIVISION 03 CONCRETE			**509,898**	**383,598**		**17,291**			**910,788**
8,063.373 Labor hours									
484.435 Equipment hours									
DIVISION 05 **METALS**									
05505.000 Metal Fabrications	1.00	ls	2,649	29,247		149		32,045.44 /ls	32,045
05522.000 Aluminum Railings	753.00	lf	13,064	52,183		735		87.63 /lf	65,983
DIVISION 05 METALS			**15,714**	**81,430**		**884**			**98,028**
211.56 Labor hours									
52.884 Equipment hours									
DIVISION 08 **DOORS & WINDOWS**									
08305.000 Access Doors	2.00	ea	439	4,200				2,319.51 /ea	4,639
DIVISION 08 DOORS & WINDOWS			**439**	**4,200**					**4,639**
6.40 Labor hours									
DIVISION 09 **FINISHES**									
09905.000 Painting and Protective Coatings	1.00	ls			13,968			13,967.80 /ls	13,968

AACE Classification Accuracy Range

Upper Range +40% **Lower Range -20%**

Description	Quantity		Labor Amount	Material Amount	Subcontract Amount	Equipment Amount	Other Amount	Total Unit Cost	Total Amount
DIVISION 09 FINISHES					**13,968**				**13,968**
DIVISION 11 EQUIPMENT									
11083.000 Aeration Equipment: Coarse Bubble Type	1,866.00	ea	45,857	110,094	1,850			84.57 /ea	157,801
DIVISION 11 EQUIPMENT			**45,857**	**110,094**	**1,850**				**157,801**
621.994 Labor hours									
DIVISION 13 SPECIAL CONSTRUCTION									
13221.000 Tank Cover: Aluminum	1,530.00	sf			114,750			75.00 /sf	114,750
13440.000 Instrumentation for Process Control: Basic Requirements	1.00	ls			89,275			89,275.31 /ls	89,275
DIVISION 13 SPECIAL CONSTRUCTION					**204,025**				**204,025**
DIVISION 15 MECHANICAL									
15062.000 Pipe: Ductile	210.00	lf	14,268	19,240		1,851		168.38 /lf	35,360
15066.000 Pipe: Stainless Steel	170.00	lf	61,330	101,354		1,357		964.951/lf	164,042
15115.000 Water Control Gates	3.00	ea	4,431	27,698		717	63	10,969.72 /ea	32,909
DIVISION 15 MECHANICAL			**80,030**	**148,292**		**3,925**	**63**		**232,311**
1,187.10 Labor hours									
355.10 Equipment hours									
DIVISION 16 ELECTRICAL									
16010.000 Electrical: Basic Requirements	1.00	ls			267,826			267,825.92 /ls	267,826
DIVISION 16 ELECTRICAL					**267,826**				**267,826**
RWWTP AB AERATION BASIN (RWWTP)			***779,987***	***733,683***	***487,669***	***216,842***	***63***	***289.97 /SFSA***	***2,218,244***
7,650.00 SFSA									
12,282.355 Labor hours									
6,891.504 Equipment hours									

AACE Classification Accuracy Range

Upper Range +40% **Lower Range -20%**

Partial Totals

Description	Amount	Totals	Hours	Rate
Labor	779,987		12,282.355 hrs	
Material	733,683			
Subcontract	487,669			
Equipment	216,842		6,891.504 hrs	
Other	63			
Direct Cost - Subtotal		**2,218,244**		
Contractor's Fld Ovhd & Mob	177,460			8.000
Sales Tax Estimate (Mat & Eq)	69,762			7.750
Field Const Cost - Subtotal		**2,465,466**		
Contractor's Fee	246,547			10.000
Undefined SOW (Contingency)	542,402			20.000
Subtotal		**3,254,415**		
Escalation (NONE INCLUDED)				0.000
Subtotal		**3,254,415**		
Contractor's Bonds & Insurance	48,816			1.500
Current OPCC Estimate Budget		**3,303,231**		

AACE Classification Accuracy Range

Upper Range +40% **Lower Range -20%**

COOS BAY, OREGON
REGIONAL WASTEWATER TREATMENT
REGIONAL BIOSOLIDS FACILITY

Project name	REGIONAL WWTP-BIOSOLIDS Coos Bay OR 97420 Fill In
Labor rate table	CONC2012
Equipment rate table	CONC2012
Project Name 1	Regional WWTP
Project Name 2	Regional Biosolids
Project Info 1	Facilitiy Plans
Project Location 1	Coos Bay, OR
Design Stage 1	Planning Level
Estimate Version	1.0
Upper Range +%	40
Lower Range -%	20
Labor Rate Table	2nd Qtr 2012
Equip Rate Table	2nd Qtr 2012
Notes	Any opinions of probable construction cost or cost estimates provided by HDR, Inc. are made on the basis of information available to HDR, Inc. and on the basis of cost estimator's experience and qualifications, and represents its judgment as an experienced and qualified professional engineer. However, since HDR, Inc. has no control over the cost of labor, materials, equipment or services furnished by others, or over the contractor(s') methods of determining prices, or over competitive bidding or market conditions, HDR, Inc. does not guarantee that proposals, bids or actual project or construction cost will not vary from opinions of probable cost or cost estimates prepared by HDR, Inc.
Report format	Sorted by 'WBS_MAIN/MF95_DIV/HDR95SPEC/Group phase/Phase' 'HDR95SPEC' summary Allocate addons Print sort level notes

AACE Classification Accuracy Range

Upper Range +40% **Lower Range -20%**

Description	Quantity		Labor Amount	Material Amount	Subcontract Amount	Equipment Amount	Other Amount	Total Unit Cost	Total Amount
RWWTP AD	***ANAEROBIC DIGESTERS (RWWTP)***								
DIVISION 01	**GENERAL REQUIREMENTS**								
01500.100 Non-Task Specific Equipment	4.00	mo	53,725			96,508		37,558.04 /mo	150,232
DIVISION 01 GENERAL REQUIREMENTS			**53,725**			**96,508**			**150,232**
852.800 Labor hours									
4,316.800 Equipment hours									
DIVISION 02	**SITE CONSTRUCTION**								
02200.000 Earthwork	1.00	ls	84			58		141.520/ls	142
02200.500 Earthwork, Structural Excavation	1,130.00	cy	2,158			3,998		5.45 /cy	6,156
02200.600 Earthwork, Structural Backfill, Native Material includes compaction	868.00	cy	1,464			3,085		5.242/cy	4,550
02930.000 Seeding, Sodding, and Landscaping	1.00	ls	646	107		90		843.43 /ls	843
DIVISION 02 SITE CONSTRUCTION			**4,353**	**107**		**7,231**			**11,691**
75.500 Labor hours									
91.563 Equipment hours									
DIVISION 03	**CONCRETE**								
03002.100 Concrete_Foundations	46.00	cy	10,811	13,019		817		535.81 /cy	24,647
03002.300 Concrete_Walls Exterior	248.00	cy	100,795	55,654		2,003		638.922/cy	158,453
03002.500 Concrete_Columns	216.00	cy	117,670	56,760		2,188		817.673/cy	176,617
03002.615 Concrete_Elevated Slab Odor Cover	158.00	cy	80,460	43,916		1,161		794.54 /cy	125,537
03002.885 Concrete_Grout/Flowable Fill Topping	2.00	cy	53	172		12		119.04 /cy	238
DIVISION 03 CONCRETE			**309,789**	**169,521**		**6,181**			**485,492**
4,984.45 Labor hours									
172.67 Equipment hours									
DIVISION 05	**METALS**								
05522.000 Aluminum Railings	90.00	lf	1,561	6,237		88		87.63 /lf	7,886
DIVISION 05 METALS			**1,561**	**6,237**		**88**			**7,886**
21.022 Labor hours									
5.26 Equipment hours									
DIVISION 11	**EQUIPMENT**								
11373.000 Mixers	2.00	ea	9,437	150,198	3,700		718	82,026.43 /ea	164,053
DIVISION 11 EQUIPMENT			**9,437**	**150,198**	**3,700**		**718**		**164,053**
128.00 Labor hours									
DIVISION 13	**SPECIAL CONSTRUCTION**								

AACE Classification Accuracy Range

Upper Range +40% **Lower Range -20%**

Description		Quantity		Labor Amount	Material Amount	Subcontract Amount	Equipment Amount	Other Amount	Total Unit Cost	Total Amount
13440.000	Instrumentation for Process Control: Basic Requirements	1.00	ls			41,388			41,388.28 /ls	41,388
DIVISION 13 SPECIAL CONSTRUCTION						**41,388**				**41,388**
DIVISION 15	**MECHANICAL**									
15062.000	Pipe: Ductile	114.00	lf	18,210	10,791		1,776		269.97 /lf	30,776
DIVISION 15 MECHANICAL				**18,210**	**10,791**		**1,776**			**30,776**
320.69	Labor hours									
35.01	Equipment hours									
DIVISION 16	**ELECTRICAL**									
16010.000	Electrical: Basic Requirements	1.00	ls			124,165			124,164.83 /ls	124,165
DIVISION 16 ELECTRICAL						**124,165**				**124,165**
RWWTP AD ANAEROBIC DIGESTERS (RWWTP)				***397,074***	***336,854***	***169,253***	***111,784***	***718***	***3,385,610.60 /MG***	***1,015,683***
0.30	***MG***									
6,382.46	Labor hours									
4,621.30	Equipment hours									

Partial Totals

Description	Amount	Totals	Hours	Rate
Labor	397,074		6,382.459 hrs	
Material	336,854			
Subcontract	169,253			
Equipment	111,784		4,621.296 hrs	
Other	718			
Direct Cost - Subtotal		**1,015,683**		
Contractor's Fld Ovhd & Mob	81,255			8.000
Sales Tax Estimate (Mat & Eq)	33,928			7.750
Field Const Cost - Subtotal		**1,130,866**		
Contractor's Fee	113,087			10.000
Undefined SOW (Contingency)	248,790			20.000
Subtotal		**1,492,743**		
Escalation (NONE INCLUDED)				0.000
Subtotal		**1,492,743**		
Contractor's Bonds & Insurance	22,391			1.500
Current OPCC Estimate Budget		**1,515,134**		

AACE Classification Accuracy Range

Upper Range +40% **Lower Range -20%**

COOS BAY, OREGON
REGIONAL WASTEWATER TREATMENT
REGIONAL BIOSOLIDS FACILITY

Project name	REGIONAL WWTP-BIOSOLIDS Coos Bay OR 97420 Fill In
Labor rate table	CONC2012
Equipment rate table	CONC2012
Project Name 1	Regional WWTP
Project Name 2	Regional Biosolids
Project Info 1	Facilitiy Plans
Project Location 1	Coos Bay, OR
Design Stage 1	Planning Level
Estimate Version	1.0
Upper Range +%	40
Lower Range -%	20
Labor Rate Table	2nd Qtr 2012
Equip Rate Table	2nd Qtr 2012
Notes	Any opinions of probable construction cost or cost estimates provided by HDR, Inc. are made on the basis of information available to HDR, Inc. and on the basis of cost estimator's experience and qualifications, and represents its judgment as an experienced and qualified professional engineer. However, since HDR, Inc. has no control over the cost of labor, materials, equipment or services furnished by others, or over the contractor(s') methods of determining prices, or over competitive bidding or market conditions, HDR, Inc. does not guarantee that proposals, bids or actual project or construction cost will not vary from opinions of probable cost or cost estimates prepared by HDR, Inc.
Report format	Sorted by 'WBS_MAIN/MF95_DIV/HDR95SPEC/Group phase/Phase' 'HDR95SPEC' summary Allocate addons Print sort level notes

AACE Classification Accuracy Range

Upper Range +40% **Lower Range -20%**

Description	Quantity		Labor Amount	Material Amount	Subcontract Amount	Equipment Amount	Other Amount	Total Unit Cost	Total Amount
RWWTP BLOWER ***BLOWER BUILDING (RWWTP)***									
DIVISION 01 **GENERAL REQUIREMENTS**									
01500.100 Non-Task Specific Equipment	2.00	mo	21,547			37,104		29,325.36 /mo	58,651
DIVISION 01 GENERAL REQUIREMENTS			**21,547**			**37,104**			**58,651**
346.400 Labor hours									
2,078.400 Equipment hours									
DIVISION 02 **SITE CONSTRUCTION**									
02200.500 Earthwork, Structural Excavation	298.00	cy	1,152			2,053		10.754/cy	3,205
02200.600 Earthwork, Structural Backfill, Native Material includes compaction	131.00	cy	221			466		5.25 /cy	687
02930.000 Seeding, Sodding, and Landscaping	1.00	ls	913	152	15,000	127		16,190.62 /ls	16,191
DIVISION 02 SITE CONSTRUCTION			**2,285**	**152**	**15,000**	**2,646**			**20,083**
41.505 Labor hours									
45.940 Equipment hours									
DIVISION 03 **CONCRETE**									
03002.700 Concrete_Slab on Grade	56.00	cy	11,330	13,480		1,399		468.023/cy	26,209
03002.800 Concrete_Equipment Pads	18.00	cy	3,475	3,671		103		402.72 /cy	7,249
DIVISION 03 CONCRETE			**14,805**	**17,151**		**1,502**			**33,458**
237.602 Labor hours									
44.28 Equipment hours									
DIVISION 04 **MASONRY**									
04220.000 Concrete Masonry	2,790.00	sf	47,201	27,350		632		26.95 /sf	75,182
DIVISION 04 MASONRY			**47,201**	**27,350**		**632**			**75,182**
786.544 Labor hours									
36.07 Equipment hours									
DIVISION 05 **METALS**									
05120.000 Structural Steel	1.00	ls	822	18,744		336		19,902.72 /ls	19,903
05211.000 Steel Joists	440.00	lf	1,163	4,767		383		14.35 /lf	6,313
05313.000 Metal Deck	1,500.00	sf	923	3,383		52		2.91 /sf	4,357
DIVISION 05 METALS			**2,908**	**26,894**		**771**			**30,573**
39.86 Labor hours									
9.54 Equipment hours									
DIVISION 06 **WOODS & PLASTICS**									
06100.000 Rough Carpentry	1.00	ls	2,230	1,397				3,627.70 /ls	3,628

Description	Quantity		Labor Amount	Material Amount	Subcontract Amount	Equipment Amount	Other Amount	Total Unit Cost	Total Amount
DIVISION 06 WOODS & PLASTICS			**2,230**	**1,397**					**3,628**
36.39 Labor hours									
DIVISION 07 THERMAL& MOISTURE PROTECTION									
07210.000 Building Insulation	1,500.00	sf	1,191	3,015				2.804/sf	4,206
07501.000 Built-Up Roofing System (BUR)	1,500.00	sf	1,198	1,805		103		2.07 /sf	3,105
07600.000 Flashing & Sheet Metal	1.00	ls	3,003	2,835				5,837.91 /ls	5,838
DIVISION 07 THERMAL& MOISTURE PROTECTION			**5,391**	**7,655**		**103**			**13,149**
100.754 Labor hours									
4.62 Equipment hours									
DIVISION 08 DOORS & WINDOWS									
08110.030 Metal Doors & Frames (3070)	2.00	ea	595	3,030				1,812.19 /ea	3,624
08332.000 Steel Rolling Overhead Doors	1.00	ea	1,216	3,981				5,196.390/ea	5,196
DIVISION 08 DOORS & WINDOWS			**1,810**	**7,011**					**8,821**
26.36 Labor hours									
DIVISION 09 FINISHES									
09905.000 Painting and Protective Coatings	1.00	ls			22,327			22,326.70 /ls	22,327
DIVISION 09 FINISHES					**22,327**				**22,327**
DIVISION 10 SPECIALTIES									
10200.000 Louvers & Vents	3.00	ea	8,475	13,392				7,288.983/ea	21,867
DIVISION 10 SPECIALTIES			**8,475**	**13,392**					**21,867**
116.914 Labor hours									
DIVISION 11 EQUIPMENT									
11081.100 Blower, Turbine	3.00	ea	17,264	180,000		5,614		67,625.85 /ea	202,878
DIVISION 11 EQUIPMENT			**17,264**	**180,000**		**5,614**			**202,878**
300.000 Labor hours									
30.00 Equipment hours									
DIVISION 13 SPECIAL CONSTRUCTION									
13440.000 Instrumentation for Process Control: Basic Requirements	1.00	ls			29,042			29,041.72 /ls	29,042
DIVISION 13 SPECIAL CONSTRUCTION					**29,042**				**29,042**
DIVISION 14 CONVEYING SYSTEMS									
14305.000 Bridge Cranes	1.00	ea	6,412	44,520		393		51,324.40 /ea	51,324
DIVISION 14 CONVEYING SYSTEMS			**6,412**	**44,520**		**393**			**51,324**
88.00 Labor hours									
8.00 Equipment hours									
DIVISION 15 MECHANICAL									

Description		Quantity		Labor Amount	Material Amount	Subcontract Amount	Equipment Amount	Other Amount	Total Unit Cost	Total Amount
15066.000	Pipe: Stainless Steel	62.00	lf	7,914	28,716		187		593.82 /lf	36,817
15605.000	HVAC: Equipment	1.00	ls			19,250			19,250.00 /ls	19,250
DIVISION 15 MECHANICAL				**7,914**	**28,716**	**19,250**	**187**			**56,067**
112.57	Labor hours									
40.452	Equipment hours									
DIVISION 16	**ELECTRICAL**									
16010.000	Electrical: Basic Requirements	1.00	ls			87,125			87,125.13 /ls	87,125
DIVISION 16 ELECTRICAL						**87,125**				**87,125**
RWWTP BLOWER BLOWER BUILDING (RWWTP)				***138,243***	***354,236***	***172,744***	***48,951***	***0***	***119.03 /SCFM***	***714,173***
6,000.00	***SCFM***									
2,232.884	Labor hours									
2,297.29	Equipment hours									

Partial Totals

Description	Amount	Totals	Hours	Rate
Labor	138,243		2,232.884 hrs	
Material	354,236			
Subcontract	172,744			
Equipment	48,951		2,297.289 hrs	
Other				
Direct Cost - Subtotal		**714,174**		
Contractor's Fld Ovhd & Mob	57,134			8.000
Sales Tax Estimate (Mat & Eq)	30,516			7.750
Field Const Cost - Subtotal		**801,824**		
Contractor's Fee	80,182			10.000
Undefined SOW (Contingency)	176,401			20.000
Subtotal		**1,058,407**		
Escalation (NONE INCLUDED)				0.000
Subtotal		**1,058,407**		
Contractor's Bonds & Insurance	15,876			1.500
Current OPCC Estimate Budget		**1,074,283**		

AACE Classification Accuracy Range

Upper Range +40% **Lower Range -20%**

COOS BAY, OREGON
REGIONAL WASTEWATER TREATMENT
REGIONAL BIOSOLIDS FACILITY

Project name	REGIONAL WWTP-BIOSOLIDS Coos Bay OR 97420 Fill In
Labor rate table	CONC2012
Equipment rate table	CONC2012
Project Name 1	Regional WWTP
Project Name 2	Regional Biosolids
Project Info 1	Facilitiy Plans
Project Location 1	Coos Bay, OR
Design Stage 1	Planning Level
Estimate Version	1.0
Upper Range +%	40
Lower Range -%	20
Labor Rate Table	2nd Qtr 2012
Equip Rate Table	2nd Qtr 2012
Notes	Any opinions of probable construction cost or cost estimates provided by HDR, Inc. are made on the basis of information available to HDR, Inc. and on the basis of cost estimator's experience and qualifications, and represents its judgment as an experienced and qualified professional engineer. However, since HDR, Inc. has no control over the cost of labor, materials, equipment or services furnished by others, or over the contractor(s') methods of determining prices, or over competitive bidding or market conditions, HDR, Inc. does not guarantee that proposals, bids or actual project or construction cost will not vary from opinions of probable cost or cost estimates prepared by HDR, Inc.
Report format	Sorted by 'WBS_MAIN/MF95_DIV/HDR95SPEC/Group phase/Phase' 'HDR95SPEC' summary Allocate addons Print sort level notes

AACE Classification Accuracy Range

Upper Range +40% **Lower Range -20%**

Description	Quantity		Labor Amount	Material Amount	Subcontract Amount	Equipment Amount	Other Amount	Total Unit Cost	Total Amount
RWWTP CCT	***CHLORINE CONTACT TANK (RWWTP)***								
DIVISION 01	**GENERAL REQUIREMENTS**								
01500.100 Non-Task Specific Equipment	4.00	mo	48,608			85,700		33,577.15 /mo	134,309
DIVISION 01 GENERAL REQUIREMENTS			**48,608**			**85,700**			**134,309**
776.00 Labor hours									
4,256.00 Equipment hours									
DIVISION 02	**SITE CONSTRUCTION**								
02200.500 Earthwork, Structural Excavation	6,186.00	cy	17,454			32,288		8.041/cy	49,742
02200.600 Earthwork, Structural Backfill, Native Material includes compaction	3,843.00	cy	6,489			13,670		5.25 /cy	20,159
02361.000 Driven Steel Sheet Piling	9,900.00	sf	85,942	134,562		77,545		30.11 /sf	298,049
DIVISION 02 SITE CONSTRUCTION			**109,885**	**134,562**		**123,503**			**367,950**
1,733.21 Labor hours									
1,009.171 Equipment hours									
DIVISION 03	**CONCRETE**								
03002.100 Concrete_Foundations	366.00	cy	77,158	90,270		5,155		471.54 /cy	172,583
03002.300 Concrete_Walls Exterior	344.00	cy	170,499	83,617		2,779		746.79 /cy	256,895
03002.400 Concrete_Walls Interior	92.00	cy	55,270	23,544		800		865.37 /cy	79,614
03002.600 Concrete_Elevated Slab	52.00	cy	21,010	14,455		362		688.98 /cy	35,827
DIVISION 03 CONCRETE			**323,937**	**211,886**		**9,095**			**544,918**
5,186.91 Labor hours									
236.46 Equipment hours									
DIVISION 05	**METALS**								
05522.000 Aluminum Railings	712.00	lf	12,353	56,390		695		97.53 /lf	69,438
DIVISION 05 METALS			**12,353**	**56,390**		**695**			**69,438**
166.31 Labor hours									
41.574 Equipment hours									
DIVISION 09	**FINISHES**								
09905.000 Painting and Protective Coatings	1.00	ls			13,968			13,967.80 /ls	13,968
DIVISION 09 FINISHES					**13,968**				**13,968**
DIVISION 11	**EQUIPMENT**								
11065.000 Pumping Equipment: Sump	4.00	ea	3,835	8,900	3,700	2,147		4,645.51 /ea	18,582
11982.000 Sampling and Monitoring Equipment	1.00	ls	44	24,792	3,700			28,536.25 /ls	28,536

AACE Classification Accuracy Range

Upper Range +40% **Lower Range -20%**

Description	Quantity		Labor Amount	Material Amount	Subcontract Amount	Equipment Amount	Other Amount	Total Unit Cost	Total Amount
DIVISION 11 EQUIPMENT			**3,879**	**33,692**	**7,400**	**2,147**			**47,118**
56.740 Labor hours									
36.070 Equipment hours									
DIVISION 13 SPECIAL CONSTRUCTION									
13400.000 Measurement & Control Equipment	2.00	ls	4,593	150,198		1,047		77,918.90 /ls	155,838
13440.000 Instrumentation for Process Control: Basic Requirements	1.00	ls			76,574			76,574.11 /ls	76,574
DIVISION 13 SPECIAL CONSTRUCTION			**4,593**	**150,198**	**76,574**	**1,047**			**232,412**
80.00 Labor hours									
10.00 Equipment hours									
DIVISION 15 MECHANICAL									
15062.000 Pipe: Ductile	160.00	lf	39,406	182,468		17,795		1,497.94 /lf	239,670
15115.000 Water Control Gates	4.00	ea	4,239	35,596		246	126	10,051.79 /ea	40,207
DIVISION 15 MECHANICAL			**43,645**	**218,064**		**18,041**	**126**		**279,877**
757.71 Labor hours									
223.112 Equipment hours									
DIVISION 16 ELECTRICAL									
16010.000 Electrical: Basic Requirements	1.00	ls			229,722			229,722.31 /ls	229,722
DIVISION 16 ELECTRICAL					**229,722**				**229,722**
RWWTP CCT CHLORINE CONTACT TANK (RWWTP)			***546,900***	***804,793***	***327,664***	***240,229***	***126***	***54,848.93 /MGD***	***1,919,712***
35.00 MGD									
8,756.874 Labor hours									
5,812.383 Equipment hours									

Partial Totals

Description	Amount	Totals	Hours	Rate
Labor	546,900		8,756.874 hrs	
Material	804,793			
Subcontract	327,664			
Equipment	240,229		5,812.383 hrs	
Other	126			
Direct Cost - Subtotal		**1,919,712**		
Contractor's Fld Ovhd & Mob	153,577			8.000
Sales Tax Estimate (Mat & Eq)	76,315			7.750
Field Const Cost - Subtotal		**2,149,604**		
Contractor's Fee	214,960			10.000
Undefined SOW (Contingency)	472,913			20.000
Subtotal		**2,837,477**		
Escalation (NONE INCLUDED)				0.000
Subtotal		**2,837,477**		
Contractor's Bonds & Insurance	42,562			1.500
Current OPCC Estimate Budget		**2,880,039**		

AACE Classification Accuracy Range

Upper Range +40% **Lower Range -20%**

COOS BAY, OREGON
REGIONAL WASTEWATER TREATMENT
REGIONAL BIOSOLIDS FACILITY

Project name	REGIONAL WWTP-BIOSOLIDS Coos Bay OR 97420 Fill In
Labor rate table	CONC2012
Equipment rate table	CONC2012
Project Name 1	Regional WWTP
Project Name 2	Regional Biosolids
Project Info 1	Facilitiy Plans
Project Location 1	Coos Bay, OR
Design Stage 1	Planning Level
Estimate Version	1.0
Upper Range +%	40
Lower Range -%	20
Labor Rate Table	2nd Qtr 2012
Equip Rate Table	2nd Qtr 2012
Notes	Any opinions of probable construction cost or cost estimates provided by HDR, Inc. are made on the basis of information available to HDR, Inc. and on the basis of cost estimator's experience and qualifications, and represents its judgment as an experienced and qualified professional engineer. However, since HDR, Inc. has no control over the cost of labor, materials, equipment or services furnished by others, or over the contractor(s') methods of determining prices, or over competitive bidding or market conditions, HDR, Inc. does not guarantee that proposals, bids or actual project or construction cost will not vary from opinions of probable cost or cost estimates prepared by HDR, Inc.
Report format	Sorted by 'WBS_MAIN/MF95_DIV/HDR95SPEC/Group phase/Phase' 'HDR95SPEC' summary Allocate addons Print sort level notes

AACE Classification Accuracy Range

Upper Range +40% **Lower Range -20%**

Description		Quantity		Labor Amount	Material Amount	Subcontract Amount	Equipment Amount	Other Amount	Total Unit Cost	Total Amount
RWWTP DCB	***DIGESTER CONTROL BUILDING (RWWTP)***									
DIVISION 02	**SITE CONSTRUCTION**									
02200.000	Earthwork	1.00	ls	156			108		263.57 /ls	264
02200.500	Earthwork, Structural Excavation	917.00	cy	3,799			6,748		11.501/cy	10,546
02200.600	Earthwork, Structural Backfill, Native Material includes compaction	361.00	cy	609			1,283		5.241/cy	1,892
02930.000	Seeding, Sodding, and Landscaping	1.00	ls	575	95		80		750.09 /ls	750
DIVISION 02 SITE CONSTRUCTION				**5,138**	**95**		**8,218**			**13,452**
93.54	Labor hours									
144.42	Equipment hours									
DIVISION 03	**CONCRETE**									
03002.100	Concrete_Foundations	121.00	cy	24,501	29,497		1,671		460.07 /cy	55,668
03002.300	Concrete_Walls Exterior	104.00	cy	45,626	24,756		840		684.83 /cy	71,222
03002.600	Concrete_Elevated Slab	72.00	cy	19,645	19,051		574		545.42 /cy	39,270
03002.825	Concrete_Stairs	1.00	ls	4,730	733		45		5,508.28 /ls	5,508
03002.850	Concrete_Topping	19.00	cy	2,230	3,365		59		297.55 /cy	5,653
03431.000	Precast and Prestressed Concrete	1.00	ls	2,553	27,102	104,580	962		135,197.52 /ls	135,198
DIVISION 03 CONCRETE				**99,284**	**104,504**	**104,580**	**4,151**			**312,519**
1,568.160	Labor hours									
113.61	Equipment hours									
DIVISION 04	**MASONRY**									
04220.000	Concrete Masonry	3,186.00	sf	34,379	15,530		676		15.88 /sf	50,585
DIVISION 04 MASONRY				**34,379**	**15,530**		**676**			**50,585**
564.83	Labor hours									
38.62	Equipment hours									
DIVISION 05	**METALS**									
05505.000	Metal Fabrications	1.00	ls	5,237	36,505		295		42,036.28 /ls	42,036
DIVISION 05 METALS				**5,237**	**36,505**		**295**			**42,036**
70.51	Labor hours									
17.63	Equipment hours									
DIVISION 07	**THERMAL& MOISTURE PROTECTION**									
07534.000	Adhered Elastomeric (EPDM) Sheet Roofing	1,500.00	sf	2,361	4,740		224		4.884/sf	7,325

AACE Classification Accuracy Range

Upper Range +40% **Lower Range -20%**

Description	Quantity		Labor Amount	Material Amount	Subcontract Amount	Equipment Amount	Other Amount	Total Unit Cost	Total Amount
DIVISION 07 THERMAL& MOISTURE PROTECTION			**2,361**	**4,740**		**224**			**7,325**
50.00 Labor hours									
10.01 Equipment hours									
DIVISION 08 DOORS & WINDOWS									
08121.000 Fiberglass Reinforced Polymer (FRP) Panel Alum Doors and Alum Frames	4.00	ea	770	4,269				1,259.703/ea	5,039
08305.000 Access Doors	1.00	ea	244	2,800				3,043.90 /ea	3,044
08334.000 Aluminum Rolling Overhead Doors	2.00	ea	1,961	4,609				3,284.70 /ea	6,569
DIVISION 08 DOORS & WINDOWS			**2,975**	**11,677**					**14,652**
43.04 Labor hours									
DIVISION 09 FINISHES									
09905.000 Painting and Protective Coatings	1.00	ls	9,257	2,033	13,968			25,257.31 /ls	25,257
DIVISION 09 FINISHES			**9,257**	**2,033**	**13,968**				**25,257**
162.422 Labor hours									
DIVISION 11 EQUIPMENT									
13220.000 Digester Equipment: Basic Requirements	1.00	ls	114,175	246,600				360,774.60 /ls	360,775
DIVISION 11 EQUIPMENT			**114,175**	**246,600**					**360,775**
DIVISION 15 MECHANICAL									
15062.100 Pipe: Ductile - Interior with Valves, Couplings, Hangers and Supports	1.00	ls	30,747	44,542		1,185		76,474.12 /ls	76,474
DIVISION 15 MECHANICAL			**30,747**	**44,542**		**1,185**			**76,474**
537.30 Labor hours									
12.67 Equipment hours									
RWWTP DCB DIGESTER CONTROL BUILDING (RWWTP)			***303,554***	***466,225***	***118,548***	***14,749***	***0***	***602.051/EA***	***903,076***
1,500.00 EA									
3,089.781 Labor hours									
336.94 Equipment hours									

AACE Classification Accuracy Range

Upper Range +40% **Lower Range -20%**

Partial Totals

Description	Amount	Totals	Hours	Rate
Labor	303,554		3,089.781 hrs	
Material	466,225			
Subcontract	118,548			
Equipment	14,749		336.937 hrs	
Other				
Electrical as a Percent	132,067			15.000
I & C as a Percent	44,022			5.000
Direct Cost - Subtotal		**1,079,165**		
Contractor's Fld Ovhd & Mob	86,333			8.000
Sales Tax Estimate (Mat & Eq)	36,175			7.750
Field Const Cost - Subtotal		**1,201,673**		
Contractor's Fee	120,167			10.000
Undefined SOW (Contingency)	264,368			20.000
Subtotal		**1,586,208**		
Escalation (NONE INCLUDED)				0.000
Subtotal		**1,586,208**		
Contractor's Bonds & Insurance	23,793			1.500
Current OPCC Estimate Budget		**1,610,001**		

AACE Classification Accuracy Range

Upper Range +40% **Lower Range -20%**

COOS BAY, OREGON
REGIONAL WASTEWATER TREATMENT
REGIONAL BIOSOLIDS FACILITY

Project name	REGIONAL WWTP-BIOSOLIDS Coos Bay OR 97420 Fill In
Labor rate table	CONC2012
Equipment rate table	CONC2012
Project Name 1	Regional WWTP
Project Name 2	Regional Biosolids
Project Info 1	Facilitiy Plans
Project Location 1	Coos Bay, OR
Design Stage 1	Planning Level
Estimate Version	1.0
Upper Range +%	40
Lower Range -%	20
Labor Rate Table	2nd Qtr 2012
Equip Rate Table	2nd Qtr 2012
Notes	Any opinions of probable construction cost or cost estimates provided by HDR, Inc. are made on the basis of information available to HDR, Inc. and on the basis of cost estimator's experience and qualifications, and represents its judgment as an experienced and qualified professional engineer. However, since HDR, Inc. has no control over the cost of labor, materials, equipment or services furnished by others, or over the contractor(s') methods of determining prices, or over competitive bidding or market conditions, HDR, Inc. does not guarantee that proposals, bids or actual project or construction cost will not vary from opinions of probable cost or cost estimates prepared by HDR, Inc.
Report format	Sorted by 'WBS_MAIN/MF95_DIV/HDR95SPEC/Group phase/Phase' 'HDR95SPEC' summary Allocate addons Print sort level notes

AACE Classification Accuracy Range

Upper Range +40% **Lower Range -20%**

Description	Quantity		Labor Amount	Material Amount	Subcontract Amount	Equipment Amount	Other Amount	Total Unit Cost	Total Amount
RWWTP EPS	***EFFLUENT PUMP STATION (RWWTP)***								
DIVISION 01	**GENERAL REQUIREMENTS**								
01500.100	Non-Task Specific Equipment	3.00 mo	37,661			66,849		34,836.39 /mo	104,509
DIVISION 01 GENERAL REQUIREMENTS			**37,661**			**66,849**			**104,509**
600.00	Labor hours								
3,200.00	Equipment hours								
DIVISION 02	**SITE CONSTRUCTION**								
02200.000	Earthwork	1.00 ls	175			121		295.52 /ls	296
02200.500	Earthwork, Structural Excavation	4,089.00 cy	8,903			16,696		6.261/cy	25,599
02200.600	Earthwork, Structural Backfill, Native Material includes compaction	2,956.00 cy	4,988			10,508		5.242/cy	15,497
02361.000	Driven Steel Sheet Piling	4,700.00 sf	40,769	63,834		36,786		30.083/sf	141,389
02930.000	Seeding, Sodding, and Landscaping	1.00 ls	546	91		76		712.07 /ls	712
DIVISION 02 SITE CONSTRUCTION			**55,381**	**63,924**		**64,187**			**183,493**
875.263	Labor hours								
520.420	Equipment hours								
DIVISION 03	**CONCRETE**								
03002.100	Concrete_Foundations	72.00 cy	21,271	22,223		2,515		639.012/cy	46,009
03002.300	Concrete_Walls Exterior	234.00 cy	94,733	53,187		1,890		640.212/cy	149,810
03002.600	Concrete_Elevated Slab	22.00 cy	6,668	5,844		153		575.70 /cy	12,665
03002.800	Concrete_Equipment Pads	3.00 cy	836	650		17		501.04 /cy	1,503
DIVISION 03 CONCRETE			**123,508**	**81,904**		**4,575**			**209,987**
1,986.12	Labor hours								
122.400	Equipment hours								
DIVISION 04	**MASONRY**								
04220.120	Concrete Masonry (12" CMU)	1,082.00 sf	18,495	10,787		247		27.292/sf	29,530
DIVISION 04 MASONRY			**18,495**	**10,787**		**247**			**29,530**
308.16	Labor hours								
14.12	Equipment hours								
DIVISION 05	**METALS**								
05505.000	Metal Fabrications	1.00 ls	895	1,690		50		2,634.76 /ls	2,635
05522.000	Aluminum Railings	112.00 lf	1,943	7,762		109		87.63 /lf	9,814
DIVISION 05 METALS			**2,838**	**9,451**		**160**			**12,449**
38.21	Labor hours								
9.552	Equipment hours								
DIVISION 07	**THERMAL& MOISTURE PROTECTION**								

Description		Quantity		Labor Amount	Material Amount	Subcontract Amount	Equipment Amount	Other Amount	Total Unit Cost	Total Amount
07501.000	Built-Up Roofing System (BUR)	345.00	sf	3,372	4,866		130		24.26 /sf	8,368
DIVISION 07 THERMAL& MOISTURE PROTECTION				**3,372**	**4,866**		**130**			**8,368**
57.430	Labor hours									
2.86	Equipment hours									
DIVISION 08	**DOORS & WINDOWS**									
08110.030	Metal Doors & Frames (3070)	1.00	ea	297	1,515				1,812.19 /ea	1,812
08305.000	Access Doors	1.00	ea	220	2,100				2,319.510/ea	2,320
08334.000	Aluminum Rolling Overhead Doors	1.00	ea	1,216	4,511				5,727.04 /ea	5,727
DIVISION 08 DOORS & WINDOWS				**1,732**	**8,126**					**9,859**
24.65	Labor hours									
DIVISION 09	**FINISHES**									
09905.000	Painting and Protective Coatings	1.00	ls			33,436			33,435.60 /ls	33,436
DIVISION 09 FINISHES						**33,436**				**33,436**
DIVISION 11	**EQUIPMENT**									
11072.000	Pumping Equipment: Vertical Turbine (Line Shaft)	3.00	ea	6,889	525,000		628		177,505.73 /ea	532,517
DIVISION 11 EQUIPMENT				**6,889**	**525,000**		**628**			**532,517**
120.00	Labor hours									
6.00	Equipment hours									
DIVISION 13	**SPECIAL CONSTRUCTION**									
13440.000	Instrumentation for Process Control: Basic Requirements	1.00	ls			67,263			67,262.52 /ls	67,263
DIVISION 13 SPECIAL CONSTRUCTION						**67,263**				**67,263**
DIVISION 15	**MECHANICAL**									
15062.000	Pipe: Ductile	40.00	lf	6,476	22,639		4,542		841.43 /lf	33,657
15062.100	Pipe: Ductile - Interior with Valves, Couplings, Hangers and Supports	1.00	ls	10,805	231,486				242,291.60 /ls	242,292
DIVISION 15 MECHANICAL				**17,281**	**254,126**		**4,542**			**275,949**
275.68	Labor hours									
44.87	Equipment hours									
DIVISION 16	**ELECTRICAL**									
16010.000	Electrical: Basic Requirements	1.00	ls			201,788			201,787.53 /ls	201,788
DIVISION 16 ELECTRICAL						**201,788**				**201,788**

AACE Classification Accuracy Range

Upper Range +40% **Lower Range -20%**

Description	Quantity	Labor Amount	Material Amount	Subcontract Amount	Equipment Amount	Other Amount	Total Unit Cost	Total Amount
RWWTP EPS EFFLUENT PUMP STATION (RWWTP)		***267,158***	***958,185***	***302,486***	***141,317***	***0***	***41,728.65 /MGD***	***1,669,146***
	40.00 MGD							
	4,285.50 Labor hours							
	3,920.220 Equipment hours							

Partial Totals

Description	Amount	Totals	Hours	Rate
Labor	267,158		4,285.498 hrs	
Material	958,185			
Subcontract	302,486			
Equipment	141,317		3,920.220 hrs	
Other				
Direct Cost - Subtotal		**1,669,146**		
Contractor's Fld Ovhd & Mob	133,532			8.000
Sales Tax Estimate (Mat & Eq)	81,954			7.750
Field Const Cost - Subtotal		**1,884,632**		
Contractor's Fee	188,463			10.000
Undefined SOW (Contingency)	414,619			20.000
Subtotal		**2,487,714**		
Escalation (NONE INCLUDED)				0.000
Subtotal		**2,487,714**		
Contractor's Bonds & Insurance	37,316			1.500
Current OPCC Estimate Budget		**2,525,030**		

AACE Classification Accuracy Range

Upper Range +40% **Lower Range -20%**

COOS BAY, OREGON
REGIONAL WASTEWATER TREATMENT
REGIONAL BIOSOLIDS FACILITY

Project name	REGIONAL WWTP-BIOSOLIDS Coos Bay OR 97420 Fill In
Labor rate table	CONC2012
Equipment rate table	CONC2012
Project Name 1	Regional WWTP
Project Name 2	Regional Biosolids
Project Info 1	Facilitiy Plans
Project Location 1	Coos Bay, OR
Design Stage 1	Planning Level
Estimate Version	1.0
Upper Range +%	40
Lower Range -%	20
Labor Rate Table	2nd Qtr 2012
Equip Rate Table	2nd Qtr 2012
Notes	Any opinions of probable construction cost or cost estimates provided by HDR, Inc. are made on the basis of information available to HDR, Inc. and on the basis of cost estimator's experience and qualifications, and represents its judgment as an experienced and qualified professional engineer. However, since HDR, Inc. has no control over the cost of labor, materials, equipment or services furnished by others, or over the contractor(s') methods of determining prices, or over competitive bidding or market conditions, HDR, Inc. does not guarantee that proposals, bids or actual project or construction cost will not vary from opinions of probable cost or cost estimates prepared by HDR, Inc.
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AACE Classification Accuracy Range

Upper Range +40% **Lower Range -20%**

Description	Quantity		Labor Amount	Material Amount	Subcontract Amount	Equipment Amount	Other Amount	Total Unit Cost	Total Amount
RWWTP GRIT	***VORTEX GRIT REMOVAL (RWWTP)***								
DIVISION 01	**GENERAL REQUIREMENTS**								
01500.100	Non-Task Specific Equipment	6.00 mo	100,202			176,542		46,124.053/mo	276,744
DIVISION 01 GENERAL REQUIREMENTS			**100,202**			**176,542**			**276,744**
1,600.00	Labor hours								
8,800.00	Equipment hours								
DIVISION 02	**SITE CONSTRUCTION**								
02200.000	Earthwork	1.00 ls	616			425		1,041.02 /ls	1,041
02200.500	Earthwork, Structural Excavation	2,535.00 cy	3,610			7,057		4.21 /cy	10,668
02200.600	Earthwork, Structural Backfill, Native Material includes compaction	2,153.00 cy	3,632			7,652		5.241/cy	11,284
02930.000	Seeding, Sodding, and Landscaping	1.00 ls	2,957	491		410		3,857.58 /ls	3,858
DIVISION 02 SITE CONSTRUCTION			**10,815**	**491**		**15,545**			**26,851**
185.88	Labor hours								
173.73	Equipment hours								
DIVISION 03	**CONCRETE**								
03002.100	Concrete_Foundations	188.00 cy	62,477	56,202		4,794		656.773/cy	123,473
03002.300	Concrete_Walls Exterior	212.00 cy	141,234	60,181		1,842		958.76 /cy	203,257
03002.600	Concrete_Elevated Slab	36.00 cy	11,858	9,642		250		604.16 /cy	21,750
03002.700	Concrete_Slab on Grade	44.00 cy	6,623	9,639		284		376.04 /cy	16,546
03002.885	Concrete_Grout/Flowable Fill Topping	4.00 cy	107	344		25		119.05 /cy	476
DIVISION 03 CONCRETE			**222,298**	**136,007**		**7,196**			**365,502**
3,596.16	Labor hours								
196.332	Equipment hours								
DIVISION 05	**METALS**								
05522.000	Aluminum Railings	556.00 lf	9,646	38,531		543		87.63 /lf	48,720
DIVISION 05 METALS			**9,646**	**38,531**		**543**			**48,720**
129.870	Labor hours								
32.465	Equipment hours								
DIVISION 11	**EQUIPMENT**								
11320.000	Grit Collection Equipment	1.00 ls	50,133	440,000			1,116	491,249.40 /ls	491,249
DIVISION 11 EQUIPMENT			**50,133**	**440,000**			**1,116**		**491,249**
680.000	Labor hours								
8.00	Equipment hours								
DIVISION 13	**SPECIAL CONSTRUCTION**								

Description		Quantity		Labor Amount	Material Amount	Subcontract Amount	Equipment Amount	Other Amount	Total Unit Cost	Total Amount
13440.000	Instrumentation for Process Control: Basic Requirements	1.00	ls			65,885			65,884.58 /ls	65,885
DIVISION 13 SPECIAL CONSTRUCTION						**65,885**				**65,885**
DIVISION 15	**MECHANICAL**									
15062.000	Pipe: Ductile	40.00	lf	6,144	16,433		4,641		680.45 /lf	27,218
15115.000	Water Control Gates	3.00	ea	16,501	92,730		4,239		37,823.29 /ea	113,470
DIVISION 15 MECHANICAL				**22,645**	**109,163**		**8,880**			**140,688**
344.74	Labor hours									
100.871	Equipment hours									
DIVISION 16	**ELECTRICAL**									
16010.000	Electrical: Basic Requirements	1.00	ls			197,654			197,653.71 /ls	197,654
DIVISION 16 ELECTRICAL						**197,654**				**197,654**
RWWTP GRIT VORTEX GRIT REMOVAL (RWWTP)				***415,740***	***724,192***	***263,538***	***208,706***	***1,116***	***32,265.851/MGD***	***1,613,293***
50.00	***MGD***									
6,536.65	Labor hours									
9,311.40	Equipment hours									

Partial Totals

Description	Amount	Totals	Hours	Rate
Labor	415,740		6,536.646 hrs	
Material	724,192			
Subcontract	263,538			
Equipment	208,706		9,311.395 hrs	
Other	1,116			
Direct Cost - Subtotal		**1,613,292**		
Contractor's Fld Ovhd & Mob	129,063			8.000
Sales Tax Estimate (Mat & Eq)	70,546			7.750
Field Const Cost - Subtotal		**1,812,901**		
Contractor's Fee	181,290			10.000
Undefined SOW (Contingency)	398,839			20.000
Subtotal		**2,393,030**		
Escalation (NONE INCLUDED)				0.000
Subtotal		**2,393,030**		
Contractor's Bonds & Insurance	35,895			1.500
Current OPCC Estimate Budget		**2,428,925**		

AACE Classification Accuracy Range

Upper Range +40% **Lower Range -20%**

COOS BAY, OREGON
REGIONAL WASTEWATER TREATMENT
REGIONAL BIOSOLIDS FACILITY

Project name	REGIONAL WWTP-BIOSOLIDS Coos Bay OR 97420 Fill In
Labor rate table	CONC2012
Equipment rate table	CONC2012
Project Name 1	Regional WWTP
Project Name 2	Regional Biosolids
Project Info 1	Facilitiy Plans
Project Location 1	Coos Bay, OR
Design Stage 1	Planning Level
Estimate Version	1.0
Upper Range +%	40
Lower Range -%	20
Labor Rate Table	2nd Qtr 2012
Equip Rate Table	2nd Qtr 2012
Notes	Any opinions of probable construction cost or cost estimates provided by HDR, Inc. are made on the basis of information available to HDR, Inc. and on the basis of cost estimator's experience and qualifications, and represents its judgment as an experienced and qualified professional engineer. However, since HDR, Inc. has no control over the cost of labor, materials, equipment or services furnished by others, or over the contractor(s') methods of determining prices, or over competitive bidding or market conditions, HDR, Inc. does not guarantee that proposals, bids or actual project or construction cost will not vary from opinions of probable cost or cost estimates prepared by HDR, Inc.
Report format	Sorted by 'WBS_MAIN/MF95_DIV/HDR95SPEC/Group phase/Phase' 'HDR95SPEC' summary Allocate addons Print sort level notes

AACE Classification Accuracy Range

Upper Range +40% **Lower Range -20%**

Description	Quantity		Labor Amount	Material Amount	Subcontract Amount	Equipment Amount	Other Amount	Total Unit Cost	Total Amount
RWWTP HYPO	***CHEM FEED HYPOCHLORITE (RWWTP)***								
DIVISION 01	**GENERAL REQUIREMENTS**								
01500.000	Temporary Facilities & Controls	1.00 ls	13,431			24,127		37,558.04 /ls	37,558
DIVISION 01 GENERAL REQUIREMENTS			**13,431**			**24,127**			**37,558**
213.200	Labor hours								
1,079.200	Equipment hours								
DIVISION 02	**SITE CONSTRUCTION**								
02200.000	Earthwork	1.00 ls	30			21		51.26 /ls	51
02200.500	Earthwork, Structural Excavation	69.00 cy	345			510		12.394/cy	855
02200.600	Earthwork, Structural Backfill, Native Material includes compaction	26.00 cy	44			93		5.25 /cy	136
02930.000	Seeding, Sodding, and Landscaping	1.00 ls	103	17		14		134.81 /ls	135
DIVISION 02 SITE CONSTRUCTION			**523**	**17**		**638**			**1,178**
9.39	Labor hours								
11.861	Equipment hours								
DIVISION 03	**CONCRETE**								
03002.100	Concrete_Foundations	16.00 cy	3,599	4,932		272		550.17 /cy	8,803
03002.300	Concrete_Walls Exterior	7.00 cy	3,983	1,690		57		818.43 /cy	5,729
03002.800	Concrete_Equipment Pads	14.00 cy	2,664	2,848		80		399.46 /cy	5,592
DIVISION 03 CONCRETE			**10,246**	**9,470**		**409**			**20,124**
161.665	Labor hours								
11.250	Equipment hours								
DIVISION 06	**WOODS & PLASTICS**								
06610.000	Fiberglass Reinforced Plastic Fabrications	1.00 ls	569	4,148				4,716.67 /ls	4,717
DIVISION 06 WOODS & PLASTICS			**569**	**4,148**					**4,717**
8.30	Labor hours								
DIVISION 09	**FINISHES**								
09905.000	Painting and Protective Coatings	1.00 ls			13,968			13,967.80 /ls	13,968
DIVISION 09 FINISHES					**13,968**				**13,968**
DIVISION 11	**EQUIPMENT**								
11800.000	Chemical Feed: Sodium Hypochlorite	1.00 ls	4,129	29,391	3,700		236	37,455.64 /ls	37,456

AACE Classification Accuracy Range

Upper Range +40% **Lower Range -20%**

Description	Quantity		Labor Amount	Material Amount	Subcontract Amount	Equipment Amount	Other Amount	Total Unit Cost	Total Amount
DIVISION 11 EQUIPMENT			**4,129**	**29,391**	**3,700**		**236**		**37,456**
72.00 Labor hours									
21.00 Equipment hours									
DIVISION 13 SPECIAL CONSTRUCTION									
13420.000 Fiberglass Reinforced Plastic Tanks	2.00	ea	1,610	33,800				17,705.19 /ea	35,410
13440.000 Instrumentation for Process Control: Basic Requirements	1.00	ls			8,086			8,086.28 /ls	8,086
DIVISION 13 SPECIAL CONSTRUCTION			**1,610**	**33,800**	**8,086**				**43,497**
21.843 Labor hours									
DIVISION 15 MECHANICAL									
15064.000 Pipe: Plastic	1.00	lf	3,539	11,000				14,538.83 /lf	14,539
DIVISION 15 MECHANICAL			**3,539**	**11,000**					**14,539**
48.000 Labor hours									
DIVISION 16 ELECTRICAL									
16010.000 Electrical: Basic Requirements	1.00	ls			24,259			24,258.83 /ls	24,259
DIVISION 16 ELECTRICAL					**24,259**				**24,259**
RWWTP HYPO CHEM FEED HYPOCHLORITE (RWWTP)			***34,046***	***87,826***	***50,013***	***25,173***	***236***	***14,092.453/LB/H***	***197,294***
14.00 LB/H									
534.39 Labor hours									
1,123.312 Equipment hours									

Partial Totals

Description	Amount	Totals	Hours	Rate
Labor	34,046		534.388 hrs	
Material	87,826			
Subcontract	50,013			
Equipment	25,173		1,123.312 hrs	
Other	236			
Direct Cost - Subtotal		**197,294**		
Contractor's Fld Ovhd & Mob	15,784			8.000
Sales Tax Estimate (Mat & Eq)	8,637			7.750
Field Const Cost - Subtotal		**221,715**		
Contractor's Fee	22,171			10.000
Undefined SOW (Contingency)	48,777			20.000
Subtotal		**292,663**		
Escalation (NONE INCLUDED)				0.000
Subtotal		**292,663**		
Contractor's Bonds & Insurance	4,390			1.500
Current OPCC Estimate Budget		**297,053**		

AACE Classification Accuracy Range

Upper Range +40% **Lower Range -20%**

COOS BAY, OREGON
REGIONAL WASTEWATER TREATMENT
REGIONAL BIOSOLIDS FACILITY

Project name	REGIONAL WWTP-BIOSOLIDS Coos Bay OR 97420 Fill In
Labor rate table	CONC2012
Equipment rate table	CONC2012
Project Name 1	Regional WWTP
Project Name 2	Regional Biosolids
Project Info 1	Facilitiy Plans
Project Location 1	Coos Bay, OR
Design Stage 1	Planning Level
Estimate Version	1.0
Upper Range +%	40
Lower Range -%	20
Labor Rate Table	2nd Qtr 2012
Equip Rate Table	2nd Qtr 2012
Notes	Any opinions of probable construction cost or cost estimates provided by HDR, Inc. are made on the basis of information available to HDR, Inc. and on the basis of cost estimator's experience and qualifications, and represents its judgment as an experienced and qualified professional engineer. However, since HDR, Inc. has no control over the cost of labor, materials, equipment or services furnished by others, or over the contractor(s') methods of determining prices, or over competitive bidding or market conditions, HDR, Inc. does not guarantee that proposals, bids or actual project or construction cost will not vary from opinions of probable cost or cost estimates prepared by HDR, Inc.
Report format	Sorted by 'WBS_MAIN/MF95_DIV/HDR95SPEC/Group phase/Phase' 'HDR95SPEC' summary Allocate addons Print sort level notes

AACE Classification Accuracy Range

Upper Range +40% **Lower Range -20%**

Description	Quantity		Labor Amount	Material Amount	Subcontract Amount	Equipment Amount	Other Amount	Total Unit Cost	Total Amount
RWWTP INF SCRN	***INFLUENT SCREEN (RWWTP)***								
DIVISION 01	**GENERAL REQUIREMENTS**								
01500.100	Non-Task Specific Equipment	3.00 mo	37,661			66,849		34,836.39 /mo	104,509
DIVISION 01 GENERAL REQUIREMENTS			**37,661**			**66,849**			**104,509**
600.00	Labor hours								
3,200.00	Equipment hours								
DIVISION 02	**SITE CONSTRUCTION**								
02200.000	Earthwork	1.00 ls	90			62		152.70 /ls	153
02200.500	Earthwork, Structural Excavation	540.00 cy	734			1,456		4.06 /cy	2,190
02200.600	Earthwork, Structural Backfill, Native Material includes compaction	463.00 cy	781			1,645		5.24 /cy	2,426
02361.000	Driven Steel Sheet Piling	1,275.00 sf	9,831	13,630		8,871		25.36 /sf	32,333
02930.000	Seeding, Sodding, and Landscaping	1.00 ls	535	89		74		698.24 /ls	698
DIVISION 02 SITE CONSTRUCTION			**11,972**	**13,719**		**12,109**			**37,800**
186.280	Labor hours								
72.810	Equipment hours								
DIVISION 03	**CONCRETE**								
03002.100	Concrete_Foundations	29.00 cy	9,381	8,653		717		646.570/cy	18,751
03002.300	Concrete_Walls Exterior	10.00 cy	11,773	3,912		81		1,576.52 /cy	15,765
03002.400	Concrete_Walls Interior	2.00 cy	572	614		17		601.89 /cy	1,204
03002.600	Concrete_Elevated Slab	10.00 cy	3,059	2,652		69		577.982/cy	5,780
DIVISION 03 CONCRETE			**24,784**	**15,831**		**884**			**41,499**
403.42	Labor hours								
24.484	Equipment hours								
DIVISION 04	**MASONRY**								
04220.120	Concrete Masonry (12" CMU)	1,080.00 sf	18,373	10,701		246		27.15 /sf	29,320
DIVISION 04 MASONRY			**18,373**	**10,701**		**246**			**29,320**
306.15	Labor hours								
14.02	Equipment hours								
DIVISION 05	**METALS**								
05505.000	Metal Fabrications	1.00 ls	224	422		13		658.70 /ls	659
05522.000	Aluminum Railings	68.00 lf	1,180	4,712		66		87.63 /lf	5,959
DIVISION 05 METALS			**1,403**	**5,135**		**79**			**6,617**
18.90	Labor hours								
4.723	Equipment hours								
DIVISION 07	**THERMAL& MOISTURE PROTECTION**								

Description		Quantity		Labor Amount	Material Amount	Subcontract Amount	Equipment Amount	Other Amount	Total Unit Cost	Total Amount
07501.000	Built-Up Roofing System (BUR)	261.00	sf	2,923	4,216		124		27.831/sf	7,264
DIVISION 07 THERMAL& MOISTURE PROTECTION				**2,923**	**4,216**		**124**			**7,264**
49.841	Labor hours									
2.650	Equipment hours									
DIVISION 08	**DOORS & WINDOWS**									
08110.030	Metal Doors & Frames (3070)	2.00	ea	595	3,030				1,812.19 /ea	3,624
08305.000	Access Doors	1.00	ea	220	2,100				2,319.510/ea	2,320
08332.000	Steel Rolling Overhead Doors	1.00	ea	1,216	4,511				5,727.04 /ea	5,727
DIVISION 08 DOORS & WINDOWS				**2,030**	**9,641**					**11,671**
29.56	Labor hours									
DIVISION 09	**FINISHES**									
09905.000	Painting and Protective Coatings	1.00	ls			30,686			30,685.60 /ls	30,686
DIVISION 09 FINISHES						**30,686**				**30,686**
DIVISION 11	**EQUIPMENT**									
11092.000	Mechanically Cleaned Bar Screens: Climber Type	3.00	ea	13,778	525,000		1,571		180,116.19 /ea	540,349
DIVISION 11 EQUIPMENT				**13,778**	**525,000**		**1,571**			**540,349**
240.00	Labor hours									
15.00	Equipment hours									
DIVISION 13	**SPECIAL CONSTRUCTION**									
13440.000	Instrumentation for Process Control: Basic Requirements	1.00	ls			42,543			42,543.16 /ls	42,543
DIVISION 13 SPECIAL CONSTRUCTION						**42,543**				**42,543**
DIVISION 14	**CONVEYING SYSTEMS**									
14305.000	Bridge Cranes	1.00	ea	2,866	26,516		148		29,530.02 /ea	29,530
DIVISION 14 CONVEYING SYSTEMS				**2,866**	**26,516**		**148**			**29,530**
38.80	Labor hours									
3.20	Equipment hours									
DIVISION 15	**MECHANICAL**									
15062.000	Pipe: Ductile	40.00	lf	5,555	15,371		3,653		614.483/lf	24,579
DIVISION 15 MECHANICAL				**5,555**	**15,371**		**3,653**			**24,579**
95.36	Labor hours									
31.40	Equipment hours									
DIVISION 16	**ELECTRICAL**									
16010.000	Electrical: Basic Requirements	1.00	ls			127,629			127,629.47 /ls	127,629
DIVISION 16 ELECTRICAL						**127,629**				**127,629**

AACE Classification Accuracy Range

Upper Range +40% **Lower Range -20%**

Description	Quantity	Labor Amount	Material Amount	Subcontract Amount	Equipment Amount	Other Amount	Total Unit Cost	Total Amount
RWWTP INF SCRN INFLUENT SCREEN (RWWTP)		***121,345***	***626,131***	***200,858***	***85,663***	***0***	***20,679.943/MGD***	***1,033,997***
	50.00 MGD							
	1,968.292 Labor hours							
	3,368.29 Equipment hours							

Partial Totals

Description	Amount	Totals	Hours	Rate
Labor	121,345		1,968.292 hrs	
Material	626,131			
Subcontract	200,858			
Equipment	85,663		3,368.286 hrs	
Other				
Direct Cost - Subtotal		**1,033,997**		
Contractor's Fld Ovhd & Mob	82,720			8.000
Sales Tax Estimate (Mat & Eq)	54,621			7.750
Field Const Cost - Subtotal		**1,171,338**		
Contractor's Fee	117,134			10.000
Undefined SOW (Contingency)	257,694			20.000
Subtotal		**1,546,166**		
Escalation (NONE INCLUDED)				0.000
Subtotal		**1,546,166**		
Contractor's Bonds & Insurance	23,192			1.500
Current OPCC Estimate Budget		**1,569,358**		

AACE Classification Accuracy Range

Upper Range +40% **Lower Range -20%**

COOS BAY, OREGON
REGIONAL WASTEWATER TREATMENT
REGIONAL BIOSOLIDS FACILITY

Project name	REGIONAL WWTP-BIOSOLIDS Coos Bay OR 97420 Fill In
Labor rate table	CONC2012
Equipment rate table	CONC2012
Project Name 1	Regional WWTP
Project Name 2	Regional Biosolids
Project Info 1	Facilitiy Plans
Project Location 1	Coos Bay, OR
Design Stage 1	Planning Level
Estimate Version	1.0
Upper Range +%	40
Lower Range -%	20
Labor Rate Table	2nd Qtr 2012
Equip Rate Table	2nd Qtr 2012
Notes	Any opinions of probable construction cost or cost estimates provided by HDR, Inc. are made on the basis of information available to HDR, Inc. and on the basis of cost estimator's experience and qualifications, and represents its judgment as an experienced and qualified professional engineer. However, since HDR, Inc. has no control over the cost of labor, materials, equipment or services furnished by others, or over the contractor(s') methods of determining prices, or over competitive bidding or market conditions, HDR, Inc. does not guarantee that proposals, bids or actual project or construction cost will not vary from opinions of probable cost or cost estimates prepared by HDR, Inc.
Report format	Sorted by 'WBS_MAIN/MF95_DIV/HDR95SPEC/Group phase/Phase' 'HDR95SPEC' summary Allocate addons Print sort level notes

AACE Classification Accuracy Range

Upper Range +40% **Lower Range -20%**

Description	Quantity		Labor Amount	Material Amount	Subcontract Amount	Equipment Amount	Other Amount	Total Unit Cost	Total Amount
RWWTP PCL	***PRIMARY CLARIFIERS (RWWTP)***								
DIVISION 01	**GENERAL REQUIREMENTS**								
01500.100	Non-Task Specific Equipment	10.00 mo	123,930			219,397		34,332.692/mo	343,327
DIVISION 01 GENERAL REQUIREMENTS			**123,930**			**219,397**			**343,327**
1,976.00	Labor hours								
10,656.00	Equipment hours								
DIVISION 02	**SITE CONSTRUCTION**								
02200.000	Earthwork	1.00 ls	9,230			6,372		15,602.61 /ls	15,603
02200.500	Earthwork, Structural Excavation	8,191.00 cy	30,870			56,105		10.62 /cy	86,976
02200.600	Earthwork, Structural Backfill, Native Material includes compaction	3,838.00 cy	6,474			13,640		5.241/cy	20,114
02930.000	Seeding, Sodding, and Landscaping	1.00 ls	12,181	2,023		1,689		15,893.65 /ls	15,894
DIVISION 02 SITE CONSTRUCTION			**58,756**	**2,023**		**77,807**			**138,586**
1,050.08	Labor hours								
1,276.341	Equipment hours								
DIVISION 03	**CONCRETE**								
03002.100	Concrete_Foundations	6,572.00 cy	1,066,326	1,561,745		86,902		413.112/cy	2,714,973
03002.300	Concrete_Walls Exterior	5,503.00 cy	1,965,535	1,242,955		44,452		591.122/cy	3,252,942
03002.600	Concrete_Elevated Slab	2,106.00 cy	614,726	558,892		14,635		564.223/cy	1,188,254
DIVISION 03 CONCRETE			**3,646,587**	**3,363,592**		**145,990**			**7,156,169**
57,377.26	Labor hours								
4,311.155	Equipment hours								
DIVISION 05	**METALS**								
05505.000	Metal Fabrications	1.00 ls	245	871		14		1,130.35 /ls	1,130
05522.000	Aluminum Railings	3,600.00 lf	62,458	249,480		3,515		87.63 /lf	315,453
DIVISION 05 METALS			**62,704**	**250,351**		**3,528**			**316,583**
844.191	Labor hours								
211.03	Equipment hours								
DIVISION 08	**DOORS & WINDOWS**								
08305.000	Access Doors	12.00 ea	2,634	25,200				2,319.51 /ea	27,834
DIVISION 08 DOORS & WINDOWS			**2,634**	**25,200**					**27,834**
38.40	Labor hours								
DIVISION 09	**FINISHES**								
09905.000	Painting and Protective Coatings	1.00 ls			167,614			167,613.60 /ls	167,614

AACE Classification Accuracy Range

Upper Range +40% **Lower Range -20%**

Description	Quantity		Labor Amount	Material Amount	Subcontract Amount	Equipment Amount	Other Amount	Total Unit Cost	Total Amount
DIVISION 09 FINISHES					**167,614**				**167,614**
DIVISION 11 EQUIPMENT									
11336.000 Primary Clarifier, Rectangular, Solids Collection Equipment	12.00	ea	212,330	3,000,000	22,200			269,544.144/ea	3,234,530
DIVISION 11 EQUIPMENT			**212,330**	**3,000,000**	**22,200**				**3,234,530**
2,880.000 Labor hours									
2,880.000 Equipment hours									
DIVISION 13 SPECIAL CONSTRUCTION									
13440.000 Instrumentation for Process Control: Basic Requirements	1.00	ls			644,205			644,204.84 /ls	644,205
DIVISION 13 SPECIAL CONSTRUCTION					**644,205**				**644,205**
DIVISION 15 MECHANICAL									
03002.905 Concrete_Pipe Encasement and Blocking	3,480.00	cy	218,268	503,795		3,207		208.411/cy	725,271
15062.000 Pipe: Ductile	2,220.00	lf	300,910	584,273		228,861		501.822/lf	1,114,044
15062.100 Pipe: Ductile - Interior with Valves, Couplings, Hangers and Supports	1.00	ls	4,572	6,748				11,319.90 /ls	11,320
15115.000 Water Control Gates	16.00	ea	18,494	90,860		4,751		7,131.542/ea	114,105
DIVISION 15 MECHANICAL			**542,244**	**1,185,676**		**236,820**			**1,964,740**
9,108.265 Labor hours									
3,018.734 Equipment hours									
DIVISION 16 ELECTRICAL									
16010.000 Electrical: Basic Requirements	1.00	ls			1,932,615			1,932,614.51 /ls	1,932,615
DIVISION 16 ELECTRICAL					**1,932,615**				**1,932,615**
RWWTP PCL PRIMARY CLARIFIERS (RWWTP)			***4,649,185***	***7,826,843***	***2,766,633***	***683,541***	***0***	***280.89 /SFSA***	***15,926,202***
56,700.00 SFSA									
73,274.191 Labor hours									
22,353.26 Equipment hours									

AACE Classification Accuracy Range

Upper Range +40% **Lower Range -20%**

Partial Totals

Description	Amount	Totals	Hours	Rate
Labor	4,649,185		73,274.191 hrs	
Material	7,826,843			
Subcontract	2,766,633			
Equipment	683,541		22,353.260 hrs	
Other				
Direct Cost - Subtotal		**15,926,202**		
Contractor's Fld Ovhd & Mob	1,274,096			8.000
Sales Tax Estimate (Mat & Eq)	636,585			7.750
Field Const Cost - Subtotal		**17,836,883**		
Contractor's Fee	1,783,688			10.000
Undefined SOW (Contingency)	3,924,114			20.000
Subtotal		**23,544,685**		
Escalation (NONE INCLUDED)				0.000
Subtotal		**23,544,685**		
Contractor's Bonds & Insurance	353,170			1.500
Current OPCC Estimate Budget		**23,897,855**		

AACE Classification Accuracy Range

Upper Range +40% **Lower Range -20%**

COOS BAY, OREGON
REGIONAL WASTEWATER TREATMENT
REGIONAL BIOSOLIDS FACILITY

Project name	REGIONAL WWTP-BIOSOLIDS Coos Bay OR 97420 Fill In
Labor rate table	CONC2012
Equipment rate table	CONC2012
Project Name 1	Regional WWTP
Project Name 2	Regional Biosolids
Project Info 1	Facilitiy Plans
Project Location 1	Coos Bay, OR
Design Stage 1	Planning Level
Estimate Version	1.0
Upper Range +%	40
Lower Range -%	20
Labor Rate Table	2nd Qtr 2012
Equip Rate Table	2nd Qtr 2012
Notes	Any opinions of probable construction cost or cost estimates provided by HDR, Inc. are made on the basis of information available to HDR, Inc. and on the basis of cost estimator's experience and qualifications, and represents its judgment as an experienced and qualified professional engineer. However, since HDR, Inc. has no control over the cost of labor, materials, equipment or services furnished by others, or over the contractor(s') methods of determining prices, or over competitive bidding or market conditions, HDR, Inc. does not guarantee that proposals, bids or actual project or construction cost will not vary from opinions of probable cost or cost estimates prepared by HDR, Inc.
Report format	Sorted by 'WBS_MAIN/MF95_DIV/HDR95SPEC/Group phase/Phase' 'HDR95SPEC' summary Allocate addons Print sort level notes

AACE Classification Accuracy Range

Upper Range +40% **Lower Range -20%**

Description	Quantity		Labor Amount	Material Amount	Subcontract Amount	Equipment Amount	Other Amount	Total Unit Cost	Total Amount
RWWTP POLYMER	***POLYMER FEED EMULSION (RWWTP)***								
DIVISION 03	**CONCRETE**								
03002.100	Concrete_Foundations	25.00 cy	4,991	6,785		164		477.61 /cy	11,940
03002.300	Concrete_Walls Exterior	6.00 cy	3,467	1,463		48		829.702/cy	4,978
03002.800	Concrete_Equipment Pads	6.00 cy	1,129	1,220		34		397.153/cy	2,383
DIVISION 03 CONCRETE			**9,586**	**9,468**		**247**			**19,301**
149.680	Labor hours								
7.933	Equipment hours								
DIVISION 06	**WOODS & PLASTICS**								
06610.000	Fiberglass Reinforced Plastic Fabrications	1.00 ls	964	7,029				7,993.65 /ls	7,994
DIVISION 06 WOODS & PLASTICS			**964**	**7,029**					**7,994**
14.06	Labor hours								
DIVISION 09	**FINISHES**								
09905.000	Painting and Protective Coatings	1.00 ls			13,968			13,967.80 /ls	13,968
DIVISION 09 FINISHES					**13,968**				**13,968**
DIVISION 11	**EQUIPMENT**								
11800.000	Chemical Feed: Sodium Hypochlorite	1.00 ls	1,475	12,396			177	14,047.51 /ls	14,048
11810.000	Chemical Mixing Units	1.00 ea	1,769	50,000				51,769.41 /ea	51,769
11926.000	Chemical Feed: Liquid Systems	1.00 ls	1,769	9,797	3,700			15,266.42 /ls	15,266
DIVISION 11 EQUIPMENT			**5,013**	**72,193**	**3,700**		**177**		**81,083**
84.000	Labor hours								
21.00	Equipment hours								
DIVISION 13	**SPECIAL CONSTRUCTION**								
13420.000	Fiberglass Reinforced Plastic Tanks	1.00 ea	557	2,100				2,657.44 /ea	2,657
13440.000	Instrumentation for Process Control: Basic Requirements				6,824				6,824
DIVISION 13 SPECIAL CONSTRUCTION			**557**	**2,100**	**6,824**				**9,481**
8.00	Labor hours								
DIVISION 15	**MECHANICAL**								
15064.000	Pipe: Plastic	1.00 lf	3,539	11,000				14,538.83 /lf	14,539
DIVISION 15 MECHANICAL			**3,539**	**11,000**					**14,539**
48.000	Labor hours								
DIVISION 16	**ELECTRICAL**								
16010.000	Electrical: Basic Requirements	1.00 ls			20,472			20,471.59 /ls	20,472

AACE Classification Accuracy Range

Upper Range +40% **Lower Range -20%**

Description	Quantity	Labor Amount	Material Amount	Subcontract Amount	Equipment Amount	Other Amount	Total Unit Cost	Total Amount
DIVISION 16 ELECTRICAL				20,472				20,472
RWWTP POLYMER POLYMER FEED EMULSION (RWWTP)		***19,660***	***101,791***	***44,963***	***247***	***177***	***33,367.582/LB/H***	***166,838***
	5.00 LB/H							
	303.74 Labor hours							
	28.933 Equipment hours							

Partial Totals

Description	Amount	Totals	Hours	Rate
Labor	19,660		303.739 hrs	
Material	101,791			
Subcontract	44,963			
Equipment	247		28.933 hrs	
Other	177			
Direct Cost - Subtotal		**166,838**		
Contractor's Fld Ovhd & Mob	13,347			8.000
Sales Tax Estimate (Mat & Eq)	7,795			7.750
Field Const Cost - Subtotal		**187,980**		
Contractor's Fee	18,798			10.000
Undefined SOW (Contingency)	41,355			20.000
Subtotal		**248,133**		
Escalation (NONE INCLUDED)				0.000
Subtotal		**248,133**		
Contractor's Bonds & Insurance	3,722			1.500
Current OPCC Estimate Budget		**251,855**		

AACE Classification Accuracy Range

Upper Range +40% **Lower Range -20%**

COOS BAY, OREGON
REGIONAL WASTEWATER TREATMENT
REGIONAL BIOSOLIDS FACILITY

Project name	REGIONAL WWTP-BIOSOLIDS Coos Bay OR 97420 Fill In
Labor rate table	CONC2012
Equipment rate table	CONC2012
Project Name 1	Regional WWTP
Project Name 2	Regional Biosolids
Project Info 1	Facilitiy Plans
Project Location 1	Coos Bay, OR
Design Stage 1	Planning Level
Estimate Version	1.0
Upper Range +%	40
Lower Range -%	20
Labor Rate Table	2nd Qtr 2012
Equip Rate Table	2nd Qtr 2012
Notes	Any opinions of probable construction cost or cost estimates provided by HDR, Inc. are made on the basis of information available to HDR, Inc. and on the basis of cost estimator's experience and qualifications, and represents its judgment as an experienced and qualified professional engineer. However, since HDR, Inc. has no control over the cost of labor, materials, equipment or services furnished by others, or over the contractor(s') methods of determining prices, or over competitive bidding or market conditions, HDR, Inc. does not guarantee that proposals, bids or actual project or construction cost will not vary from opinions of probable cost or cost estimates prepared by HDR, Inc.
Report format	Sorted by 'WBS_MAIN/MF95_DIV/HDR95SPEC/Group phase/Phase' 'HDR95SPEC' summary Allocate addons Print sort level notes

AACE Classification Accuracy Range

Upper Range +40% **Lower Range -20%**

Description	Quantity		Labor Amount	Material Amount	Subcontract Amount	Equipment Amount	Other Amount	Total Unit Cost	Total Amount
RWWTP SCL	***SECONDARY CLARIFIER W/ RAS/WAS PS (RWWTP)***								
DIVISION 01	**GENERAL REQUIREMENTS**								
01500.100	Non-Task Specific Equipment	4.00 mo	48,409			85,358		33,441.70 /mo	133,767
DIVISION 01 GENERAL REQUIREMENTS			**48,409**			**85,358**			**133,767**
772.800	Labor hours								
4,236.800	Equipment hours								
DIVISION 02	**SITE CONSTRUCTION**								
02200.000	Earthwork	1.00 ls	2,216			1,530		3,746.10 /ls	3,746
02200.500	Earthwork, Structural Excavation	5,193.00 cy	17,459			31,769		9.48 /cy	49,228
02200.600	Earthwork, Structural Backfill, Native Material includes compaction	2,757.00 cy	4,652			9,801		5.242/cy	14,453
02930.000	Seeding, Sodding, and Landscaping	1.00 ls	3,690	613		512		4,815.11 /ls	4,815
DIVISION 02 SITE CONSTRUCTION			**28,018**	**613**		**43,612**			**72,242**
501.341	Labor hours								
695.753	Equipment hours								
DIVISION 03	**CONCRETE**								
03002.100	Concrete_Foundations	1,568.00 cy	230,456	372,920		15,143		394.464/cy	618,519
03002.300	Concrete_Walls Exterior	924.00 cy	433,635	222,858		7,906		719.05 /cy	664,399
03002.600	Concrete_Elevated Slab	112.00 cy	106,097	43,572		1,085		1,346.03 /cy	150,755
03431.000	Precast and Prestressed Concrete	1.00 ls	758	3,575		286		4,619.21 /ls	4,619
DIVISION 03 CONCRETE			**770,946**	**642,925**		**24,421**			**1,438,292**
12,132.12	Labor hours								
742.96	Equipment hours								
DIVISION 04	**MASONRY**								
04220.000	Concrete Masonry	1,200.00 sf	15,458	8,545		259		20.22 /sf	24,263
DIVISION 04 MASONRY			**15,458**	**8,545**		**259**			**24,263**
254.425	Labor hours								
14.80	Equipment hours								
DIVISION 05	**METALS**								
05120.000	Structural Steel	1.00 ls	3,765	713		282		4,759.88 /ls	4,760
05505.000	Metal Fabrications	1.00 ls	491	1,742		28		2,260.71 /ls	2,261
05522.000	Aluminum Railings	680.00 lf	11,798	47,124		664		87.63 /lf	59,586
DIVISION 05 METALS			**16,054**	**49,579**		**973**			**66,606**
215.97	Labor hours								
58.20	Equipment hours								
DIVISION 07	**THERMAL& MOISTURE PROTECTION**								

Description		Quantity		Labor Amount	Material Amount	Subcontract Amount	Equipment Amount	Other Amount	Total Unit Cost	Total Amount
07210.000	Building Insulation	500.00	sf	356	875				2.463/sf	1,231
07501.000	Built-Up Roofing System (BUR)	500.00	sf	375	398				1.55 /sf	772
07600.000	Flashing & Sheet Metal	1.00	ls	1,425	1,650				3,075.04 /ls	3,075
DIVISION 07 THERMAL& MOISTURE PROTECTION				**2,156**	**2,923**					**5,079**
37.164	Labor hours									
DIVISION 08	**DOORS & WINDOWS**									
08110.030	Metal Doors & Frames (3070)	2.00	ea	544	2,941				1,742.54 /ea	3,485
08305.000	Access Doors	4.00	ea	878	8,400				2,319.51 /ea	9,278
DIVISION 08 DOORS & WINDOWS				**1,423**	**11,341**					**12,763**
21.682	Labor hours									
DIVISION 09	**FINISHES**									
09905.000	Painting and Protective Coatings	1.00	ls	2,373	444	41,903			44,720.78 /ls	44,721
DIVISION 09 FINISHES				**2,373**	**444**	**41,903**				**44,721**
41.64	Labor hours									
DIVISION 11	**EQUIPMENT**									
11060.000	Pumping Equipment: Basic Requirements	6.00	ea	4,424	98,094	3,700			17,702.922/ea	106,218
11336.005	Secondary Clarifier, Rectangular, Solids Collection Equipment	2.00	ea	35,388	500,000	3,700			269,544.15 /ea	539,088
DIVISION 11 EQUIPMENT				**39,812**	**598,094**	**7,400**				**645,306**
556.000	Labor hours									
556.000	Equipment hours									
DIVISION 13	**SPECIAL CONSTRUCTION**									
13440.000	Instrumentation for Process Control: Basic Requirements	1.00	ls			149,074			149,073.730/ls	149,074
DIVISION 13 SPECIAL CONSTRUCTION						**149,074**				**149,074**
DIVISION 15	**MECHANICAL**									
15062.000	Pipe: Ductile	160.00	lf	34,048	162,177		17,907		1,338.32 /lf	214,131
15062.100	Pipe: Ductile - Interior with Valves, Couplings, Hangers and Supports	1.00	ls	48,262	367,992		9,130		425,384.61 /ls	425,385
15115.000	Water Control Gates	4.00	ea	4,623	22,715		1,188		7,131.543/ea	28,526
DIVISION 15 MECHANICAL				**86,933**	**552,884**		**28,225**			**668,042**
1,502.17	Labor hours									
255.194	Equipment hours									
DIVISION 16	**ELECTRICAL**									
16010.000	Electrical: Basic Requirements	1.00	ls			447,221			447,221.17 /ls	447,221
DIVISION 16 ELECTRICAL						**447,221**				**447,221**

AACE Classification Accuracy Range

Upper Range +40% **Lower Range -20%**

Description	Quantity	Labor Amount	Material Amount	Subcontract Amount	Equipment Amount	Other Amount	Total Unit Cost	Total Amount
RWWTP SCL SECONDARY CLARIFIER W/ RAS/WAS PS (RWWTP)	***11,250.00 SFSA*** 16,035.30 Labor hours 6,559.70 Equipment hours	***1,011,582***	***1,867,348***	***645,598***	***182,847***	***0***	***329.544/SFSA***	***3,707,375***

AACE Classification Accuracy Range

Upper Range +40% **Lower Range -20%**

Partial Totals

Description	Amount	Totals	Hours	Rate
Labor	1,011,582		16,035.299 hrs	
Material	1,867,348			
Subcontract	645,598			
Equipment	182,847		6,559.698 hrs	
Other				
Direct Cost - Subtotal		**3,707,375**		
Contractor's Fld Ovhd & Mob	296,590			8.000
Sales Tax Estimate (Mat & Eq)	151,620			7.750
Field Const Cost - Subtotal		**4,155,585**		
Contractor's Fee	415,559			10.000
Undefined SOW (Contingency)	914,229			20.000
Subtotal		**5,485,373**		
Escalation (NONE INCLUDED)				0.000
Subtotal		**5,485,373**		
Contractor's Bonds & Insurance	82,281			1.500
Current OPCC Estimate Budget		**5,567,654**		

AACE Classification Accuracy Range

Upper Range +40% **Lower Range -20%**

COOS BAY, OREGON
REGIONAL WASTEWATER TREATMENT
REGIONAL BIOSOLIDS FACILITY

Project name	REGIONAL WWTP-BIOSOLIDS Coos Bay OR 97420 Fill In
Labor rate table	CONC2012
Equipment rate table	CONC2012
Project Name 1	Regional WWTP
Project Name 2	Regional Biosolids
Project Info 1	Facilitiy Plans
Project Location 1	Coos Bay, OR
Design Stage 1	Planning Level
Estimate Version	1.0
Upper Range +%	40
Lower Range -%	20
Labor Rate Table	2nd Qtr 2012
Equip Rate Table	2nd Qtr 2012
Notes	Any opinions of probable construction cost or cost estimates provided by HDR, Inc. are made on the basis of information available to HDR, Inc. and on the basis of cost estimator's experience and qualifications, and represents its judgment as an experienced and qualified professional engineer. However, since HDR, Inc. has no control over the cost of labor, materials, equipment or services furnished by others, or over the contractor(s') methods of determining prices, or over competitive bidding or market conditions, HDR, Inc. does not guarantee that proposals, bids or actual project or construction cost will not vary from opinions of probable cost or cost estimates prepared by HDR, Inc.
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AACE Classification Accuracy Range

Upper Range +40% **Lower Range -20%**

Description		Quantity		Labor Amount	Material Amount	Subcontract Amount	Equipment Amount	Other Amount	Total Unit Cost	Total Amount
RWWTP SS	***SLUDGE STORAGE (RWWTP)***									
DIVISION 02	**SITE CONSTRUCTION**									
02200.000	Earthwork	1.00	ls	100			69		168.80 /ls	169
02200.500	Earthwork, Structural Excavation	310.00	cy	1,167			1,958		10.08 /cy	3,125
02200.600	Earthwork, Structural Backfill, Native Material includes compaction	154.00	cy	260			547		5.241/cy	807
02930.000	Seeding, Sodding, and Landscaping	1.00	ls	175	29		24		228.13 /ls	228
DIVISION 02 SITE CONSTRUCTION				**1,701**	**29**		**2,598**			**4,329**
30.441	Labor hours									
43.30	Equipment hours									
DIVISION 03	**CONCRETE**									
03002.100	Concrete_Foundations	40.00	cy	8,567	10,293		824		492.11 /cy	19,684
03002.300	Concrete_Walls Exterior	206.00	cy	83,604	46,214		1,664		638.262/cy	131,482
03002.500	Concrete_Columns	108.00	cy	58,835	28,380		1,094		817.673/cy	88,309
03002.615	Concrete_Elevated Slab Odor Cover	108.00	cy	50,314	30,543		780		755.91 /cy	81,638
03002.700	Concrete_Slab on Grade	19.00	cy	2,496	3,711		120		333.00 /cy	6,327
03002.885	Concrete_Grout/Flowable Fill Topping	3.00	cy	80	258		19		119.04 /cy	357
DIVISION 03 CONCRETE				**203,897**	**119,399**		**4,501**			**327,797**
3,271.88	Labor hours									
126.52	Equipment hours									
DIVISION 05	**METALS**									
05522.000	Aluminum Railings	84.00	lf	1,457	5,821		82		87.63 /lf	7,361
DIVISION 05 METALS				**1,457**	**5,821**		**82**			**7,361**
19.621	Labor hours									
4.905	Equipment hours									
DIVISION 13	**SPECIAL CONSTRUCTION**									
13440.000	Instrumentation for Process Control: Basic Requirements	1.00	ls			17,070			17,069.63 /ls	17,070
DIVISION 13 SPECIAL CONSTRUCTION						**17,070**				**17,070**
DIVISION 15	**MECHANICAL**									
15062.000	Pipe: Ductile	70.00	lf	9,832	5,934		1,079		240.66 /lf	16,846

Description	Quantity		Labor Amount	Material Amount	Subcontract Amount	Equipment Amount	Other Amount	Total Unit Cost	Total Amount
DIVISION 15 MECHANICAL			**9,832**	**5,934**		**1,079**			**16,846**
173.44 Labor hours									
21.335 Equipment hours									
DIVISION 16 ELECTRICAL									
16010.000 Electrical: Basic Requirements	1.00	ls			51,209			51,208.87 /ls	51,209
DIVISION 16 ELECTRICAL					**51,209**				**51,209**
RWWTP SS SLUDGE STORAGE (RWWTP)			***216,888***	***131,184***	***68,279***	***8,261***	***0***	***2,830,737.60 /MG***	***424,611***
0.15 MG									
3,495.375 Labor hours									
196.054 Equipment hours									

Partial Totals

Description	Amount	Totals	Hours	Rate
Labor	216,888		3,495.375 hrs	
Material	131,184			
Subcontract	68,279			
Equipment	8,261		196.054 hrs	
Other				
Direct Cost - Subtotal		**424,612**		
Contractor's Fld Ovhd & Mob	33,969			8.000
Sales Tax Estimate (Mat & Eq)	10,232			7.750
Field Const Cost - Subtotal		**468,813**		
Contractor's Fee	46,881			10.000
Undefined SOW (Contingency)	103,139			20.000
Subtotal		**618,833**		
Escalation (NONE INCLUDED)				0.000
Subtotal		**618,833**		
Contractor's Bonds & Insurance	9,282			1.500
Current OPCC Estimate Budget		**628,115**		

AACE Classification Accuracy Range

Upper Range +40% **Lower Range -20%**

B.1.1 Estimated Construction Cost – Phase 1 Conveyance from Coos Bay WWTP No.2 to North Spit discharge only

The construction cost estimate is based on the recent bids and recent cost estimates for similar pump stations and pipelines including estimate for Influent Pump Station for City of Newberg, Storm water lift Station for the Port of Portland, Rock Creek and Sugar Creek Excess Flow Pump Stations for the City of Independence, Missouri, Intertie 1 and Intertie 2 Diversion projects including 2 MGD, 3 MGD, and 30 MGD pump stations, 14-inch, 20-inch, and 30-inch L=25,000 feet force mains for Clackamas County, Oregon.

The following construction cost for different project elements is show in the following table :

Diversion Component	Estimated Construction Cost
1) 8 MGD Effluent Pump Station (Coos Bay No.2 to North Spit)	**$ 2,500,000**
2) Force Main	
a) Force Main along N. Empire BLVD L=4,500 feet, 20-inch	$ 1,350,000
b) Pipe b) Force Main Bay Crossing, HDD, L=2,850 feet, 20-inch	$ 2,850,000
c) Force Main Across the Bay, L=12,650; 20-inch	$ 3,050,000
Force Main Subtotal	**$ 7,250,000**
3) Outfall Lift Station with discharge manhole upgrades	**$ 700,000**
Total:	**$ 10,450,000**