

Gateway Pacific Terminal

FINAL ENVIRONMENTAL IMPACT STATEMENT

Whatcom County
Planning and Development Services

February 1997


WHATCOM COUNTY
PLANNING AND
DEVELOPMENT SERVICES
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Director



LAND USE SERVICES DIVISION
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LETTER OF TRANSMITTAL

TO: Public agencies and persons with interest in Gateway Pacific International Terminals

FROM: Roland Middleton,
Senior Land Use Specialist
Deputy SEPA Official
(ext. 50202) 

DATE: February 21, 1997

SUBJECT: Final Environmental Impact Statement (FEIS)

This Final Environmental Impact Statement was prepared to provide response to comments received on the Draft Environmental Impact Statement issued on December 23, 1996 for the Gateway Pacific Terminal.

No oral testimony was given at the January 8, 1997 hearing.

2-10-1997

FACT SHEET

Project Title

Gateway Pacific Terminal

Proposed Action

The Proposed Action will be a multi-user import and export marine terminal for bulk, break-bulk, and other marine cargoes. The terminal will be located at Cherry Point, south of the Arco refinery, as shown in Figure 1. Of the 1,092 acre site, approximately 80 acres would be used for upland terminal facilities and 100 acres would be used for a railroad-track loop to accommodate trains transporting commodities to the site. The pier and pierhead would be located in the waters of Georgia Strait between the Arco and Intalco piers. The onshore terminal facilities, designed for the handling and storage of bulk, break-bulk and other marine cargoes, would be located on the gently sloping land located south of Henry Road immediately east of the Arco pier access boundary.

The terminal facilities would be connected by rail to the Burlington Northern Railway at Aldergrove Road to the BNR Intalco/Cherry Point Branch Line. The terminal storage area would occupy approximately 80 acres and would provide for the receiving, storage, handling and reclaiming of bulk cargoes, break-bulk and other marine cargoes for export and import. Both covered and open storage would be provided, depending on cargo needs. The marine facilities for berthing, loading and unloading ships and barges would consist of a 105-foot wide and 2,820-foot long pierhead structure and a 50-foot wide by 1,100-foot long approach trestle connecting the pierhead to the terminal storage area. The marine structures would be supported on steel pipe piles.

Location

The site of the proposed action is located at Cherry Point, which is a small promontory of land on the south side of the more prominent Point Whitehorn, south of Birch Bay, on the Strait of Georgia. The site is within the Cherry Point Heavy Impact Industrial Zone and the Cherry Point Shoreline Management Area, in which the proposed action is a permitted use.

Proponent

Pacific International Terminals
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<i>Responsible Official</i>	Bill Florea, Land Use Division Manager Whatcom County Land Use Division
<i>Contact Person</i>	Roland Middleton, Deputy SEPA Official Whatcom County Land Use Division 5280 Northwest Drive, Suite B Bellingham, WA 98226
<i>Required Approvals</i>	<u>Whatcom County</u> Shoreline Substantial Develop. Permit (SHS 92-0020 6/18/92) Land Use Major Development Permit (MDP 92-0003 6/18/92) Clearing and Grading Permit <u>Washington State Department of Ecology</u> Certification of Consistency w/ Coastal Zone Mgmt. program NPDES Permit Industrial Wastewater Facility Approval Industrial Waste Discharge Permit Baseline General permit/Industrial Stormwater Permit Prevention of Significant Deterioration permit Section 401 Water Quality Certification Short-term Modification of Water Quality Standards <u>Washington Department of Fish and Wildlife</u> Hydraulic Project Approval <u>Washington Department of Natural Resources</u> Aquatic Land Lease Forest Practices Permit application <u>Northwest Air Pollution Authority</u> New Source Construction Approval Air Contaminant Source Registration <u>U.S. Army Corps of Engineers</u> Section 10 Permit Section 404 Permit

***Type and Timing of
Subsequent
Environmental Review***

Shoreline permit and Major Development Permit have been requested for the entire 1,092-acre site. The proposed action and environmental review in this EIS apply only to project elements described in this document. No development is proposed for the remainder of the site at this time. Phased review under SEPA (WAC 197-11-360(5)) is being followed. Subsequent environmental review will occur with submittal of specific development applications and/or changes in the proposal.

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***Environmental Documents Incorporated
by Reference***

*Map Folio of Fish and Wildlife Habitat, Whatcom County;
Significant Wildlife Areas, Whatcom County, Washington,
(Eissinger), Whatcom Co. Environ. Resources Report Series;
Cherry Pt. Indust. Park Draft, Final EISs (Nov. 1992, Feb. 1993)*

***Location of
Background
Information***

Whatcom County Planning and Development Services
Land Use Division
5280 Northwest Road
Bellingham, WA 98226-9040

Date of FEIS Issue

February 21st, 1997

***Cost of Environmental
Documents***

The Final EIS will be provided free of charge until the initial printing has been distributed. Subsequently, copies will be available for the cost of reproduction.

TABLE OF CONTENTS

	<u>Page</u>
Fact Sheet.....	i
Table of Contents.....	v
List of Figures	vi
List of Tables.....	vi
List of Appendices	vi
 Chapter 1 -Summary	 I-1
 Chapter 2 - Alternatives Including the Proposed Action	 II-1
 Chapter 3 - Comment Letters and Responses	 III-1
 Distribution List	

LIST OF FIGURES

Figure		Page
1	Vicinity Map	II-2
2	Gateway Pacific Terminal Site Plan	II-3
3	Conceptual View of Completed Project	II-4
4	Pier, Trestle and Conveyor Detail	II-9
5	1992 Site Plan	II-15
6	1993 Site Plan	II-16
7	Plan of Barge Berth Showing Tug Operation Area	III-23
8	Cross Section of Tug at Barge Berth	III-24

LIST OF TABLES

Table		Page
1-1	Summary of Impacts, Alternatives, Mitigation Measures and Significant Unavoidable Adverse Impacts	I-3

LIST OF APPENDICES

- A. Addendum to Westmar Consultants Inc. July 1996 report "Beach Processes at Cherry Point, Washington State."

Chapter One

SUMMARY

I. SUMMARY

Proposed Action

Project Location

The site proposed for development of a deepwater marine terminal facility consists of 1,092 acres in northwestern Whatcom County, approximately seven miles west of the City of Ferndale and approximately twelve miles northwest of the City of Bellingham. The site is located at Cherry Point which is a small promontory of land on the south side of the more prominent Point Whitehorn, south of Birch Bay, on the Strait of Georgia.

The site is characterized by mostly flat to gently sloping terrain on the uplands with steep bluffs bordering the westernmost 2,500 feet of beach. The site contains approximately 5,460 feet of shoreline characterized by rock cobbles, gravel, and coarse sands. Elevations range from sea level to approximately 220 feet above sea level, with most of the site lying between 60 and 160 feet in elevation. A small, unnamed intermittent stream flows into the Strait along the eastern boundary of the site.

The proposed terminal area is primarily in open fields, vegetated by grass and hay. The proposed loop track area is characterized by thick underbrush and stands of mature second-growth trees. The slopes are heavily vegetated with bushes and shrubs. Pasture land in the northwest and northeast segments of the site seasonally grazed by dairy cattle. An annual hay crop is harvested on pastures bordering the shoreline and pastures in the southwest.

Applicant's Statement of Project Purpose and Need

The intent of the Gateway Pacific Terminal project is to provide waterfront access and facilities for the existing and future shipping needs of local developed and undeveloped industrial areas. The facility will also serve as a transfer point for import/export marine cargo with truck and rail traffic. The project site is centrally located to large industrial tracts both to the southeast and northwest of the proposed dock. This particular location was identified many years ago as a potential marine terminal due to the relatively easy access to the deep water that is required of ocean-going bulk cargo ships. As a multi-user facility, the terminal will be able to handle a variety of products which may be imported to, or exported from any existing or future user.

Overview of the Proposed Action

The proposed action consists of marine and upland facilities to accommodate the off-loading, storage, loading and transshipment of a range of commodities and cargoes destined for domestic and Pacific Rim markets.

The proposed facility would receive commodities by train primarily from the Pacific Northwest and mid-western regions of the U.S. and Western Canada. The marine terminal would serve ocean going national and international trade for bulk commodities, break-bulk and other marine cargoes. Most shipments would be destined for export to Pacific Rim countries.

The proposed facility would provide deep water access to accommodate vessels that require a minimum draft of up to 80 feet. The facility would also provide access to major rail lines serving the Pacific

Northwest and northern states of the mid-west region of the U.S. where the majority of commodities to be shipped would originate. The portion of the total site to be used for the marine terminal facility would be large enough to accommodate sufficient train storage (100-110 car unit trains) and movement on-site to allow loading of bulk products to vessels at rates between 2,500 and 5,000 tons per hour depending on the product. One hundred acres would be required to accommodate a loop rail system that could incorporate 3 tracks and approximately 30,000 feet of trackage.

In the long-term, a wide range of commodities and other marine cargoes could be shipped from the facility by ship, including: alumina, automobiles, salt, scrap metal, aluminum ingots, aggregates, chemicals, grain, ores, green petroleum coke, calcine petroleum coke, liquid petroleum products, fertilizers, lime rock, phosphate rock, feed pellets, potash, sulfur and wood chips. Specific types of commodities would depend on market conditions.

In the near-term (i.e. next 5 years), products that would be received and shipped from the facility are anticipated to include the following:

- feed grains (wheat, barley, soybeans, corn and grain products);
- petroleum coke (calcined and green, including material from the adjacent Arco refinery);
- iron ore (pelletized and reduced/briquetted);
- sulfur (prilled);
- potash; and
- woodchips.

These commodities have been identified based on current world market conditions and their probable inclusion in the proposal; they are the focus of the analysis in this EIS. A broader list of potential products has been identified in this project description and in the Army Corps of Engineers public notice; these additional commodities are speculative at this time. Additional environmental review would occur, as determined by Whatcom County, when and if other commodities are proposed for handling, storage and shipment.

Marine Facilities: Pier and-Trestle. Marine facilities for berthing, loading and unloading ships and barges would consist of a 105-foot wide and 2,820 foot long pier and a 50-foot wide by 1,100 foot long approach trestle connecting the pier to the terminal storage area.

Upland Terminal Storage Facilities. The onshore terminal storage facilities would be located on an approximate 80-acre, triangular-shaped portion of the site adjacent to the shoreline but outside the 200-foot setback (refer to Figure 2). This portion of the project site would be used for handling (i.e. conveyor) and storage of commodities, as well as for site maintenance and operation facilities, including water quality treatment. The majority of the upland terminal site will be used for storage of commodities.

Rail. The terminal would be connected by a rail spur to the Burlington Northern Railway at Aldergrove Road to the BNR Intalco/Cherry Point branch line. The proposed railroad loop system would consist of nearly 30,000 lineal feet of track and could store up to three 100-to-110 car unit trains at the same time. The loop tracks would be located north of the terminal storage facilities with a spur track extending to serve the facility. The loop track and a portion of the spur line would be located partially on the adjacent Arco property.

Marine. The pier would be designed to accommodate three vessels ranging in size from 60,000 to 250,000 dwt simultaneously on the outside of the pier. Large vessels will be destined for foreign markets. Up to six

barges could be accommodated on the inside of the pier; barges will transport selected commodities to domestic markets (e.g. west coast of United States).

Related Features of the Proposal

The terminal would provide stormwater collection and treatment systems designed to minimize the discharge of process stormwater to the bay. The primary stormwater outfall will be through an engineered diffuser located at the face of the pier. The outfall to the pier will be sized to convey the 24 hour design storm with a reoccurrence probability of 1 in 25 years (25 year design storm). This outfall will be designed to increase the mixing of stormwater and salt water in order to create a broad band mixing zone that will reduce impacts to salinity, temperature, and other water quality impacts in the herring spawning zone. Small outlet pipes will be attached to the pier pilings and will discharge at depths ranging from 15 to 50 feet to provide vertical as well as horizontal separation of the discharge points.

The Whatcom County Public Utility District No. 1 is the designated water purveyor; on-site septic systems would serve the terminal storage facility.

The specific GPT methods and procedures used to minimize the potential for fire and explosion will be outlined in the facility operations and maintenance plan.

Added to the manual and automatic systems for detection of fires and the activation of sprinkler heads, sirens, and alarms at the local fire hall, are the following:

- Immediate evacuation of the facility by all personnel and gathering at distanced pre-designated gathering points for head count. If any personnel are missing, management personnel are notified, in turn notifying fire department personnel on arrival.
- A procedure to contact ambulances if necessary.

Spill Response. The procedures for reporting and handling spills will be specific and immediately implementable. In the event of a spill, the appropriate GPT personnel will contact previously identified individuals and agencies, alert them to the status of the situation, and work closely with the supervising agency to ensure that the matter has been adequately addressed.

Measures to reduce the risk of spills include:

- railcar unloading will be done inside an enclosed building equipped with a negative air system;
- the looped track and use of an indexer (which prevent jarring that loosens grain from the rail cars);
- closing hopper doors on the rail cars after they have been emptied;
- an emergency cable that runs the length of the shipping gallery so that the conveyors can be stopped immediately (chronic losses are not expected to occur with the type of conveyor used); and
- exhaust systems equipped with fabric filters will be located at all transfer points within the building.

Spill prevention procedures will be reviewed with GPT staff on a schedule outlined in the Emergency Response Plan.

History, Prior Planning and Environmental Review at the Cherry Point Industrial Area and Cherry Point Shoreline Management Area

A Shoreline Substantial Development Permit Application and Environmental Checklist were submitted to Whatcom County by Pacific International Terminals (PIT) for the subject property in 1992. An Application for a Department of the Army Permit for construction of the marine terminal and loop railroad system was submitted by PIT to the Army Corps of Engineers in 1993. A Notice of Application for Permit was published in December 1993 and re-issued in early 1996.

On October 22, 1992 Whatcom County issued a Determination of Significance (DS) and Request for Comments on the Scope of the EIS. A revised Scoping Notice was issued by the County on November 30, 1995.

Whatcom County is using phased environmental review to consider the Gateway Pacific Terminal proposal pursuant to the SEPA rules (WAC 197-11-060(5)). Phased review permits environmental documents to focus on elements of a proposal and environmental issues that are relatively certain at the time of initial application and environmental review, and to defer for future analysis those project elements that are less certain or are subject to ongoing planning and permitting. Some elements of the Gateway Pacific Terminal proposal—detailed design of the upland facilities, for example—are still conceptual in nature. The number and location of on-site lighting, for example, are not known with certainty at this time. In addition, some elements – such as the precise commodities that will be stored and shipped from the facility in the long-term – will be determined by future economic conditions in world markets and cannot be accurately predicted at this time. The overall proposal is, however, sufficiently well defined to permit environmental review to move forward. Supplemental environmental review will be conducted in the future when additional elements of the proposal become more specific (e.g. when building permits are requested and construction-level plans are prepared), or when specific commodities beyond those evaluated in this document are proposed for storage or transport at the facility. Environmental review only covers facilities identified in the proposal: i.e., development of 80 acres for marine terminal facilities, 100 acres for the rail loop, and pier construction. The application does not cover the rest of the property. Any future development of other portions of the 1,092-acre site will require supplemental environmental review.

See Chapter 2 for additional discussion of prior planning and environmental review.

Evolution of Site Planning and Consideration of On-Site Alternatives

This EIS considers two alternatives to the proposed action: no action, and construction of a proposed pier and shipping facility at another site (Cherry Point Industrial Park) to the south of the proposal.

Other on-site alternatives for the design and layout of the proposed action were considered by the applicant over a period of several years. Successive changes to these initial plans occurred as a result of ongoing site evaluation and consultation with state and federal agencies and tribes. Major changes that occurred as a result of this evaluation and consultation are outlined below. In general, ongoing planning has attempted to avoid and minimize wetland impacts associated with the railroad track loop, and marine resource impacts associated with construction and operation of a pier.

1992 Site Plan. The site plan originally proposed in 1992, shown in Figure 5, would have affected (i.e., filled or disturbed) approximately 50 acres of wetlands to construct the railroad loop. The tracks also crossed the seasonal stream located on the site. The pier design associated with this site plan had the trestle

crossing identified eelgrass habitat in a northeast/southwest direction, which could have caused significant shading impacts during some times of the year.

1993 Site Plan Revision. The 1993 site plan, shown in Figure 6, reflected modifications designed to reduce impacts to wetlands, streams and marine resources. A new route for the railroad loop was identified which reduced the wetland fill/disturbance to approximately 20 acres. This layout still involved crossing the seasonal stream. Based on development of a shading model, the pier and trestle were realigned (in a more north/south direction) to avoid direct construction impacts and to reduce potential shading impacts to eelgrass.

Changes Incorporated Into Current Proposal. The proposal has been designed in the context of this prior evaluation and project modification. The proposed railroad loop design occupies considerably less land and would reduce wetland fill or disturbance to 5.8 acres; crossing the seasonal stream would not be necessary. The orientation of the pier and trestle follows the north/south design intended to avoid and minimize eelgrass impacts due to construction and shading; this is based on ongoing refinement of the shading model. The upland storage area has also been reconfigured to use land more efficiently; covered storage structures and open storage areas are grouped.

In general, modifications intended to achieve the proponent's objectives at lower environmental cost have been incorporated into the proposed action. Further modifications could occur as a result of the environmental review process. No additional on-site alternatives have been identified for this EIS.

Alternatives to the Proposed Action

No Action Alternative

Under the No Action alternative, the proposed marine terminal facility would not be constructed and the site would remain in its currently undeveloped state for the foreseeable future. Other industrial development would be likely to occur on the site and adjacent properties over time, consistent with the existing industrial zoning.

Alternative 1 - Cherry Point Industrial Park (CPIP)

Under this alternative, a marine terminal facility -- including a pier intended to accommodate deep water vessels, an upland terminal, and industrial facilities -- would be constructed on the Cherry Point Industrial Park (CPIP) property to the south of the proposed site. Only one new pier and marine terminal facility would be constructed in the Cherry Point area.

A Draft Environmental Impact Statement (EIS) for the CPIP was issued by Whatcom County in November 1992; a Final EIS was issued in February 1993. Those documents describe the proposed development and discuss significant impacts and mitigation measures. The CPIP project is still under review by the Corps of Engineers.

The CPIP alternative is intended to recognize the possibility that only one additional pier and marine terminal facility may be permitted in the Cherry Point area. The Department of Natural Resources (DNR), in correspondence to the County Council (October 5, 1995), reiterated that its decision to lease state tidelands must serve the State's long-term best interest. DNR determined that only one lease at Cherry

Point will be considered, and that their decision will be made only after all relevant information has been disclosed.

The Whatcom County Draft Comprehensive Plan being considered by the County Council as of this writing contains a proposed policy (2CC-2) which addresses the potential for additional docks at Cherry Point.

While the CPIP alternative would not accomplish the proponent's objectives -- since it is a competing project, and assumes that the Gateway Pacific proposal is not built -- it may be an alternative to the Gateway Pacific proposal in a practical sense. Including this alternative in the Gateway Pacific Terminal EIS is intended to allow decision makers and interested citizens to compare the relative environmental impacts of the two proposals. Information about the CPIP alternative is summarized from the published EIS for that proposal; readers desiring greater detail should consult the relevant environmental documents for that project.

Table 1-1

Summary of Impacts, Alternatives, Mitigation Measures and Significant Unavoidable Adverse Impacts

Proposed Action	No Action Alternative	Alternative 1
EARTH Impacts		
No direct impacts to topography, geology or slope stability. However, if not controlled, surface water runoff from inland development could adversely affect slope stability.	None	No identified impacts on geology or slope stability. Erosion and soil compaction could occur due to upland construction, and could lead to sedimentation.
Mitigation Measures		
The proposed 100-foot minimum slope setback for facility improvements is adequate, provided that these recommendations are followed:	None	Same as the Proposed Action.
<ul style="list-style-type: none"> Site development and grading should direct surface water flow away from the crest of the site slopes and should be conveyed to a stormwater collection system. No surface water should be discharged on the site slopes. The vegetation on the slopes should not be removed or significantly disturbed. Any significant slope failure occurring on the slopes during the life of the facility should be evaluated by a qualified geotechnical engineer and appropriate remedial action taken. 		
Significant Unavoidable Adverse Impacts		
With implementation of proposed runoff controls, no significant unavoidable adverse impacts on geology or slope stability have been identified.	None	Nearly the same as the Proposed Action.
AIR QUALITY Impacts		
During construction, dust from excavation, grading and road building would contribute to concentrations of suspended particulate matter and slight degradation of local air quality.	None	Not studied.
Dry bulk materials (such as grains, coke, iron ore, sulfur, potash and woodchips) handled at the terminal would generate fugitive emissions that would be controlled by use of best management practices (BMPs) specific to each type of material handled.	None	Not studied.
Vehicles, trains and ships would emit pollutants such as CO, SO ₂ , NO _x and PM ₁₀ , but exceedance in standards for these pollutants is not predicted.	None	Not evaluated.

Table 1-1 (Continued) Summary of Impacts, Alternatives, Mitigation Measures and Significant Unavoidable Adverse Impacts

Proposed Action	No Action Alternative	Alternative 1
AIR QUALITY Mitigation Measures <p>During construction, emissions could be reduced by:</p> <ul style="list-style-type: none"> • using relatively new, well-maintained equipment; • avoiding prolonged periods of vehicle idling and use of engine-powered equipment; • scheduling truck trips to minimize congestion during peak travel times. <p>During construction, fugitive dust could be reduced by:</p> <ul style="list-style-type: none"> • spraying exposed soil areas with water or other dust suppressants; • paving roads and using vegetation or gravel on exposed unpaved areas; • wheel washing and covering of dusty truck loads, to reduce soil tracked off-site; • street cleaning near vehicle exits. <p>During terminal operations, pollutant emissions would be controlled by:</p> <ul style="list-style-type: none"> • implementation of best management practices for materials handled at the terminal; • indexers would be used to handle unloading of railcars, reducing train engine idling; • ship emissions could be reduced by providing shore power to hoteling ships. Depending on vessel type and length of stay, this could be implemented with varying degrees of difficulty. Power requirements of ships are great and would be difficult to provide from shore (a five-year testing program in Los Angeles determined that substituting shore power is not feasible); • Use of electric conveyor equipment, and proper equipment/utility vehicle maintenance would reduce emissions. 	<p>None</p> <p>None</p> <p>None</p>	<p>Not evaluated.</p> <p>Not evaluated.</p> <p>Not evaluated.</p>
Significant Unavoidable Adverse Impacts <p>No significant unavoidable air quality impacts have been identified.</p>	<p>None</p>	<p>Not evaluated.</p>
WATER RESOURCES—BEACH AND COAST Impacts <p>Wave energy would be reduced by the wharfhead, primarily waves from the west- northwest. This could result in some sediment accretion in the vicinity of the creek, but is not expected to be significant. Berthed vessels could occasionally reduce wave energy at the shore and result in localized and temporary sediment accretion near the pier. No significant impacts on beach processes, such as littoral drift, have been identified.</p>	<p>None</p>	<p>No significant impacts identified.</p>
Mitigation Measures <p>None are required.</p>	<p>None</p>	<p>None identified.</p>

Table 1-1 (Continued) Summary of Impacts, Alternatives, Mitigation Measures and Significant Unavoidable Adverse Impacts

Proposed Action	No Action Alternative	Alternative 1
WATER RESOURCES—BEACH AND COAST Significant Unavoidable Adverse Impacts		
No significant unavoidable adverse impacts to coastal features of littoral drift are anticipated to occur as a result of the proposed project.	None	None identified.
WATER RESOURCES—STORMWATER Impacts		
With the proposed stormwater control systems, stormwater in areas affected by terminal processes (and in areas not affected by terminal processes) would be controlled such that significant drainage quantity and quality impacts are not expected. Stormwater outfalls and emergency overflow facilities will be designed to minimize impacts. During the herring spawning season of March through June, process stormwater would be managed to minimize or eliminate stormwater discharge to the bay.	None, unless future development occurred.	Impacts would be generally similar to the Proposed Action.
Mitigation Measures		
Detailed stormwater facilities design and mitigation measures will be provided in the Stormwater Plan submitted with construction drawings. Additional stormwater management measures will be provided in the Stormwater Pollution Prevention Plan (SWPPP), as required for the NPDES permit. Other permitting may be required related to hydrocarbon or other specific product handling and spill prevention guidelines.	None	Similar to the Proposed Action.
The <i>Stormwater Management Manual for the Puget Sound Basin</i> outlines requirements and provides Best Management Practices for sedimentation and erosion control during construction.	None	Same as the Proposed Action.
A final SWPPP will be prepared in accordance with local, state and federal rules, designed to incorporate the following stormwater management goals: <ul style="list-style-type: none"> • To minimize or eliminate process impacted stormwater runoff during herring spawning season; • To supplement the water balance needs of existing and constructed wetlands; • To implement stormwater pollution controls consistent with facility BMPs and monitor stormwater quality during construction and operation to minimize impacts; 	None	Similar to the Proposed Action.

Table 1-1 (Continued) Summary of Impacts, Alternatives, Mitigation Measures and Significant Unavoidable Adverse Impacts

Proposed Action	No Action Alternative	Alternative 1
WATER RESOURCES—STORMWATER Mitigation Measures (Continued) <p>Best Management Practices for the terminal operations include the following:</p> <ul style="list-style-type: none"> • Segregate the contaminated stormwater and uncontaminated stormwater by grading and curbing throughout the site; • The stormwater treatment system will be designed to meet the 10-year/24-hour storm event. • Process wastewater and contaminated stormwater will be treated by an on-site collection and treatment system prior to discharging to the receiving environment. The stormwater treatment system will consist of: screening; flow equalization and gravity sedimentation basins; physicochemical treatment, including neutralization and pH adjustment, chemical precipitation, coagulation and flocculation; and sludge removal and dewatering system. • Regular maintenance of the bulk material handling areas will occur. • Bulk materials which settle in drainage ways and catchbasins will be removed on a regular basis to maintain the designed storage and operating capacity. • Fuel for terminal vehicles will be stored in double-walled tanks complete with overflow protection. • The goal of the BMPs is to handle and store all commodities in an environmentally safe and sound manner and to minimize impacts. 	None	Similar to the Proposed Action.
Significant Unavoidable Adverse Impacts <p>No significant unavoidable adverse stormwater impacts have been identified.</p>	None, unless future development occurred.	Similar to the Proposed Action.
PLANTS AND ANIMALS—AQUATIC PLANTS Impacts <p>Construction for the pier pile emplacements would cause temporary siltation in the near vicinity, and some displacement of individual macroalgae plants. Macroalgae species would grow at a higher tidal elevation in areas shaded by the pier.</p>	None, unless future development occurred.	Similar to the Proposed Action.
Mitigation Measures <p>At present, there is no known negative impact on marine vegetation at the proposed GPT site, although it is anticipated there will be some shading effects from the proposed marine facility. Specific mitigation actions include the following:</p> <ul style="list-style-type: none"> • Relocating and reorienting the trestle to a north-south aspect to create less shade on any one spot under the trestle; • Raising the trestle to create less shade; 	None	Similar measures to the Proposed Action could be investigated.

Table 1-1 (Continued) Summary of Impacts, Alternatives, Mitigation Measures and Significant Unavoidable Adverse Impacts

Proposed Action	No Action Alternative	Alternative 1
PLANTS AND ANIMALS—AQUATIC PLANTS		
Mitigation Measures (Continued)		
<ul style="list-style-type: none"> Lengthening the spacing between the trestle pilings from 50 feet to 75 feet (up to 100 feet if necessary) to minimize potential littoral drift effects, which are not expected to be significant; and Designing a stormwater collection and treatment system for the marine facilities (in addition to the upland system) so that discharged stormwater would exceed applicable water quality standards. 	None	Similar to the Proposed Action.
<p>Possible additional mitigation measures could include:</p> <ul style="list-style-type: none"> artificial daytime lighting; under-trestle light-reflecting devices; grating in the trestle deck; enhancement of marine vegetation in other areas. 	None	Similar to the Proposed Action.
Significant Unavoidable Adverse Impacts		
<p>Temporary increases in siltation and decreases in water quality would occur during construction of the pier. Marine flora and suitable substrate would be lost in the footprint of the piles supporting the piers. The submerged surface area of pilings would support attached macroalgae. The growth of some species of macroalgae may be somewhat impeded by shading of the proposed trestle.</p>	None, unless future development occurred.	Similar to the Proposed Action.
PLANTS AND ANIMALS—WETLANDS		
Impacts		
<p>Approximately 5.85 acres of wetland would be cleared and filled on the site, including 4.3 acres of farmed seasonally saturated palustrine emergent wetlands, 1.45 acres of seasonally saturated palustrine scrub-shrub wetlands and 0.1 acre of seasonally saturated palustrine forested wetland.</p>	None, unless future development occurred.	Approximately 4.9 acres of wetland filling, about one acre less than the Proposed Action.
Mitigation Measures		
<p>The proposed mitigation plan would directly and indirectly compensate for lost wetland acreage and function, with five goals:</p> <ol style="list-style-type: none"> 1) to create 5.9 acres of palustrine forested/scrub-shrub wetland with greater functional value than filled wetlands; 2) to enhance a 16.2 acre monotypic stand of reed canarygrass into a diverse palustrine forested wetland habitat; 3) to assure protection of the on-site stream corridor (approx. 50 acres) by placing it in a conservation easement; 4) to conduct a study on a designated 1.5 acre plot researching the natural regeneration of vegetation within wetland regimes; 5) to provide compensation for the loss of western red cedar trees important to the Lummi Indian Tribe's cultural heritage. 	None	Similar to the Proposed Action.

Table 1-1 (Continued) Summary of Impacts, Alternatives, Mitigation Measures and Significant Unavoidable Adverse Impacts

Proposed Action	No Action Alternative	Alternative 1
PLANTS AND ANIMALS—WETLANDS		
Mitigation Measures (Continued)		
Monitoring for the mitigation plan would occur over a ten-year period. The mitigation site is located in a farmed 40 acre field southwest of Aldergrove and Gulf Roads and along the riparian corridor.	None	Similar to the Proposed Action.
Significant Unavoidable Adverse Impacts		
The proposed action would result in the filling of 5.85 acres of existing palustrine scrub-shrub and palustrine emergent wetlands. The proposed wetland mitigation plan includes creation of 5.9 acres of palustrine forest/scrub-shrub wetland, and enhancement of 16.2 acres of reed canarygrass into a diverse palustrine forested wetland habitat.	None, unless future development occurred.	Approximately one acre less wetland clearing than the Proposed Action.
PLANTS AND ANIMALS—MARINE RESOURCES		
Impacts		
The proposed GPT Terminal would result in a small increase in the probability of marine pollution (spill) incidents per year, assuming historical rates of occurrence.	None, unless future development occurred.	Similar to the Proposed Action.
Benthic invertebrates in the immediate piling locations would be eliminated, although a greater amount of surface area would be available on the pilings for marine attachment.	None, unless future development occurred.	Similar to the Proposed Action, with additional impacts in a 25,000 sq.ft. area where cobble would be placed for macroalgae substrate.
The generation of turbidity during pier construction could cause minor impacts in adjacent areas on Dungeness crab. Normal operation of the facility would not have a noticeable effect on Dungeness crab.	None, unless future development occurred.	Similar to the Proposed Action, except for the additional changes described above.
During construction, turbidity from pile driving could result in shallow sediment deposition on substrate and aquatic vegetation, which could result in some minor covering of herring eggs. After construction, if runoff was not properly treated or retained, water quality could decrease and could affect herring egg and larvae survival.	None, unless future development occurred.	Similar to the Proposed Action, except for the additional changes described above.
Salmon migration patterns could be altered by shipping traffic, and salmon could be attracted to night lighting at the facility.	None, unless future development occurred.	Similar to the Proposed Action, except for the additional changes described above.

Table 1-1 (Continued) Summary of Impacts, Alternatives, Mitigation Measures and Significant Unavoidable Adverse Impacts

Proposed Action	No Action Alternative	Alternative 1
PLANTS AND ANIMALS—MARINE RESOURCES		
Mitigation Measures		
The proponent would develop a spill prevention and response action plan, and maintain equipment and trained staff to implement the plan. The proponent would follow all protocols of local, state and federal agencies, as well as the National Resource Damage Assessment (NRDA) Team, to minimize damage to the environment, and provide adequate mitigation and compensation.	None	Similar to the Proposed Action.
Regarding benthic invertebrates, during construction and operation of the facility, Best Management Practices would be implemented for handling toxic substances; stormwater would be managed to meet state and federal requirements for stormwater discharge; and all required protocols would be followed to avoid vessel collisions and marine spills.	None	Similar to the Proposed Action.
New pilings would provide surface area for attachment of species such as barnacles, mussels and variety of other species. This would enhance the habitat for Dungeness crab and red rock crab.	None	Similar to the Proposed Action.
To protect herring, construction/maintenance of the piers would be scheduled during times of minimal biological activity. During herring spawning periods, these activities would be avoided.	None	Similar to the Proposed Action.
Project design modifications have been included to reduce shading effects on macroalgae species. If needed, the proponent would collaborate with agencies to design appropriate additional mitigation, such as grating and artificial lighting under the pier.	None	Similar to the Proposed Action.
During months when herring spawn or larvae are present (April through August), stormwater from the facility would not be discharged into marine waters, but would be retained on-site.	None	Similar to the Proposed Action.
Construction impacts on salmonids could be minimized by coordinating with the Washington Department of Fish and Wildlife to set seasonal restrictions on construction activities to protect migrating fish.	None	Similar to the Proposed Action.
On-site light sources could incorporate shields to avoid spillage of light off-site. The location of lighting could be designed to preclude or reduce attracting the number of salmonids.	None	Similar to the Proposed Action.

Table 1-1 (Continued) Summary of Impacts, Alternatives, Mitigation Measures and Significant Unavoidable Adverse Impacts

Proposed Action	No Action Alternative	Alternative 1
PLANTS AND ANIMALS—MARINE RESOURCES Significant Unavoidable Adverse Impacts		
<p>--Benthic invertebrates in the 0.18 acre covered by the footprint of the piles would be eliminated.</p> <p>--Dungeness crab would be displaced during construction. Silts and fine sediments suspended during construction would decrease water quality and could temporarily affect crab gills. Neither of these impacts is considered serious or long-term.</p> <p>--A small portion of prime herring spawning beach could be affected; it is not possible to determine how this could affect stock size, if at all.</p> <p>--Migration routes of adult and juvenile salmon likely would be altered. A potential exists for a small loss of the intertidal and subtidal habitat provides food sources and protection for juvenile salmon.</p>	<p>None, unless future development occurred.</p>	<p>Similar to the Proposed Action, except for an additional 25,000-square foot sandy area affected by placement of cobbles for additional substrate.</p>
PLANTS AND ANIMALS—COMMERCIAL FISHERIES Impacts		
<p>Increased loss of crab fishing gear could result if additional barge traffic is attracted to the terminal.</p>	<p>None, unless future development occurred.</p>	<p>Similar to the Proposed Action, except there could be a greater proportion of barge traffic, with associated risks.</p>
<p>The terminal could restrict or displace herring and salmon fishing in the vicinity of the wharf.</p>	<p>None, unless future development occurred.</p>	<p>Reduced herring fishing access and different fishing patterns; greater area of impact on salmon fishing.</p>
Mitigation Measures		
<ul style="list-style-type: none"> Investigate scheduling marine and commercial traffic to minimize conflict with the commercial crab fishery. New notification procedures could be developed to inform fishers of vessel movements. Construction could be timed to avoid the herring fisheries, and would be limited during the spring months. Fishers would be offered practical opportunities to use the proposed facility. This could include anchoring closed ponds to trestle pilings; tying off gill nets and line gear to prevent drifting; and gear transfers. Commercial marine traffic could be assigned approach and departure corridors to minimize conflict with commercial and tribal herring fisheries. Marine traffic could be coordinated to minimize conflicts with the timing of fishing. The proponent will meet with tribal fish commissions, commercial fishers and appropriate agencies to address vessel traffic-fishing interactions. 	<p>None</p> <p>None</p> <p>None</p> <p>None</p> <p>None</p> <p>None</p>	<p>Similar to the Proposed Action.</p> <p>Similar to the Proposed Action.</p> <p>Similar to the Proposed Action.</p> <p>Similar to the Proposed Action.</p> <p>Similar to the Proposed Action.</p> <p>Similar to the Proposed Action.</p>

Table 1-1 (Continued) Summary of Impacts, Alternatives, Mitigation Measures and Significant Unavoidable Adverse Impacts

Proposed Action	No Action Alternative	Alternative 1
PLANTS AND ANIMALS—COMMERCIAL FISHERIES Significant Unavoidable Adverse Impacts --Crab pot gear loss could increase if there is an increase in barge traffic. Crabbers could be displaced from areas near the pier. --Construction of the proposed facility would permanently remove a fishable section of water from use because of the presence of the trestle and wharf. The project would alter herring fishing patterns of the nearshore herring fishing fleet. --The proposed facility would affect the use of the area by commercial and tribal salmon fishers. Fishing practices and patterns would change as a result of the proposed project. Nets would not be able to be set in the footprint of the proposed facility.	None, unless future development occurred.	Somewhat different and greater impacts than the Proposed Action.
PLANTS AND ANIMALS—RECREATIONAL/SUBSISTENCE FISHERIES Impacts Dungeness crab may be reduced during construction and there could be a temporary displacement of shore-based fisheries. Operation of the facility is not expected to permanently impact sport or subsistence fisheries, except in the event of a catastrophic toxic spill.	None, unless future development occurred.	Somewhat different and greater impacts than the Proposed Action, as discussed above.
Mitigation Measures The height of the trestle and the spacing of the pilings have been increased to allow continuous movement of small vessels under the trestle.	None	Similar to the Proposed Action.
Please refer to measures to mitigate effects of Dungeness crabs and benthic organisms in the Marine Resources section.	None	Similar to the Proposed Action.
Significant Unavoidable Adverse Impacts No significant unavoidable adverse impacts are anticipated.	None identified.	Similar to the Proposed Action.

Table 1-1 (Continued) Summary of Impacts, Alternatives, Mitigation Measures and Significant Unavoidable Adverse Impacts

Proposed Action	No Action Alternative	Alternative 1
PLANTS AND ANIMALS—MARINE & SHORE BIRDS, AND THREATENED/ENDANGERED SPECIES Impacts Species of birds and mammals could be indirectly impacted by construction activities that could cause them to move away and use other areas for feeding and resting. Habitat value in the water area covered by the facility would be diminished. Accidental toxic material spills could, if big enough, taint prey organisms and thus potentially impact some predators feeding on the tainted organisms. During operation of the facility, noise and increased human presence in and near feeding and resting areas could cause an incremental increase in the disturbance of the birds and mammals in the vicinity.	None, unless future development occurred.	Similar to the Proposed Action.
Mitigation Measures During construction and operation, BMPs would be used for handling any toxic materials. Coordination with resource agencies will identify critical periods for any threatened or endangered species in the project area so that potential impacts can be minimized.	None	Similar to the Proposed Action.
Significant Unavoidable Adverse Impacts No direct significant unavoidable adverse impacts on threatened/endangered species have been identified. These species could be indirectly impacted by: construction activities disturbing area that could be used for feeding and resting; potential toxic spills; and increased noise and disturbance from proposed activities.	None identified.	Similar to the Proposed Action.
ENVIRONMENTAL HEALTH Impacts Types of risk generated by the proposed project include: <ul style="list-style-type: none"> • direct risks to human health (such as a train or auto accident), and indirect risks to human welfare originating from environmental degradation (i.e. increased risk of sickness from air or water pollution); and • direct risks to the natural environment. There is a low potential for explosion with the proposed transporting and handling of commodities such as grains, green coke and calcined coke.	None, unless future development occurred. None	Similar to the Proposed Action. Similar to the Proposed Action.

Table 1-1 (Continued) Summary of Impacts, Alternatives, Mitigation Measures and Significant Unavoidable Adverse Impacts

Proposed Action	No Action Alternative	Alternative 1
ENVIRONMENTAL HEALTH Mitigation Measures		
<i>Risk From Explosion</i> <ul style="list-style-type: none"> Measures which may reduce negative effects to humans include locating administrative and maintenance facilities, and areas with high worker concentration away from grain and fuel storage areas. Additionally, limiting the number of train crossings and intersections encountered during product transport may reduce the risk of explosion. Adhering to proper traffic safety and transport regulations within the site, county and elsewhere will reduce the risk of an explosion caused by collision. 	None	Similar to the Proposed Action.
<i>Risk of Traffic Accidents</i> <ul style="list-style-type: none"> Separate timing of shift changes and train movements, adding larger shoulders to affected roadways, and improving the road paving and signalized railroad crossing at Henry Road west of Kickerville Road are measures that could be implemented to reduce the chance of an accident occurring. 	None	Similar to the Proposed Action.
<i>Surface Waters</i> <ul style="list-style-type: none"> Use BMPs during construction and normal operations, including the use of hay bales, silt fences and siltation ponds; Operate and maintain an effective storm water drainage and recovery system; store water soluble commodities in areas with runoff retention, and containing these commodities in enclosed storage facilities; and implementing a storm water drainage and recovery system, and spill prevention and recovery plan. 	None	Similar to the Proposed Action.
<i>Vegetation</i> <ul style="list-style-type: none"> Develop and implement a spill response and recovery plan. 	None	Similar to the Proposed Action.
<i>Wildlife</i> Recommended measures reducing adverse effects of construction activities, spills, and explosions, include: <ul style="list-style-type: none"> Maintaining buffer areas around the site, wetlands, and stream; Maintaining a 100 foot vegetated buffer along the stream to maximize the buffer between the road and railroad; Implementing a spill recovery plan on and off site. 	None	Similar to the Proposed Action.
<i>Wetlands</i> Recommended measures include: <ul style="list-style-type: none"> Maintain vegetated buffer zones between rail and road ways which are between riparian and transport areas; and Adopt and implement a spill recovery plan which addresses spills into surface waters and wetland areas. 	None	Similar to the Proposed Action.

Table 1-1 (Continued) Summary of Impacts, Alternatives, Mitigation Measures and Significant Unavoidable Adverse Impacts

Proposed Action	No Action Alternative	Alternative 1
Significant Unavoidable Adverse Impacts		
There is an unquantified risk to human health and the environment from explosion and spills.	None identified.	Similar to the Proposed Action.
NOISE Impacts		
During construction, there would be temporary increases in sound levels near the terminal site, near road improvements and near the new rail line as a result of pile driving, excavation, grading and construction.	None, unless future development occurred.	Not studied in previous analysis.
No significant noise impacts from operation would occur to the nearest residences.	None identified.	Not studied in previous analysis.
Mitigation Measures		
Construction noise could be minimized with properly maintained equipment, noise muffling equipment or temporary barriers, minimizing incidence of equipment back-up alarms, and minimizing dragging of construction materials where feasible.	None	Similar to the Proposed Action.
Significant Unavoidable Adverse Impacts		
No significant unavoidable adverse noise impacts are expected to occur.	None identified.	Not studied.
LAND AND SHORELINE USE Impacts		
Approximately 180 acres of the 1,092-acre site would be developed with industrial uses, permanently altering the physical character of the site. The proposed development would contrast with the open undeveloped character of surrounding lands. However, as vacant properties develop in accordance with the Heavy Industrial zoning designation, the proposed land use would be consistent with the future land use pattern planned for the general area.	None, unless future development occurred.	Generally similar to the Proposed Action.
Project development would preclude informal recreation activities in the area proposed for construction, but would allow continued access on the beach and in water, except during construction.	None, unless future development occurred	Greater impact on public access and recreational fishers & crabbers than the Proposed Action.
Mitigation Measures		
To assure continued public use of the low beach area at the foot of Gulf Road, permanent public access could be provided through donation, acquisition, easement or other means.	None	Similar to the Proposed Action.

Table 1-1 (Continued) Summary of Impacts, Alternatives, Mitigation Measures and Significant Unavoidable Adverse Impacts

Proposed Action	No Action Alternative	Alternative 1
LAND AND SHORELINE USE Significant Unavoidable Adverse Impacts		
No significant unavoidable adverse impacts to land use patterns are expected to occur.	None identified.	Generally similar to the Proposed action.
Any current unauthorized recreational uses of the development area (uplands or shoreline) would be precluded. This is not considered a significant unavoidable adverse impact.	None identified.	Somewhat greater impact than the Proposed Action.
AESTHETICS Impacts		
The proposed action would alter the visual character of the upland development site from farmed land to industrial in nature. Rail access would pass through existing fields.	None, unless future development occurred.	Greater visual impact from Gulf Road. Other aesthetic impacts similar to the Proposed Action.
Some of the industrial structures would be visible from Henry Road and might be visible from the beach. The pier structure would be visible from the water to a distance of approximately one mile.	None, unless future development occurred.	More visual impact from Gulf Road due to longer trestle.
In the immediate site vicinity, the pier structure would dominate the view from the beach and increase the industrial visual character of the marine area.	None, unless future development occurred.	Somewhat more visual impact than the Proposed Action.
Mitigation Measures		
Trees screening the site from the bluff and along the ravine would be maintained, reducing visual impacts from both the water and the beach.	None	Similar to the Proposed Action.
Neutral colors and materials not prone to reflection would be utilized in construction of the larger structures.	None	Similar to the Proposed Action.
Significant Unavoidable Adverse Impacts		
Industrial development of the site would alter the visual character of the uplands and the shoreline. The marine structure and berthed ships would be visible from the beach and from passing watercraft. The upland storage area would be partially visible from the water, and from Henry Road near the site.	None	Somewhat greater visual impact than the Proposed Action.

Table 1-1 (Continued) Summary of Impacts, Alternatives, Mitigation Measures and Significant Unavoidable Adverse Impacts

Proposed Action	No Action Alternative	Alternative 1
LIGHT AND GLARE Impacts		
Night lighting on the pier, upland structures and ships would be present in views from the water or islands within visual range.	None, unless future development occurred.	Similar to the Proposed Action.
Mitigation Measures		
Other than lighting necessary for safe operation of the facility, lights would be provided with directional shielding to lessen the amount of light viewed from off-site sources.	None	Similar to the Proposed Action.
Reflective surfaces on structures or the pier would be avoided or painted to reduce glare or light reflection.	None	Similar to the Proposed Action.
The vegetation on the bank between the proposed storage areas and the water would be preserved to provide a natural screen for the upland impacts.	None	Similar to the Proposed Action, if applicable.
The vegetation immediately north of the beach area most often used for recreation would be protected to reduce impacts to users of the beach. In addition, as part of mitigation to the Lummi Nation, cedar trees would be reintroduced to appropriate areas to assist in vegetation screening.	None	Similar to the Proposed Action, if applicable.
Significant Unavoidable Adverse Impacts		
Lights from the pier and the storage areas would be visible from passing watercraft and from some portions of islands within visual range of the site.	None identified.	Similar to the Proposed Action.
HISTORIC AND CULTURAL RESOURCES Impacts		
Development would disturb the archaeological site 45-WH-1, a shell midden, and affect the integrity and information potential of the site. Development may also affect the integrity and data potential of the cobble-derived artifact scatter.	None, unless future development occurred.	Development would destroy the archaeological sites 45-WH-83 and 45-WH-84, and affect the integrity and information potential of these sites.
Other undetermined impacts to traditional cultural properties or to spiritual aspects of the site must be determined by the Lummi Nation.	None, unless future development occurred.	Similar to the Proposed Action.

Table 1-1 (Continued) Summary of Impacts, Alternatives, Mitigation Measures and Significant Unavoidable Adverse Impacts

Proposed Action	No Action Alternative	Alternative 1
HISTORIC AND CULTURAL RESOURCES Mitigation Measures <p>Mitigation of adverse effects to archaeological data at 45-WH-1 may be accomplished by several means. The extent of the site should be verified in order to insure that undiscovered portions are not inadvertently damaged. Data recovery is a possibility, however, excavation of new portions of the site may be unnecessary when results of previous work remain largely unexamined. A plan should be developed to review the existing assemblage of artifacts, level bags, samples, and documentation to determine whether complete analysis and reporting would fulfill the scientific promise of the site. In addition, following analysis, the collection should be prepared for curations and transferred to the Lummi Nation when adequate facilities are available.</p> <p>Test excavations should be completed to determine of the artifact scatter is a single site and if it is significant. Data recovery may be necessary to mitigate impacts to all or portions of the scatter, if determined significant. For the remainder of the project area, arrangements should be made to insure contingency measures to map, sample and report any site, and to collect, analyze, and curate any artifacts found during construction of the railway or other ground disturbing modifications. In the event human remains are encountered, work should halt and the County Coroner, the Office of Archaeology and Historic Preservation, and the Lummi Nation should be contacted.</p> <p>The mitigation measures are designed to identify and salvage archaeological cultural resources. These archaeological measures may not address the traditional cultural properties and spiritual concerns of the Lummi Nation.</p>	None	Similar to the Proposed Action.
<p>Test excavations should be completed to determine of the artifact scatter is a single site and if it is significant. Data recovery may be necessary to mitigate impacts to all or portions of the scatter, if determined significant. For the remainder of the project area, arrangements should be made to insure contingency measures to map, sample and report any site, and to collect, analyze, and curate any artifacts found during construction of the railway or other ground disturbing modifications. In the event human remains are encountered, work should halt and the County Coroner, the Office of Archaeology and Historic Preservation, and the Lummi Nation should be contacted.</p> <p>The mitigation measures are designed to identify and salvage archaeological cultural resources. These archaeological measures may not address the traditional cultural properties and spiritual concerns of the Lummi Nation.</p>	None	Similar to the Proposed Action, as applicable to the identified sites.
<p>The mitigation measures are designed to identify and salvage archaeological cultural resources. These archaeological measures may not address the traditional cultural properties and spiritual concerns of the Lummi Nation.</p>	None	Similar to the Proposed Action.
<p>Significant Unavoidable Adverse Impacts</p> <ul style="list-style-type: none"> Disturbance of the native sediments or placing fill on this site for construction of the pier will destroy the integrity and information potential of 45-WH-1. Disruption of sediments may also destroy the integrity and data potential of the cobble-derived artifact scatter. Other undetermined impacts to traditional cultural properties or to spiritual aspects of the site must be determined by the Lummi Nation. 	None identified.	Destruction of two identified sites, with a variety of artifacts and resources.
	None identified.	Same as above.
	None identified.	Similar to the Proposed Action.

Proposed Action	No Action Alternative	Alternative 1
TRANSPORTATION Impacts		
<p>The terminal would generate an estimated 500 daily vehicle trips. Henry Road would experience the largest impact, increasing from 200 daily trips to 700 daily trips, and from 25 trips to 100 trips during the PM peak hour. These increases would have little or no adverse impact on vicinity roadways, and there would be no measurable degradation in roadway level of service or intersection operations (LOS A conditions would continue on all studied roadways and intersections).</p>	<p>None, unless future development occurred.</p>	<p>Similar to the Proposed Action. Refer to the previous CPIP EIS.</p>
<p>Train activity could eventually average between two and three 100-car unit-trains per day. Train arrivals and departures from the site would block both Aldergrove Road and Grandview Road, for approximately three 8-minute periods each day.</p>	<p>None, unless future development occurred.</p>	<p>Similar to the Proposed Action.</p>
<p>An estimated 140 ship trips, or 280 marine shipping movements would be generated annually by the proposed terminal, or about one shipping movement per day in the Georgia Strait.</p>	<p>None, unless future development occurred.</p>	<p>Similar to the Proposed Action.</p>
Mitigation Measures		
<p>No significant impacts to rail or marine transportation facilities or operations were found. However, several issues involving roadway impacts were identified; recommended mitigation measures for these impacts are noted below:</p>	<p>None</p>	<p>Similar to the Proposed Action.</p>
<ul style="list-style-type: none"> Henry Rd. is currently built to substandard conditions based upon Whatcom County Roadway Design Standards for new development. Roadway improvements to Henry Rd. may be required to provide a minimum paved roadway width of 22-feet, and shoulders of at least 6-feet in width on both sides of the street to provide adequate travel lane width and shoulders. 		
<ul style="list-style-type: none"> All-weather roadway standards to Kickerville Road and the intersection of Henry Road and Kickerville Road may also be required. 	<p>None</p>	<p>Similar to the Proposed Action, as applicable.</p>
<ul style="list-style-type: none"> Railroad crossing improvements on roadways in the site vicinity are also recommended. The existing signalized railroad crossing on Henry Rd. west of Kickerville Rd. exhibits design characteristics that may be hazardous to large vehicles with distances between axles of more than 15 feet. This is due to sharp vertical curves on Henry Rd. in the immediate crossing vicinity. If improvements to this crossing are not made in the context of other improvements to Henry Rd., the proponent may be required to smooth the grade differential between the roadway surface and the railway surface through paving improvements to correct the roadway grade approaching this railroad crossing. 	<p>None</p>	<p>Similar to the Proposed Action, as applicable.</p>
<p>In addition, crossing treatments at new railway beds crossing Aldergrove Rd and Gulf Rd. will be required as part of constructing the proposed 3-track railroad loop system to the project site. Due to very low traffic volumes on these two roadways at the crossing points, vehicular traffic control may consist of stop signs only.</p>	<p>None</p>	<p>Similar to the Proposed Action, as applicable.</p>

Table 1-1 (Continued) Summary of Impacts, Alternatives, Mitigation Measures and Significant Unavoidable Adverse Impacts

Proposed Action	No Action Alternative	Alternative 1
TRANSPORTATION Significant Unavoidable Adverse Impacts		
None were identified.	None identified.	Similar to the Proposed Action.
PUBLIC SERVICES Impacts		
Construction and operation of the terminal would increase the annual number of response calls for the Whatcom County Fire District No. 7, although the District does not anticipate a significant increase in the overall number of calls. This would increase service demands on the existing personnel.	None, unless future development occurred.	Similar to the Proposed Action.
Some of the proposed buildings would be taller than the reach of the District's and Arco's ladder trucks.	None, unless future development occurred.	Similar to the Proposed Action.
Construction of the project would generate two types of impacts for the Sheriff's Office: increased patrol time and increased service calls to the project site. This would increase service demands on the existing personnel.	None, unless future development occurred.	Similar to the Proposed Action.
Roadways leading to the site would require increased maintenance services.	None, unless future development occurred.	Similar to the Proposed Action.
Development of the Gateway Pacific site would generate a significant amount of solid waste from commercial/industrial uses on the site.	None, unless future development occurred.	Similar to the Proposed Action.
Mitigation Measures Fire and Police Services		
<ul style="list-style-type: none"> The Fire District is involved in the implementation of an impact fee program for proposed developments within the County. This process could be implemented in the near future and would mean, at full buildout, the proponent could be responsible for a specified percentage of the cost of an additional aerial apparatus to aid in fighting fires in this industrial area. During detailed designing of the proposed project facilities, the Whatcom County Fire Marshal and Fire District No. 7 would be consulted to assure adequate fire flows are supplied and that site design incorporates adequate safety precautions. Site roads would be designed and constructed so that emergency access to all buildings and structures is provided. 	None	Similar to the Proposed Action.

Table 1-1 (Continued) Summary of Impacts, Alternatives, Mitigation Measures and Significant Unavoidable Adverse Impacts

Proposed Action	No Action Alternative	Alternative 1
PUBLIC SERVICES		
Mitigation Measures (Continued)		
<ul style="list-style-type: none"> On-site roads and buildings would be clearly signed and numbered for identification by police or fire personnel. A security fence would be provided around the site, and access to the site would be controlled at the gates. On-site private security would reduce the need for calls to the Sheriff's Office. 	None	Similar to the Proposed Action.
Public Works Department	None	Similar to the Proposed Action.
<ul style="list-style-type: none"> All roads used as access roads to the site would need to be upgraded to All-weather status to accommodate traffic volumes and type of traffic. The Public Works Department would require structural and widening improvements to Henry, Kickerville and Grandview Roads. These improvements would need to be in place before development began. 	None	Similar to the Proposed Action.
Solid Waste	None	Similar to the Proposed Action.
<ul style="list-style-type: none"> Recycling of solid waste would be encouraged on the site. 	None	Similar to the Proposed Action.
Significant Unavoidable Adverse Impacts	None identified.	Similar to the Proposed Action.
The proposed GPT site would put additional demands on the Whatcom County Sheriff's Office and Fire District #7.		

Chapter Two

ALTERNATIVES, INCLUDING THE PROPOSED ACTION

II. ALTERNATIVES, INCLUDING THE PROPOSED ACTION

A. Description of the Proposed Action

Project Proponent

The proposal is sponsored by Pacific International Terminals, with offices located at Harbor Center, 1801 Roeder Avenue, Bellingham, WA, 98225.

Project Location

The site proposed for development of a deepwater marine terminal facility consists of 1,092 acres in northwestern Whatcom County, approximately seven miles west of the City of Ferndale and approximately twelve miles northwest of the City of Bellingham (see Figure 1). The site is located at Cherry Point which is a small promontory of land on the south side of the more prominent Point Whitehorn, south of Birch Bay, on the Strait of Georgia. Of the total site, approximately 80 acres would be used for upland terminal facilities for storage and handling of commodities for marine shipment, and 100 acres for a railroad-track loop to accommodate trains transporting commodities to the site (see Figures 2 and 3).

The site is bordered to the north and west by the Arco oil refinery, and to the southwest by the Strait of Georgia. The Intalco aluminum processing plant and the Tosco Oil Refinery are located approximately one mile to the southeast. The property immediately adjacent to the southeast, along the shoreline, is presently vacant and is proposed for development of a marine terminal facility on the shoreline and industrial development on the uplands (Cherry Point Industrial Park). Road access to the site is provided by Henry Road, which connects to Kickerville Road, and Powder Plant Road which connect to Aldergrove Road. Lake Terrell is located to the east.

Applicant's Statement of Project Purpose and Need

Background

The intent of the Gateway Pacific Terminal project is to provide waterfront access and facilities for the existing and future shipping needs of local developed and undeveloped industrial areas. The facility will also serve as a transfer point for import/export marine cargo with truck and rail traffic. The project site is centrally located to large industrial tracts both to the southeast and northwest of the proposed dock. This particular location was identified many years ago as a potential marine terminal due to the relatively easy access to the deep water that is required of ocean-going bulk cargo ships. As a multi-user facility, the terminal will be able to handle a variety of products which may be imported to, or exported from any existing or future user.

FIGURE 1 - VICINITY MAP

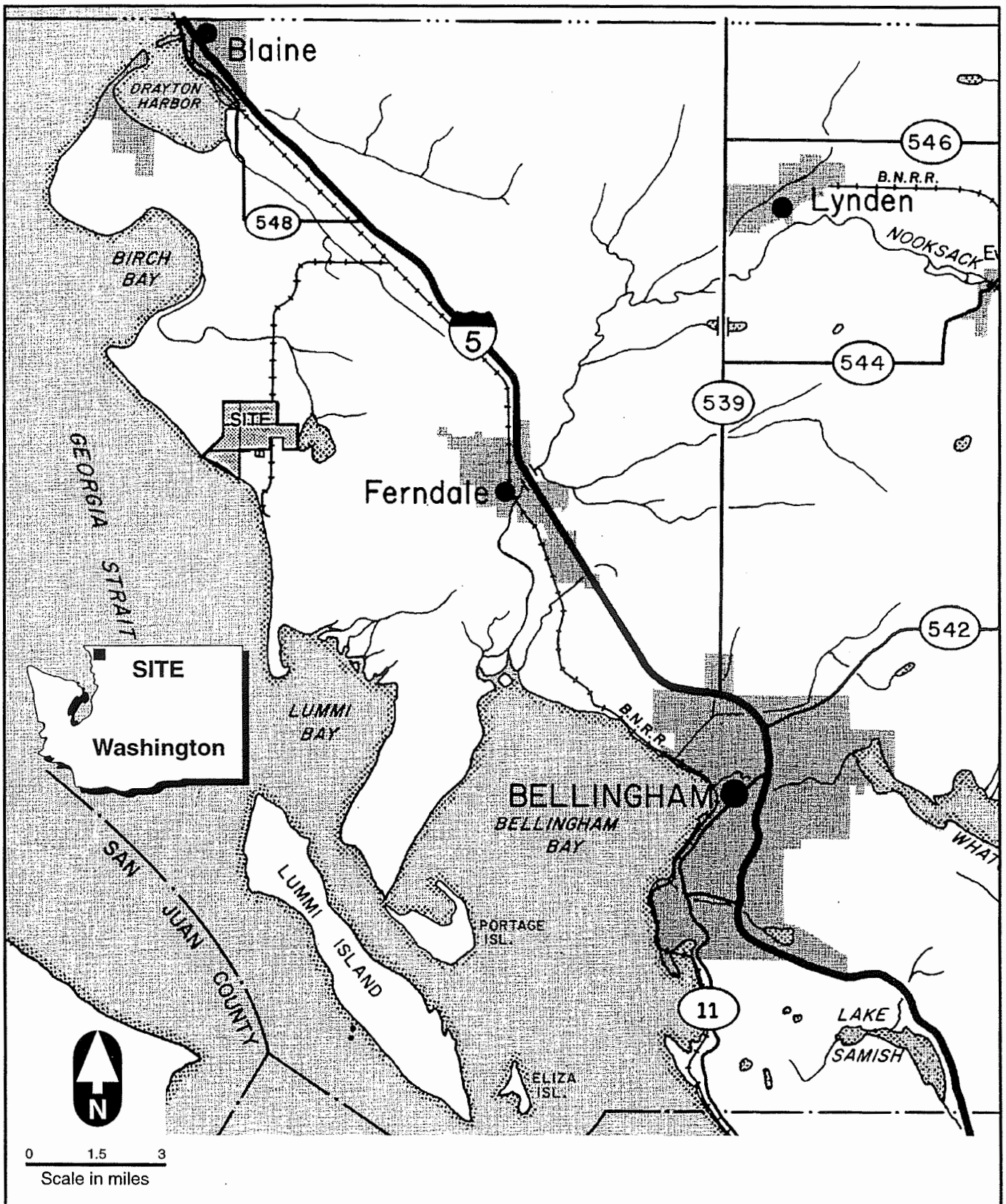


FIGURE 2 - GATEWAY PACIFIC
TERMINAL SITE PLAN

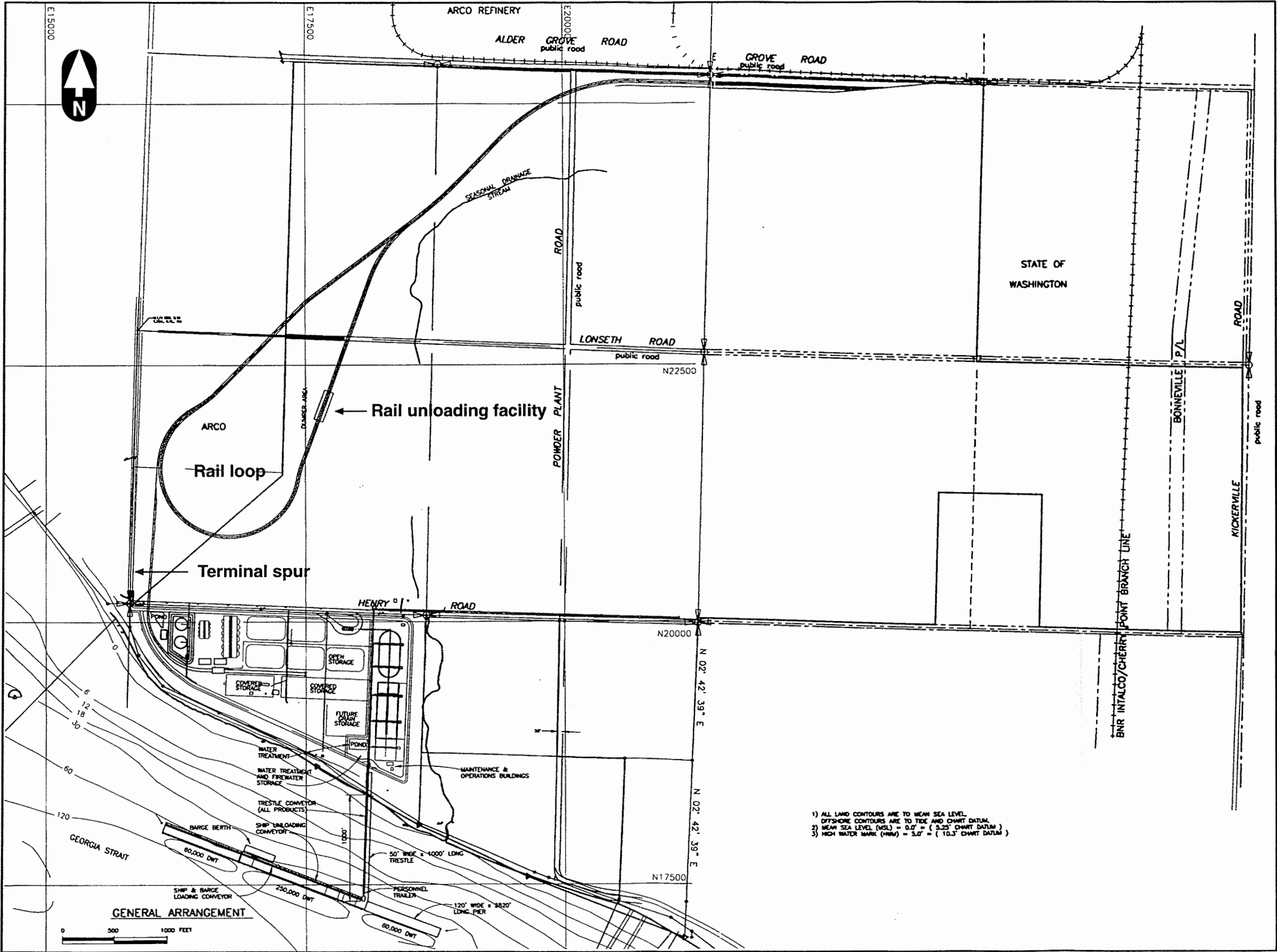
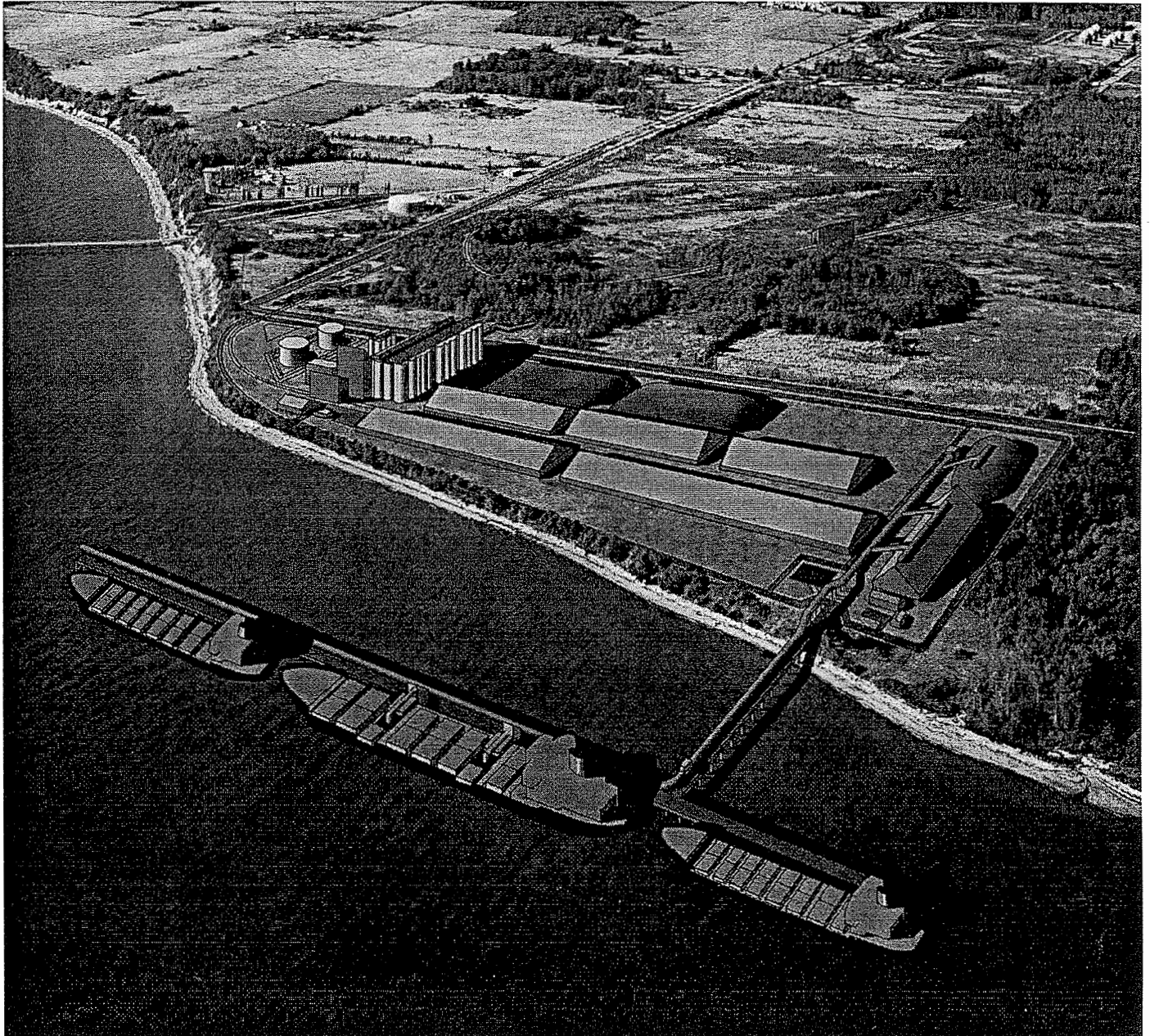


FIGURE 3 - CONCEPTUAL VIEW OF COMPLETED PROJECT



Site Selection Criteria

The project proponents undertook an in-depth survey of potential locations throughout the western United States for a facility to meet the needs of the international shipping community which also had capacity for indigenous industrial development that could utilize a terminal facility. The Gateway Pacific Terminals selection was based on the following criteria which were compared against all possible locations:

Specific Criteria

- A. 80-foot water depth for berthing Cape Size Vessels
- B. 250 acres of land with 3% grade topography or less for loop-track rail system
- C. Rail service from producing regions to the West Coast

General Criteria

- A. Terminal/Industrial Zoning in place
 - 1. Industrial grade infrastructure in place or available
 - a. Interstate Highway Access
 - b. Industrial Water Supply
 - c. Power source and distribution systems in place
 - 1) Electricity
 - 2) Natural Gas
- B. Marine/Shoreline Use Designation for Terminal Development
- C. Minimal/Least Environmental Impact
- D. Mainline Rail Service
- E. All criteria able to be met within a reasonable time period.

Employment/Economic Investment

Gateway Pacific Terminals will provide living wage jobs for approximately 50 permanent full-time workers employed on the terminal for operations. Additionally, the proposed Feed Grain facility would employ 50 permanent full-time workers, again living wage jobs. In addition to the permanent jobs, engineers estimate 750,000 to 1,000,000 hours of construction labor will be needed to complete the Gateway Pacific Terminal facility. Construction labor for the Feed Grain facility would be in addition to this amount.

Pacific Rim Trade

Access to larger ships (up to 250,000 dwt) provided by Gateway Pacific Terminals will allow shippers from the Midwest to the Pacific Northwest to reduce throughput costs for products produced for, or imported from, the Pacific Rim. Asian and South American ports continue to upgrade their infrastructure to accommodate the larger vessels which are forming an increasing part of the marine trade. The addition of deep water marine facilities in the Pacific Northwest will allow the region to better compete in a rapidly expanding global market.

Major Site Features and Topography

The site is characterized by mostly flat to gently sloping terrain on the uplands with steep bluffs bordering the westernmost 2,500 feet of beach. The site contains approximately 5,460 feet of shoreline characterized by rock cobbles, gravel, and coarse sands. Elevations range from sea level to approximately 220 feet

above sea level, with most of the site lying between 60 and 160 feet in elevation. A small, unnamed intermittent stream flows into the Strait along the eastern boundary of the site.

The proposed terminal area is primarily in open fields, vegetated by grass and hay. The proposed loop track area is characterized by thick underbrush and stands of mature second-growth trees. The slopes are heavily vegetated with bushes and shrubs. Pasture land in the northwest and northeast segments of the site seasonally grazed by dairy cattle. An annual hay crop is harvested on pastures bordering the shoreline and pastures in the southwest.

History, Prior Planning and Environmental Review at the Cherry Point Industrial Area and Cherry Point Shoreline Management Area

Archaeological records indicate that the site was part of the coastal areas used by Native Americans for fishing and hunting since prehistoric times. In the late 1800's, the site was logged and homesteaded for farming by European settlers. Farming activities continued until the mid-1900's when much of the land in the vicinity of Cherry Point was acquired by industrial users including Arco and Intalco Aluminum.

Previous plans for development of marine terminal facilities near Cherry Point include the Kiewit Marine Facility (1984) and the Cherry Point Marine Construction Facility (1981), both on the CPIP site. Environmental impact statements were published by Whatcom County; neither of these projects was approved for construction, due to identified significant environmental impacts to fish resources, primarily eelgrass habitat. These two projects proposed construction and operation of graving docks, not pier-supported docks as proposed by PIT.

A Shoreline Substantial Development Permit Application and Environmental Checklist were submitted to Whatcom County by Pacific International Terminals (PIT) for the subject property in 1992. An Application for a Department of the Army Permit for construction of the marine terminal and loop railroad system was submitted by PIT to the Army Corps of Engineers in 1993. A Notice of Application for Permit was published in December 1993 and re-issued in early 1996.

On October 22, 1992 Whatcom County issued a Determination of Significance (DS) and Request for Comments on the Scope of the EIS. A revised Scoping Notice was issued by the County on November 30, 1995.

Whatcom County is using phased environmental review to consider the Gateway Pacific Terminal proposal pursuant to the SEPA rules (WAC 197-11-060(5)). Phased review permits environmental documents to focus on elements of a proposal and environmental issues that are relatively certain at the time of initial application and environmental review, and to defer for future analysis those project elements that are less certain or are subject to ongoing planning and permitting. Some elements of the Gateway Pacific Terminal proposal—detailed design of the upland facilities, for example—are still conceptual in nature. The number and location of on-site lighting, for example, are not known with certainty at this time. In addition, some elements – such as the precise commodities that will be stored and shipped from the facility in the long-term – will be determined by future economic conditions in world markets and cannot be accurately predicted at this time. The overall proposal is, however, sufficiently well defined to permit environmental review to move forward. Supplemental environmental review will be conducted in the future when additional elements of the proposal become more specific (e.g. when building permits are requested and construction-level plans are prepared), or when specific commodities beyond those evaluated in this document are proposed for storage or transport at the facility. Environmental review only covers facilities identified in

the proposal: i.e., development of 80 acres for marine terminal facilities, 100 acres for the rail loop, and pier construction. The application does not cover the rest of the property. Any future development of other portions of the 1,092-acre site will require supplemental environmental review.

Overview of the Proposed Action

The proposal consists of marine and upland facilities to accommodate the off-loading, storage, loading and transshipment of a range of commodities and cargoes destined for domestic and Pacific Rim markets.

The proposed facility would receive commodities by train primarily from the Pacific Northwest and mid-western regions of the U.S. and Western Canada. The marine terminal would serve ocean going national and international trade for bulk commodities, break-bulk and other marine cargoes. Most shipments would be destined for export to Pacific Rim countries.

The proposed facility would provide deep water access to accommodate vessels that require a minimum draft of up to 80 feet. The facility would also provide access to major rail lines serving the Pacific Northwest and northern states of the mid-west region of the U.S. where the majority of commodities to be shipped would originate. The portion of the total site to be used for the marine terminal facility would be large enough to accommodate sufficient train storage (100-110 car unit trains) and movement on-site to allow loading of bulk products to vessels at rates between 2,500 and 5,000 tons per hour depending on the product. One hundred acres would be required to accommodate a loop rail system that could incorporate 3 tracks and approximately 30,000 feet of trackage.

In the long-term, a wide range of commodities and other marine cargoes could be shipped from the facility by ship, including: alumina, automobiles, salt, scrap metal, aluminum ingots, aggregates, chemicals, grain, ores, green petroleum coke, calcine petroleum coke, liquid petroleum products, fertilizers, lime rock, phosphate rock, feed pellets, potash, sulfur and wood chips. Specific types of commodities would depend on market conditions.

In the near-term (i.e. next 5 years), products that would be received and shipped from the facility are anticipated to include the following:

- feed grains (wheat, barley, soybeans, corn and grain products);
- petroleum coke (calcined and green, including material from the adjacent Arco refinery);
- iron ore (pelletized and reduced/briquetted);
- sulfur (prilled);
- potash; and
- woodchips.

These commodities have been identified based on current world market conditions and their probable inclusion in the proposal; they are the focus of the analysis in this EIS. A broader list of potential products has been identified in this project description and in the Army Corps of Engineers public notice; these additional commodities are speculative at this time. Additional environmental review would occur, as determined by Whatcom County, when and if other commodities are proposed for handling, storage and shipment.

Commodities would originate primarily in the Pacific Northwest and northern mid-western regions of the United States; some products could originate in the central and western Canadian provinces. Most U.S.

origination sources are served by the Burlington Northern rail system. Commodities would include feed grains, such as corn and barley shipped from the mid-western regions of the U.S including North and South Dakota and Minnesota. Petroleum products would arrive from refineries in the Pacific Northwest and the oil fields of Alberta, Canada. Grain would be shipped primarily to ports on the Pacific Rim including China and Japan as well as India. Sulfur and similar products would be shipped primarily to Asia-Pacific markets. A few products, such as iron and woodchips, could arrive by ship or barge and be transported by barge or rail to domestic markets (e.g. western United States), as well as being shipped to foreign markets by ocean-going vessels.

An estimated 8.2 million metric tons of material could be moved through the marine facility annually at project completion.

The Gateway Pacific Terminal would operate 24 hours per day, 7 days per week when ships are being loaded. Vessel scheduling, therefore, would determine on-site activities. There would be little on-site activity (e.g. maintenance) when ships are not being loaded.

Construction is assumed to begin in 1997. Operation of the facility would begin in 1998-99.

Based on statements of the applicant, Gateway Pacific Terminals proposes to use the most environmentally sensitive equipment to provide protection to the environment from dust or spills. In recognition of the potential for negative impacts, GPT proposes that conveyors be covered over water, and transfer points enclosed with dust control systems. Terminal storm water will be separated and any runoff from the process areas will be adequately treated. Stormwater discharge will be minimized during herring spawning periods.

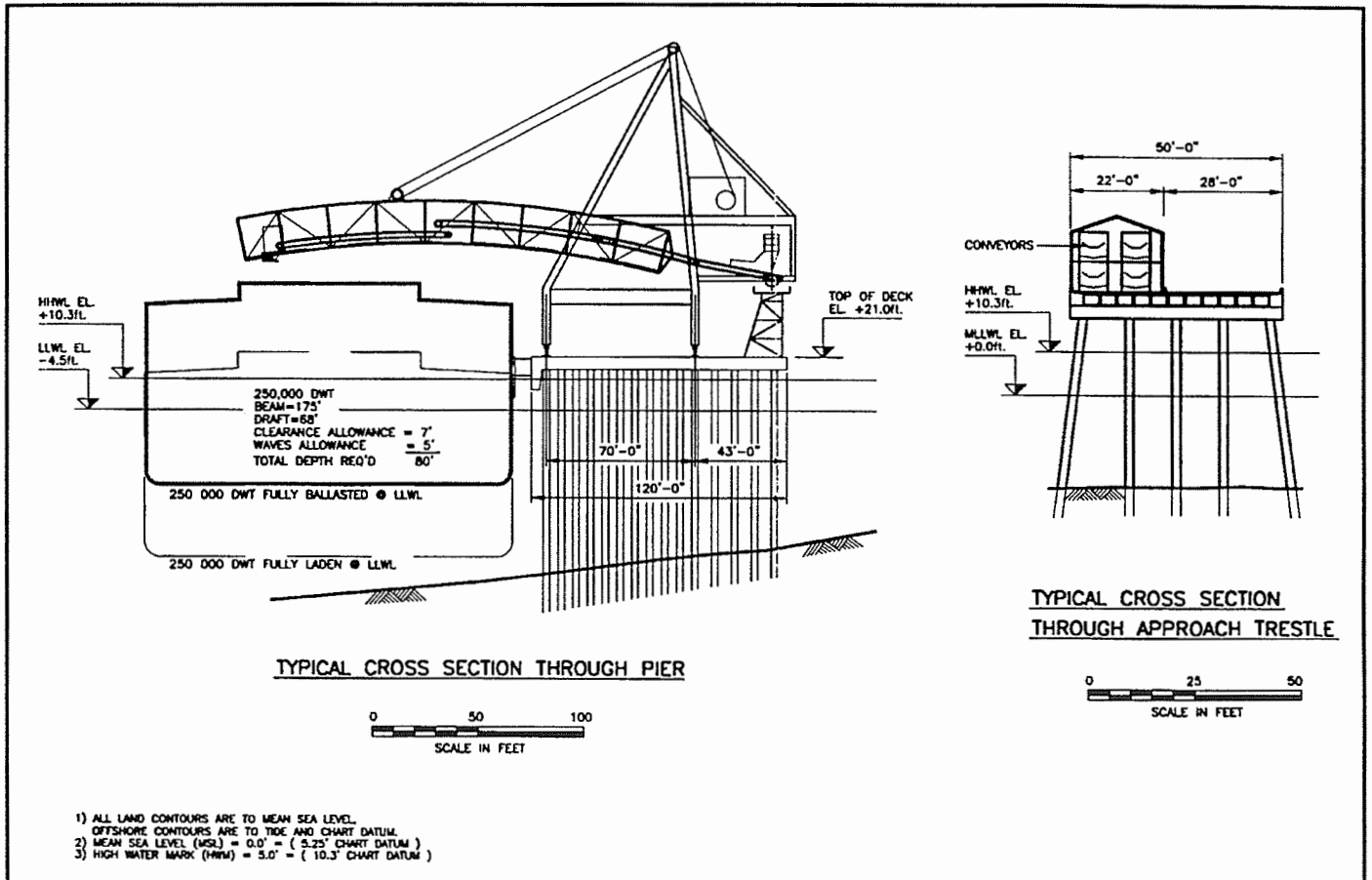
Major Project Elements

The proposal consists of construction and operation of three inter-related marine facilities: (1) a pier to provide berthing for deep water ships and barges, with an approach trestle connecting the pier to the upland terminal storage area; (2) an upland terminal facility to receive, store and handle cargo for loading onto ships and transport off-site; and (3) a loop rail track and access roads connecting the terminal facilities to rail and ground transportation systems. Each element is described in more detail below.

Marine Facilities: Pier and-Trestle. Marine facilities for berthing, loading and unloading ships and barges would consist of a 105-foot wide and 2,820 foot long pier and a 50-foot wide by 1,100 foot long approach trestle connecting the pier to the terminal storage area (see Figure 4). Conveyor system enclosures (approximately 22 feet wide and 18 feet high) would be constructed along the length of the trestle to support conveyors that would transfer materials between ships and the upland terminal. The conveyors would be enclosed where they pass over water to prevent potential spillage of materials. The pier and trestle would be supported on steel pipe piles (approximately 1,533 piles would be used). To minimize impacts on the intertidal beach, the structural framework for the trestle piles would be spaced approximately 135 feet from the nearshore area to a point where the depth is 30 feet below low water level.

The length of the trestle and design of the pier is intended to provide water depth for outer berths of up to 80 feet below low water level in order to accommodate ships of up to 250,000 dead weight tons (dwt) including "Panamax" and "Cape Size" class vessels. "Panamax" refers to the largest ship that can travel through the Panama Canal; "Cape Size" refers to ships that are too large to use the Panama Canal and con-

FIGURE 4 - PIER TRESTLE AND CONVEYOR DETAIL



sequently must sail around the Cape of Good Hope at the southern tip of South America to travel between the Atlantic and Pacific oceans.

Upland Terminal Storage Facilities. The onshore terminal storage facilities would be located on an approximate 80-acre, triangular-shaped portion of the site adjacent to the shoreline but outside the 200-foot setback (refer to Figure 2). This portion of the project site would be used for handling (i.e. conveyor) and storage of commodities, as well as for site maintenance and operation facilities, including water quality treatment. The majority of the upland terminal site will be used for storage of commodities.

The terminal storage facilities would provide space and facilities to receive, store, handle and reclaim bulk, break-bulk, and other marine cargoes. Both covered and open storage would be provided for a range of cargoes. Dry bulk cargoes, such as grains, petroleum coke and ores would be handled by covered conveyors to prevent windblown dust and spillage. A water treatment pond would be located near the onshore end of the trestle. Best management practices (BMPs) for water quality and air quality will be used to help design the handling and storage facilities.

Material Handling & Transport. Flowcharts, contained in Appendix D-2, identifies the transportation mode (in and out), product handling and storage for the commodities anticipated at the proposed terminal. Each commodity would be stored in a separate covered structure or open pile designed to safely and efficiently hold and convey materials for shipment. These are briefly summarized below. Best management practices, safety and emergency response procedures have been identified for each commodity.

Grains. Grains would arrive by rail. The train would be pulled by an electric engine (i.e., an "indexer") continuously over a receiving station containing an enclosed bottom dumper where materials will be dumped (2 cars at a time) into a hopper and moved to a conveyor. The conveyor, which will be enclosed to prevent spillage, will transport materials to a covered storage area or, depending on scheduling, directly to the dock for direct loading onto ships. Grain will be transferred to the loading conveyor, with a capacity of 5,000 tons per hour, for loading onto ships.

Coke. Coke may be delivered by train or truck (from nearby suppliers) and dumped into the receiving hopper. The unloading system will contain roll-up doors at both ends and a baghouse (i.e., vacuum) system to control dust emissions. A conveyor will transport the material to either an open stockpile (green coke) or to an enclosed building (calcined coke) for storage. Storage facilities will be equipped with bottom reclamation hoppers and tunnels. The tunnels will connect to the loading conveyor system connecting to the loading dock. Front end loaders may be used to move stock piled materials to the hoppers, where they will feed by gravity to the tunnel and conveyor system. The loading conveyor will transfer material to the loading dock at a rate of 1,500 tons per hour for loading onto ships.

Iron Ore. Iron ore and iron pellets will arrive at the facility by ship. Unloading will be accomplished within enclosed systems. Some ships will contain their own unloading equipment. The covered unloading conveyor, with a capacity of 5,000 tons per hour, will move material to a storage facility along Henry Johnson Road. After processing, the material (direct reduced iron [DRI] or hot briquetted iron [HBI]) would be loaded onto the same covered conveyor for transport (at a rate of 3,000 tons per hour) to the shipping dock for loading onto ships (for international transport) or barges (for domestic transport).

Sulfur. Sulfur would be received in solid (prilled) form by railcar. The unloading system would use a hopper for receiving solid material. A scrubber system would be used to control dust

emissions during unloading. Prilled sulfur would be conveyed to a covered storage area. The covered storage area will be equipped with bottom reclamation hoppers and tunnels. Dozers would be used to move material in the storage area towards the hoppers and the tunnels; the tunnels will connect to the loading conveyor system to the loading dock for loading onto ships. The loading conveyor will move material at a rate of 3,000 tons per hour.

Potash. Potash will be delivered to the site by train, dumped into a receiving hopper and loaded onto a conveyor for transport to an enclosed storage structure. The receiving station will be equipped with a scrubber to control dust emissions during unloading. The storage structure will be equipped with bottom reclamation hoppers and tunnels. The tunnels will connect to the loading conveyor system connecting to the loading dock. Materials will be conveyed at a rate of 3,000 tons per hour for transport by ship.

Woodchips. Woodchips will arrive at the facility by ship. Material would be unloaded from the ships to the conveyor for transfer to open storage piles. For shipment, material would be transferred to the loading conveyor by front end loader for loading onto railcars or barges.

An administration building would be located in the northeastern portion of the site, near the access to Henry Road. A maintenance and operations building would be located near the onshore portion of the trestle; a personnel trailer would be located on the pier near the trestle. Approximately 50 full time employees would work at the facility at completion of the project.

Rail, Road Access, and Marine Traffic

Rail. The terminal would be connected by a rail spur to the Burlington Northern Railway at Aldergrove Road to the BNR Intalco/Cherry Point branch line. The proposed railroad loop system would consist of nearly 30,000 lineal feet of track and could store up to three 100-to-110 car unit trains at the same time. The loop tracks would be located north of the terminal storage facilities with a spur track extending to serve the facility. The loop track and a portion of the spur line would be located partially on the adjacent Arco property.

An automated dumper and conveyor system would be constructed along the loop systems for the loading and unloading of bulk materials. Trains would be pulled by an electric engine (i.e., an "indexer") through a receiving or unloading station in a continuous operation; diesel locomotives would not be used for this stage of handling. Materials would be dumped in an unloading hopper connected to a conveyor system which will move it to the storage area, and from the storage area to the pier for loading onto vessels. The unloading station will be designed to unload a 100-to-110 car unit train in approximately 4.3 hours. At full operation of the marine terminal, train activity could average two to three 100-to-110 car unit trains per day.

Site access would be provided via Henry Road at its intersection with Kickerville Road. Depending on how traffic generation is calculated (based on ship berths or based on the acres of the upland terminal), 500 or 1,500 total daily trips could be generated at completion of the project. Little off-site truck traffic is anticipated; truck traffic would be limited to local trips, such as transferring bulk coke from the Arco facility to the Gateway Pacific Terminal.

Marine. The pier would be designed to accommodate three vessels ranging in size from 60,000 to 250,000 dwt simultaneously on the outside of the pier. Large vessels will be destined for foreign markets. Up to six barges could be accommodated on the inside of the pier; barges will transport selected commodities to

domestic markets (e.g. west coast of United States). An estimated 140 ship trips, or 280 marine shipping movements per year would be generated by the proposed marine terminal. This would result in an average of less than one vessel movement per day.

Related Features of the Proposal

Storm Water. Deck surfaces at the loading berth would be equipped to collect rainwater and any runoff for return to an oil/water separation facility for appropriate treatment and disposal. Two storage tanks located in the western portion of the terminal storage facility would be lined and bermed in accordance with current environmental and fire codes. The storm water management system would segregate clean water from potentially contaminated water by grading and curbing throughout the terminal site. The trestle and pier would also be curbed and stormwater directed to the treatment area. An onsite collection and treatment system would provide screening, gravity sedimentation, oil/water separation, physicochemical treatment, and sludge removal as required.

The primary stormwater outfall will be through an engineered diffuser located at the face of the pier. The outfall to the pier will be sized to convey the 24 hour design storm with a reoccurrence probability of 1 in 25 years (25 year design storm). This outfall will be designed to increase the mixing of stormwater and salt water in order to create a broad band mixing zone that will reduce impacts to salinity, temperature, and other water quality impacts in the herring spawning zone. Small outlet pipes will be attached to the pier pilings and will discharge at depths ranging from 15 to 50 feet to provide vertical as well as horizontal separation of the discharge points

GPT will seek to minimize the discharge of process stormwater to the bay. During the herring spawning season of March through June, process stormwater may be stored in a series of lined ponds and diverted via pressurized pipes to existing and newly constructed wetlands. The final Stormwater Pollution Prevention Plan (SWPPP) will include a design for the management of stormwater during the herring spawning season so that stormwater discharge impacts to the bay during this sensitive time of the year is minimized or eliminated.

In the event the lined detention pond storage volume is exceeded, an emergency overflow channel capable of conveying the 100-year design storm will be utilized. This overflow channel is located immediately east of the proposed facility footprint and is currently a seasonal stream. The drainage basin for this seasonal stream is normally dry and is separated from the saltwater by a gravel and cobble berm that is created by the form of the shore. By routing flows to this location, impacts to the riparian corridor will be reduced, as opposed to directing overflow runoff into the main stream channel. It is also expected that this outfall location will provide an added benefit in diffusing the freshwater discharge at the shore both by spreading flow through the gravel and cobble shore berm and by separating the release of stormwater from the site from that of the main stream channel, thereby providing a wider area of discharge of the freshwater plume.

Best management practices (BMPs) to maintain water quality have been developed for elements of the proposal and for each commodity expected to be handled and shipped from the Gateway Pacific Terminal. These BMPs are contained in Appendix D-2 and summarized in the *Water* section of the Draft EIS.

Water Supply. The Whatcom County Public Utility District No. 1 is the designated water purveyor for the Cherry Point Industrial area where the proposed facility is located. The PUD would supply fire protection water to the site via the existing 24-inch mains that presently serve the area. The PUD, together with Pacific International Terminals, is also developing groundwater resources, which have been determined to be not connected to the Nooksack River, to serve the consumptive water needs of the project.

Sanitary Sewer. On-site septic systems would be used to serve the terminal storage facility.

Safety Systems & Emergency Response Procedures

For the proposed GPT facility, preventative measures will be incorporated in all phases of the design.

Explosion and Fire. With most grain processing facilities, explosion and fire can be hazards since grain dust is a fuel source. Explosive conditions might occur when dust is thick enough that visibility is about one meter. Dust levels which could lead to explosion would be detected within working spaces long before this level was reached. With regard to operating practices, welding and torch cutting can be a major ignition source as well. As part of the facility personal protection and safety plan, there are very rigid procedures before cutting or welding of equipment can occur in a facility such as this. The equipment is shut down and surfaces are wetted down. The specific GPT methods and procedures used to minimize the potential for fire and explosion will be outlined in the facility operations and maintenance plan.

Added to the manual and automatic systems for detection of fires and the activation of sprinkler heads, sirens, and alarms at the local fire hall, are the following:

- Immediate evacuation of the facility by all personnel and gathering at distanced pre-designated gathering points for head count. If any personnel are missing, management personnel are notified, in turn notifying fire department personnel on arrival.
- A procedure to contact ambulances if necessary.

Spill Response. The procedures for reporting and handling spills will be specific and immediately implementable. In the event of a spill, the appropriate GPT personnel will contact previously identified individuals and agencies, alert them to the status of the situation, and work closely with the supervising agency to ensure that the matter has been adequately addressed.

Measures to reduce the risk of spills include:

- railcar unloading will be done inside an enclosed building equipped with a negative air system;
- the looped track and use of an indexer (which prevent jarring that loosens grain from the rail cars);
- closing hopper doors on the rail cars after they have been emptied;
- an emergency cable that runs the length of the shipping gallery so that the conveyors can be stopped immediately (chronic losses are not expected to occur with the type of conveyor used); and
- exhaust systems equipped with fabric filters will be located at all transfer points within the building.

Spill prevention procedures will be reviewed with GPT staff on a schedule outlined in the Emergency Response Plan.

Pest Management. Control of pest species related to storage and movement of grain cargoes will include:

- building design to reduce access and use by pest species,
- good housekeeping to remove spilled grain at the facility,
- weekly monitoring and clean-up of grain along the tracks as needed,
- compliance with other regulations related to pest control, and
- extermination.

Ballast Water. The issue of the disposal of ballast water is a world wide issue that is being addressed by the International Maritime Organization of the United Nations. They are proposing that all ballast water be handled during a mid-ocean ballast exchange. To be effective, these measures must be required and enforced at the international level. GPT is sensitive to the issue of local and regional contamination by ballast water and will include preventative measures in the facility operation and maintenance plan.

Emergency Response Plan Procedures. GPT will complete a final, site specific emergency response plan that will ensure that spills and releases are reported to the appropriate authorities and addressed in a manner that is consistent with local, state and federal rules and regulations. Development of the emergency response plan will be completed when the facility design is available. The plan will also involve discussions with neighboring industries (ARCO and INTALCO), Whatcom County, the Coast Guard, and all related agencies and individuals who should be notified in the event of a spill.

GPT's Emergency Response Plan will include the following:

- responsibilities of designated persons;
- alarms and reporting procedures (both in plant and offsite);
- immediate action to be taken or not taken;
- evacuation routes and procedures, assembly areas; and
- location of shut-off valves.

All products handled at the terminal will be included in the Emergency Response Plan. The Plan will be updated if new products which require a different response are added; however, the facility, at this time, will only handle dry bulk products. During the construction phase, all contractors will be required to have a written emergency response plan.

B. Alternatives to the Proposed Action

Evolution of Site Planning and Consideration of On-Site Alternatives

This EIS considers two alternatives to the proposed action: no action, and construction of a proposed pier and shipping facility at another site (Cherry Point Industrial Park) to the south of the proposal.

Other on-site alternatives for the design and layout of the proposed action were considered by the applicant over a period of several years. Successive changes to these initial plans occurred as a result of ongoing site evaluation and consultation with state and federal agencies and tribes. Major changes that occurred as a result of this evaluation and consultation are outlined below. In general, ongoing planning has attempted to avoid and minimize wetland impacts associated with the railroad track loop, and marine resource impacts associated with construction and operation of a pier.

1992 Site Plan. The site plan originally proposed in 1992, shown in Figure 5, would have affected (i.e., filled or disturbed) approximately 50 acres of wetlands to construct the railroad loop. The tracks also crossed the seasonal stream located on the site. The pier design associated with this site plan had the trestle crossing identified eelgrass habitat in a northeast/southwest direction, which could have caused significant shading impacts during some times of the year.

1993 Site Plan Revision. The 1993 site plan, shown in Figure 6, reflected modifications designed to reduce impacts to wetlands, streams and marine resources. A new route for the railroad loop was identified which reduced the wetland fill/disturbance to approximately 20 acres. This layout still involved crossing

FIGURE 5 - 1992 SITE PLAN

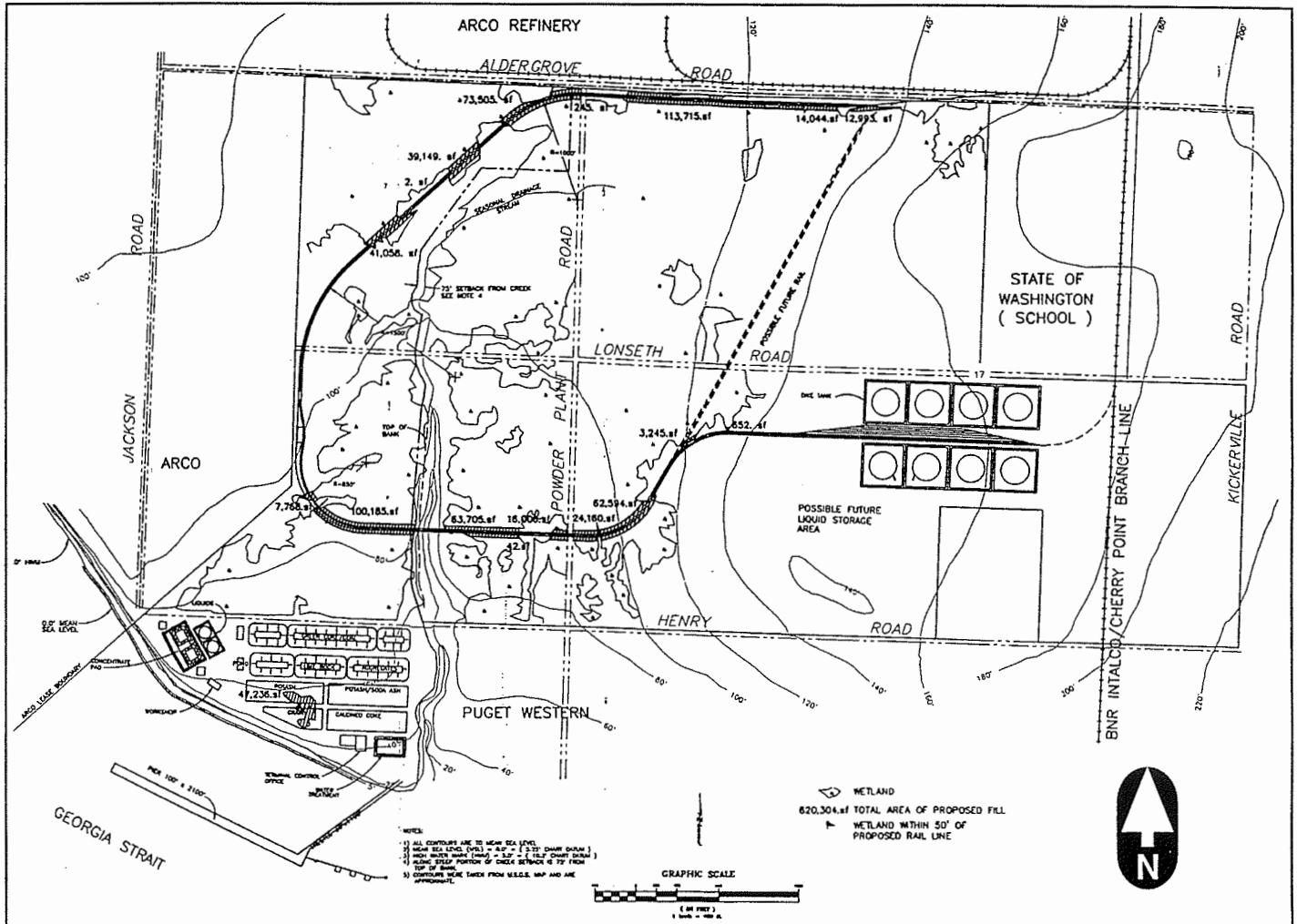
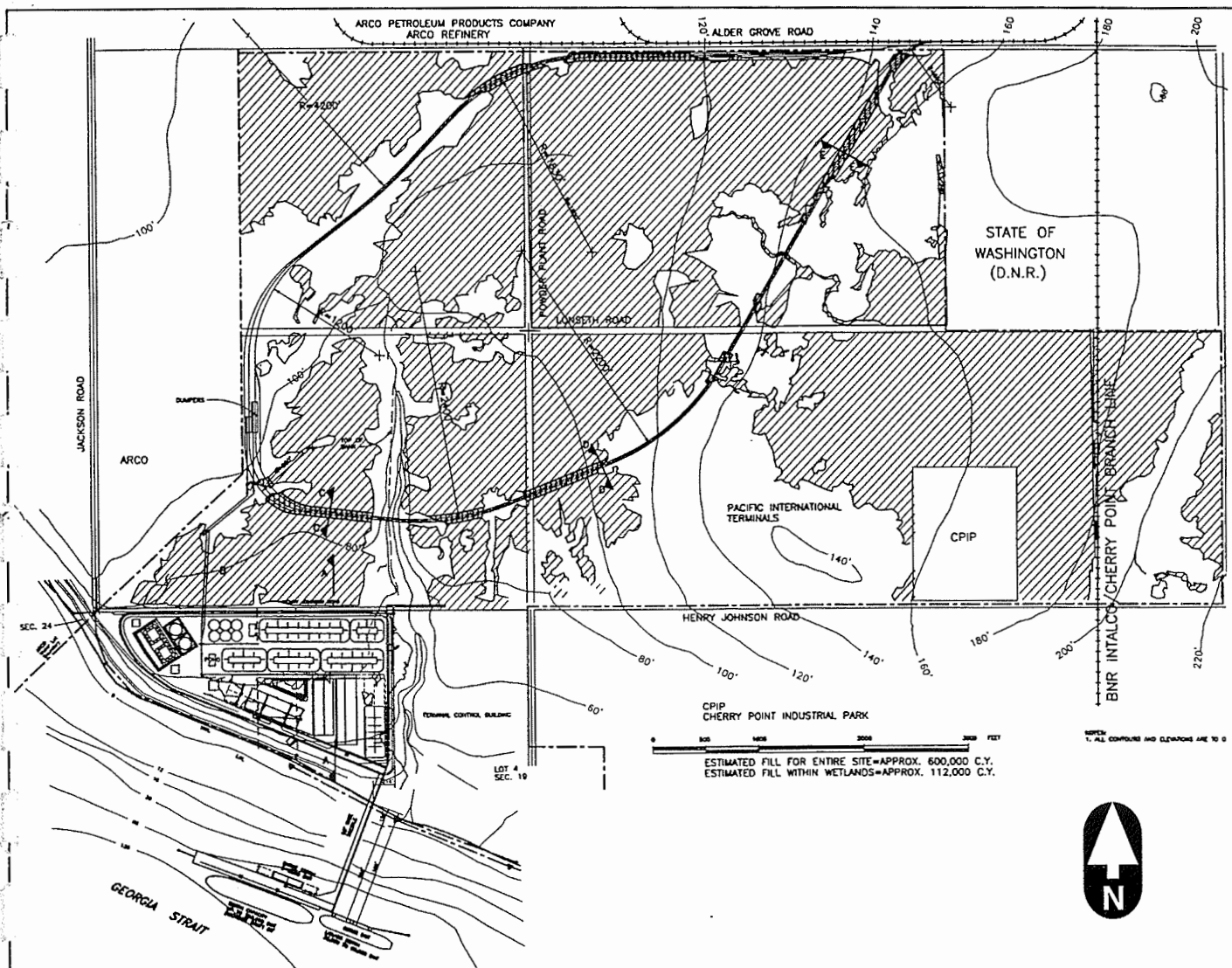


FIGURE 6 - 1993 SITE PLAN



the seasonal stream. Based on development of a shading model, the pier and trestle were realigned (in a more north/south direction) to avoid direct construction impacts and to reduce potential shading impacts to eelgrass.

Changes Incorporated Into Current Proposal. The proposal has been designed in the context of this prior evaluation and project modification. The proposed railroad loop design occupies considerably less land and would reduce wetland fill or disturbance to 5.8 acres; crossing the seasonal stream would not be necessary. The orientation of the pier and trestle follows the north/south design intended to avoid and minimize eelgrass impacts due to construction and shading; this is based on ongoing refinement of the shading model. The upland storage area has also been reconfigured to use land more efficiently; covered storage structures and open storage areas are grouped.

In general, modifications intended to achieve the proponent's objectives at lower environmental cost have been incorporated into the proposed action. Further modifications could occur as a result of the environmental review process. No additional on-site alternatives have been identified for this EIS.

No Action Alternative

Under the No Action alternative, the proposed marine terminal facility would not be constructed and the site would remain in its currently undeveloped state for the foreseeable future. Other industrial development would be likely to occur on the site and adjacent properties over time, consistent with the existing industrial zoning.

Alternative 1 - Cherry Point Industrial Park (CPIP)

Under this alternative, a marine terminal facility -- including a pier intended to accommodate deep water vessels, an upland terminal, and industrial facilities -- would be constructed on the Cherry Point Industrial Park (CPIP) property to the south of the proposed site. Only one new pier and marine terminal facility would be constructed in the Cherry Point area.

A Draft Environmental Impact Statement (EIS) for the CPIP was issued by Whatcom County in November 1992; a Final EIS was issued in February 1993. Those documents describe the proposed development and discuss significant impacts and mitigation measures. The CPIP project is still under review by the Corps of Engineers.

The CPIP alternative is intended to recognize the possibility that only one additional pier and marine terminal facility may be permitted in the Cherry Point area. The Whatcom County staff report for the CPIP proposal (May 20, 1993) recommended that only one additional pier be permitted at Cherry Point. In their approval of the CPIP proposal, the Whatcom County Council noted that there were no adopted policies or regulations that would per se limit development to a single pier. While the Council acknowledged that it was possible that limiting development to one pier could serve the public interest, it did not have any information on which to make a comparative evaluation of the two proposals. The Department of Natural Resources (DNR), in correspondence to the County Council (October 5, 1995), reiterated that its decision to lease state tidelands must serve the State's long-term best interest. DNR determined that only one lease at Cherry Point will be considered, and that their decision will be made only after all relevant information has been disclosed.

The Whatcom County Draft Comprehensive Plan being considered by the County Council as of this writing contains a proposed policy (2CC-2) which addresses the potential for additional docks at Cherry Point.

While the CPIP alternative would not accomplish the proponent's objectives -- since it is a competing project, and assumes that the Gateway Pacific proposal is not built -- it is likely an alternative to the Gateway Pacific proposal in a practical sense, given the recent input summarized above. Including this alternative in the Gateway Pacific Terminal EIS is intended to allow decision makers and interested citizens to compare the relative environmental impacts of the two proposals. Information about the CPIP alternative is summarized from the published EIS for that proposal; readers desiring greater detail should consult the relevant environmental documents for that project.

Chapter Three

COMMENT LETTERS AND RESPONSES

III. COMMENT LETTERS AND RESPONSES

Introduction

This section of the Final EIS contains comments received on the Draft EIS and responses to comments. A total of 13 written comment letters were received during the public comment period.

Each letter is included in its entirety in this section of the Final EIS. Comment numbers appear in the margins of letters, cross-referenced to the corresponding response. Responses are provided for substantive comments on the Draft EIS. Expressions of opinions, subjective statements and positions for or against the Proposed Action are acknowledged without further comment. Written comments were received from the following agencies, organizations and individuals.

Letter	Agency/Organization/Individual
1.	Lummi Indian Business Council #1
2.	Lummi Indian Business Council #2
3.	Nooksack Indian Tribe
4.	Washington State Department of Ecology
5.	Washington State Department of Fish and Wildlife
6.	Washington State Department of Natural Resources
7.	City of Ferndale
8.	North Cascades Audubon Society #1
9.	North Cascades Audubon Society #2
10.	Ocean Advocates
11.	Texaco
12.	Washington Environmental Council
13.	Robert Carmichael, representing Cherry Point Industrial Park



LUMMI INDIAN BUSINESS COUNCIL

2616 KWINA ROAD • BELLINGHAM, WASHINGTON 98226-9298 • (360) 384-1489

DEPARTMENT _____ EXT. _____

January 7, 1997

WHATCOM COUNTY
PLANNING & DEVELOPMENT SERVICES

Mr. Michael T. Knapp, Director
 Whatcom County Planning and Development Services
 5280 Northwest Dr.
 Bellingham, WA 98226-9522

JAN 14 1997

RECEIVED

Dear Mr. Knapp:

1 This is to request a three week extension of the comment deadline to provide review of the Gateway Pacific Terminal draft Environmental Impact Statement. Our copy of this document arrived yesterday afternoon. This is when we became aware of the planned public hearing Wednesday on January 8th. Was there appropriate notification in the local paper of the hearing? None of our staff was aware of a meeting announcement appearing in the local media.

This late mailing does not allow the Lummi Nation sufficient time to review and prepare a response to this important proposal. We request also that another public hearing be scheduled so that we can be afforded an opportunity to present our comments at a public meeting.

Please contact me soon as to this request. I can be reached at 384-2225.

Sincerely,

Merle Jefferson
 Merle Jefferson, Director
 Lummi Natural Resources

cc: Bill Florea, Land Use Division
 Roland Middleton, SEPA Official

Letter 1
Lummi Indian Business Council #1

1. Notice of availability of the Draft EIS was published in the Bellingham Herald in compliance with legal requirements. In response to requests, Whatcom County extended the comment period twice to the maximum of 45 days allowed by SEPA.



LUMMI INDIAN BUSINESS COUNCIL

2616 KWINA RD. • BELLINGHAM, WASHINGTON 98226-9298 • (360) 384-1489

DEPARTMENT _____

EXT _____

February 5, 1997

Mr. Michael Knapp, Director Planning and Development Services
Whatcom County Land Use Division
5280 Northwest Road
Bellingham, WA 98226-9040
ATTN: Roland Middleton, SEPA Official

WHATCOM COUNTY
PLANNING & DEVELOPMENT

FEB 05 1997

MICHAEL KNAPP, DIRECTOR

RE: Comments on Gateway Pacific Terminal draft EIS

Dear Mr. Knapp:

The Lummi Nation wishes to provide the following comments on the Draft Environmental Impact Statement (DEIS) for the Gateway Pacific Terminal proposal. Specific technical comments are attached.

- 1 The project area is to be located within the historic site of the Lummi People and called **Xwe' Chiexen**, the Lummi language name for the Cherry Point area. Several registered and unregistered sites that have cultural significance have been identified. This calls for further evaluation and the need to develop an acceptable Historic Preservation Plan or efforts between the Tribe and other parties.
- 2 The Lummi Nation holds primary fishing rights for the waters surrounding **Xwe' Chiexen** under the Treaty of Point Elliott of 1855. This proposal has the potential to impact these rights.
- 3 The industrial water supply for the project has been designated as untreated Nooksack River water from the P.U.D. Groundwater is to be used for the potable water supply from a P.U.D. well near Lake Terrell which has not been permitted. The Lummi Nation has concerns which must be addressed, regarding the impairment of senior treaty-reserved water rights, both for instream flows from the Nooksack River and for reservation groundwater.
- 4 Long-term degradation of marine water quality near the terminal is a likely outcome unless protective steps, not identified in the DEIS, are taken. Degradation can result in reduced survival for fish and shellfish resources. This can be avoided by a facility design that incorporates adequate stormwater management, adopting stringent 'Best Management Practices' and implementing an effective program to reduce the risk of spills.

4 | The DEIS provides insufficient detail with regard to assessing water quality impacts. Those sections on Stormwater, Best Management Practices, Emergency Response Plans need to be expanded to include information we have requested in the attached technical comments.

5 | The complete facility configuration needs to be provided including the location of rail and truck off-loading areas, product storage areas, and the routes for the conveyor and pipelines. An explanation of the construction phasing, showing the initial design to the anticipated final buildout configuration is needed. This will allow us to provide a complete assessment and recommendations that focus on reducing water quality problems that can occur from spills and contaminated stormwater.

6 | Water quality monitoring is an essential element in assessing the effectiveness of stormwater management, best management practices, and spill prevention programs. For instance, monitoring the marine waters in the vicinity of the terminal using a herring egg bioassay technique is suggested for the critical months of April and May. Provisions for ongoing stormwater and receiving water monitoring need to be included in the stormwater section.

7 | Additional measures should be identified to provide shoreline littoral drift protection. The interruption of sediment being transported to the south to nourish shorelines at Neptune Beach and Sandy Point could result in further erosion and damage to tribal tidelands and private property. A monitoring program and mitigation plan should be developed in cooperation with the Lummi Nation. The setback from the bluff needs clarification in the FEIS. Facilities and infrastructure should be set back 200 feet from the bluff to avoid the need for protective structures along feeder bluffs that provide sediment to the littoral drift process.

8 | Disclosures on full economic impacts of the development are lacking.

This concludes the Lummi Nation's comments on the DEIS for the Gateway Pacific Terminal project. Please contact me at 384-2229 or Merle Jefferson, Director Lummi Natural Resources Department (384-2225) if we can assist you in the preparation of the Final EIS.

Sincerely,



Henry Cagey, Chairman
Lummi Indian Business Council

cc: Col. Tom Wynn, COE

Lummi Natural Resources

Gateway Pacific Terminal DEIS Technical Comments

Appendix "B" - Transportation Impact Study by KJS Associates

- 9 | Page 20 - The study contains incomplete analysis of interactions that occur between large vessels (including tugs and tows) and fishing vessels. Specific provisions are needed that will mitigate losses of fishing gear and fishing opportunity.
- 10 | Page 19 - The assessment of vessel traffic issues in this appendix B relies on appendix E-4 estimates of vessel movements to the Gateway Pacific pier. There is no breakdown that specifically identifies the number of tug/barge vessel movements. Tug traffic is an important component of vessel traffic that needs to be identified. Fishing gear losses are particularly vulnerable to tug/tow movements due to the tendency of the towline to snag crab pot gear.
- 11 | Page 11 - Correction: There are three piers between Sandy Point and Pt. Whitehorn (not Cherry Pt.)
- 12 | Page 9 - Need a figure to show the actual location of "Georgia Strait Waterway" on a nautical chart. This area combined with the approaching VTS traffic lanes consumes a significant portion of the marine waters in the Cherry Point area and illustrates the conflicts facing the commercial fishing industry as their traditional fishing areas become impacted by larger vessel traffic. A calculation of the acreage of these two traffic areas in the Cherry Point region should be made as it provides an estimate of the marine areas impacted by vessel traffic.

Appendix "D-1" - Stormwater Management by David Evans & Associates

- 13 | Page 2 - The importance of preserving water quality along these spawning beds is recognized. The sensitivity of herring to hydrocarbons and other toxins needs to be stated.
- This section incorrectly concludes that "specific tolerance of the herring in the early stages of their life cycle to water quality parameters other than temperature are not well known." Many investigations have been conducted (see attached) that have investigated the sensitivity and vulnerability of developing herring embryos to petroleum products. Our State's largest herring population at Cherry Point is particularly vulnerable because the prime spawning area are in close proximity to potential sources of oil spills (large vessels carrying oil and land facilities that store and transfer large quantities of oil to and from these vessels).
- Numerous laboratory studies have clearly documented the sensitivity of developing herring embryos to oil. The result of minute exposures to oil is a significant decrease in herring survival. Parts-per-thousand concentrations to hydrocarbons have been shown to result in gross morphological abnormalities in the post-hatched larval stages. These abnormalities include a high incidence of bent spinal columns and abnormal mouth and eye development that result in eventual death of the larvae.

14

Studies at Cherry Point found generally good water quality throughout the area with occasional areas showing decreased herring survival. One location had a high incidence of herring malformations approaching 100% during both periods monitored in 1991. Subsequent investigations were unable to determine the source of the abnormalities at this location. These studies indicate that usually the marine water quality supports normal herring egg development but at times isolated incidents of poor water quality can reduce herring survival along the Cherry Point shoreline. The potential exists for impacting a significant proportion of this population should an incident of poor water quality coincide with a major spawn event.

The final EIS should accept these findings and disclose the fact that developing herring embryos are particularly sensitive to toxic substances, particularly hydrocarbons. The aforementioned studies are available and have been provided to the proponent which support these findings. These studies were conducted in 1990¹, 1991², and 1992³ as a joint effort between the Lummi Nation and the University of Washington supported by the Arco Refinery, Intalco Aluminum, BP Oil (now TOSCO), and Texaco.

Page 1 - This section promises a prepared Stormwater Protection Pollution and Protection Plan at the time the discharge permit is issued with the Department of Ecology. Following sections provide only cursory overview how stormwater will be managed. This leaves the reader with little detail to evaluate the impacts to marine water quality. It is implicitly assumed that the permits required by WDOE will provide the necessary safeguards and it is not disclosed what these treatment methods are or how they will meet state and federal water quality standards.

The FEIS should answer the following:

15

1. What commodities listed will be stored uncovered? How large and where will these areas be located (show detailed map)? Show where process stormwater is to be collected and routed to the treatment area. Will it be pumped? Is secondary containment available along the route?
2. Will secondary containment be provided around liquid storage tanks. How would spills be contained along the pier?
3. Will train and truck unloading areas be covered or provided with secondary containment?
4. Will truck and train routes on the project be provided with provisions to confine a spill?
5. If liquid petroleum products will be involved, will vessels be boomed at the pier as they are at Arco?
6. Show that the retention facilities will provide 100% retention during April and May.

Appendix "D2" - Best Management Practices (BPMs) by David Evans & Associates

16

Need to provide additional BMPs to prevent contamination of stormwater to include, but not limited to:

1. Minimize wash downs and use sweepers and /or vacuum's for all site cleanup operations.
2. Provide covered, closed storage for all dry bulk products that may leach.
3. Provide covered closed facilities for loading, unloading, and transfer points
4. Provide secondary confinement along the entire conveyor system to assist in cleanup and to isolate spills from stormwater should a malfunction occur (i.e. broken belt).

¹ Kocan, Richard M., PhD. 1990. In Situ and Laboratory Assessment of Herring Embryo Survival at Cherry Point, Washington, April / May, 1990. University of Washington School of Fisheries, Seattle, WA (Unpub Rept. 17pp.).

² Kocan, Richard M., PhD. 1991. In Situ and Laboratory Assessment of Herring Embryo Survival at Cherry Point, Washington, May 1991. University of Washington School of Fisheries, Seattle, WA (Unpub Rept. 14pp.).

³ Kocan, Richard M., PhD. 1992. Cherry Point Herring Embryo Study, 1992. University of Washington School of Fisheries, Seattle, WA (Unpub Rept. 14pp.).

- 16 | 5. Eliminate use of water for controlling dust emissions.

The FEIS should include BMPs for liquid bulk products to include, but not limited to:

- 17 | 1. Secondary containment for all liquid storage tanks and at transfer points.
2. Secondary containment system along the pipeline route and at pumping facilities with sufficient capacity to contain a spill within the system that may occur due to malfunction or human error. This needs to be isolated from stormwater system.
3. Vessel booming during petroleum product transfers.
4. On site cleanup equipment for rapid response to spills. Should include some tank storage capacity.

18 | **Page 22 - BMPs for Terminal Operations**

- 19 | 1. Will all terminal areas be paved and curbed? If not, indicate which areas will not.
20 | 2. Need to change "minimize" in second paragraph to "eliminate" discharge of contaminated storm water to the receiving water.
21 | 3. Containment should be engineered for the 15 or 25 year, 3 day event.
22 | 4. What is "process storm water"? Is it different from "contaminated storm water"? Explain.
23 | 5. Treatment needs to include a form of biomonitoring to determine toxicity of contaminated storm water and to determine if treatment is effective in reducing toxicity to marine organisms present in the receiving water. Biomonitoring of the marine waters near stormwater discharge outlet should occur, especially during April and May when herring are spawning. During this period, use the herring embryo as the test organism using methods developed by the University of Washington (see attached references). At other times of the year the oyster larvae bioassay technique would be appropriate.
24 | 6. Specify under what conditions cleanup using wash down will be used. Need to eliminate this if at all possible so as to minimize contaminated stormwater volumes needing treatment.
25 | 7. Treating all commodities as being potentially toxic will simplify facility operations and design. Having one BMP standard for all products will minimize operator errors, provide a more effective response to spills and will provide a greater margin of safety over-all.
8. A Bunkering Plan for vessels berthing at the dock should be included in the FEIS which meets environmental standards, to include handling of ballast and bilge water. For example, will ballast water be taken ashore and stored?

Appendix "D3" - Emergency Response Plan
by David Evans & Associates

See comments above that pertain to spills.

- 26 | Detail was lacking in explaining how to respond to various types of spills that could be expected. For example, what response would be appropriate for the following spills:

- 27 | 1. Oil spill to marine waters at the pier.
2. Bulk spill within the conveyor system. How would this be contained and isolated from stormwater?
3. Same question as #2 but at
 - along road and rail routes
 - at loading/unloading points
 - at storage locations
 - areas outside and adjacent to storage areas where bulk products may be transferred by equipment, fugitive dust, etc.
 - at transfer sites
 - on the pier
28 | 4. Spills from damaged liquid storage tanks
5. Spills along pipeline routes, at pumping stations.

Appendix "E" - Fisheries / Marine Resources

by Shapiro & Associates

- 29 | **Page 20** - Impacts on macro algae are treated in the Herring section. In addition to the shading impacts that have been identified, this section should also include the potential impacts that may occur from prop wash during tug / barge maneuvering on the inside of the pier and impacts from wave energy that cause a redistribution of macro algae due to a change in substrate particle distribution inshore. Turgidity from near shore stormwater discharges have also the potential to reduce growth and possibly reduce light-sensitive macro algae near the stormwater source. Mitigation provisions for these potential impacts should be addressed.
- 30 | **Page 18** - We agree strongly with the statement in the second paragraph indicating the sensitivity of herring to degraded water quality that could reduce herring egg and larval survival. This indicates the need to provide biomonitoring to determine the effectiveness of stormwater treatment.
- 31 | **Page 24** - Incorrect statement, "The expanding fishing fleet... expansion into shipping lanes has further increased gear losses (Whatcom County, 1981)" Crab fishing activities have taken place long before the establishment of the VTS shipping lanes leading to Cherry Point.
- 32 | **Page 27** - Third paragraph under section: Unavoidable Adverse Impacts should read: "Crab pot gear loss *is likely as there will be an* increase in barge traffic." Provide annual estimates of losses based on vessel traffic study.
- 33 | **Mitigation Measures** for the salmon and herring fisheries could include for example at least a one to two hour advance notification to these fishermen during all scheduled openings for all vessel transits between the pier and nearby VTS traffic lanes. Proposing to meet with the fishing community simply provides no assurances mitigation will occur. While it is desirable to meet, it does not preclude providing a tangible mitigation option to reduce fishing gear conflicts.

Appendix "E-4" - Analysis of Vessel Traffic

by Shapiro & Associates

See comments above for appendix "E-2".

- 34 | **Page 4** - This analysis should include the potential for an increased number of spill incidents, both minor and major.
- 35 | **Page 10** - Error in cargo vessel beam (1625 feet)?
- 36 | **Page 11** - Indicates 38% average increase in traffic at Cherry Point. How many movements are those for large cargo vessels versus those for tug / barges? Is this estimate for initial stages of development or for anticipated levels at maximum build-out. Specify.
- 37 | **Page 13** - Do not concur with the finding that the three years of vessel incident data (1993-1995) is sufficient to conclude a downward trend. Need to look at a longer time series that may be

- 37 | available by looking at a larger area (Puget Sound) which may provide a larger database. Is 1996 data available?
- 38 | Page 16 - Do not agree that the project "...could result in a small and insignificant increase in the number of pollution incidents per year...." Significance to herring survival could be very significant with even a small spill should it occur during or immediately following a major spawn event.
Realizing that the probability of a large spill is rare, how many years will pass before another is expected in Northern Puget Sound?
- 39 | Booming of all vessels should occur during any transfer of oil between vessels and/or vessels and the marine terminal facility.
- 40 | The report indicates that the known crab gear incident rate is unknown. However, if vessel traffic is projected to increase by 38%, this indicates that crab gear losses could increase by a similar amount.

Lummi Natural Resources

Gateway Pacific Terminal DEIS Supplemental Technical Comments

1.0 Water Supply

Water supply is not adequately addressed in the DEIS except to state that untreated industrial water will be supplied by Whatcom County P.U.D. #1, and that consumptive supplies will be derived from nearby groundwater "not connected to the Nooksack River" that is now being developed by the P.U.D. The Nation understands that PIT has a contract option for 5 mgd of untreated river water from the P.U.D. The groundwater potable supply is from the well the P.U.D. is developing in the Mountain View upland.

1.1 Concerns:

a) *Nooksack River water:* Increased use of Nooksack River water under the PUD water right may impair the Nation's senior water right. The DEIS does not indicate the volume, but the contract option with the PUD is for 5 mgd of untreated river water. This will remove additional water from the Nooksack River at a time when state-mandated minimum instream flows are not met during much of the year. The Lummi Nation, with the senior reserved water rights and as co-manager of fisheries with the State, is in water negotiations with the State and Federal governments regarding Lummi Reservation groundwater. It is anticipated that the next phase of talks will encompass the Nooksack Basin/Whatcom County. The possible impacts of tribal reserved water rights on this project should be considered.

41

b) *Ground water:* The DEIS indicates an additional dependence for a potable water supply on groundwater resources not yet permitted by Ecology for a well still under development by PUD just north of Lake Terrell. The Lummi Nation in the past has protested this permit with the Dept. of Ecology pending resolution of water rights issues in Whatcom County.

A ground water study for the PUD (RZA AGRA, Inc., 1993), was provided to the Nation by Pacific International Terminals for review. The study consisted of an examination of existing well data based not on surveying the surface elevations of the wells, but on locating them on USGS maps in 40-acre areas. Therefore, there is considerable uncertainty in the results. The report's hydrogeology also lists the Deming Sand unit as a unit of the Mountain View upland, which was specifically noted by Easterbrook (1963) as not being present in that area. Nevertheless, the PUD well is identified as being in the same hydrogeologic unit (advance Vashon outwash sand and gravel) as most other wells in the area, including those on the Lummi Reservation.

The report states that "the target aquifer....appears to flow radially from this area [of the well] so that the water table elevation is some 10 feet or more below California Creek, to the north and 20 feet or more below sea level in the vicinity of the Lummi Reservation boundary to the south...." (page 6). First, the level of uncertainty in elevation is far greater than ± 10 feet, and California Creek may be hydraulically connected. Second, the water table on the Lummi Reservation is not at -20 feet MSL, but at approximately 0-5 feet at Neptune Circle wells and varies to greater than 20 feet above sea level in other area wells. Finally, while more detailed study is needed to understand this aquifer in greater detail, this consultant has concluded that groundwater from the area of the PUD well contributes to the Sandy Point aquifer on the Lummi Reservation.

41

The RZA AGRA, Inc. study concludes that "...this formation is not in direct hydraulic continuity with surrounding surface waters such as California Creek, Lake Terrell, or the Nooksack River." However, in the potentiometric surface map (Figure 8) the consultant demonstrates a hydraulic continuity with surface waters, including the Nooksack River. Numerous springs, small streams and wetlands along the slope of the upland are supplied by base flow from ground water. The extent of the aquifer as shown by this consultant includes a large number of lowland streams that contribute to surface waters of the Drayton Harbor watershed, Nooksack River tributaries, and streams draining to the Lummi River. What the study actually indicates is that the aquifer has a significant affect on the surface hydrology of lands to the north, west and south of the PUD well, and that withdrawals from that well might impact the flows and hydrological balance of those water resources. Given the high level of uncertainty of the RZA AGRA, Inc. study, more accurate data should be provided that addresses impacts to Reservation groundwater.

2.0 Geology and Slope Stability

The DEIS on page III-3 states that the proposed slope setbacks for facility improvements are for a minimum of 100 feet. The DEIS indicates that slow, continuous erosion of the bluffs is occurring, rather than larger downslope movements, but that if a significant slope failure occurred, geotechnical action for remediation would be taken.

In other parts of the DEIS it is stated that the shipping facility will be set back from the bluff by 200 feet. This apparent discrepancy should be clarified. All facilities and infrastructure should be set back 200 feet from the bluff, except where necessary for access to the pier.

2.1 Concerns:

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a) The 100 foot setback is too close to the shoreline bluff. The 1993 Whatcom County Shoreline Management Program requires for the Cherry Point Management Unit a minimum setback of 150 feet from the crest of the bluff if it is higher than 10 feet or has a slope greater than 30% (Chapter 23.100.210.42(c).1), conditions which exist at this site. In 23.100.210.42(f), utilities are subject to this setback, unless placed underground. Underground utilities will be at as great a risk as aboveground utilities in this location. The proposed 100 foot setback does not meet the County requirement, and places facilities too close to a bluff on a high energy beach. Should bluff erosion occur at a more rapid rate than predicted and the project require bluff protection, a source of sediment that nourishes Neptune Beach and Sandy Point would be reduced. The setback for the CPIP alternative is 200 feet. The setback for PIT facilities should be a minimum of 150 feet according to County regulations and are recommended at 200 feet if possible to avoid the future need for protective structures along feeder bluffs.

b) Saturation of the bluff through poor drainage will result in increased incidence of slope failure. Drainage plans should be designed to include limiting the saturation of the shoreline bluff, for example, either through infiltration or discharge to the bluff slope.

3.0 Wetlands

The project application covers a site of 1092 acres, yet the wetland assessment and mitigation plan has only been conducted for the 60 acres area that will be immediately impacted.

3.1 Concerns:

43

a) Wetlands are likely to suffer a net loss if the remainder of the property is permitted in a series of environmental reviews for small sites within the larger site. Smaller projects that impact less than 1 acre of wetlands and do not require mitigation could incrementally result in destruction of significant wetlands through cumulative loss. The cumulative impact of this incremental approach to environmental solutions should be addressed.

b) Ideally, the overall site should be evaluated for wetlands and a plan developed. While it is not known what facilities will be added later, a wetland plan can identify developable land within the context of an overall wetland plan for the site. The baseline wetland conditions for the entire 1092 acre site should be delineated so that the proposed 60 acres is evaluated within the context of the entire site hydrogeomorphic and habitat system.

4.0 Shorelines

4.1 The shoreline study by Westmar Consultants, Inc. includes several statements which are in error and are repeated in the EIS:

a) *"...the predominant direction of strong winds is the South..."* (Westmar Consultants, Inc., p.2).

The consultant study should address the shoreline processes issue in terms of the longshore drift cell extending from Point Whitehorn to southern Sandy Point. The winds from the South are prevailing winds, in that they are more frequent, but the predominant winds, i.e. those that move the majority of sediment, are from the west and west-northwest.

44

The 1977 Dept. of Ecology Coastal Atlas was incorrect in indicating that the net shore drift for this shoreline is toward the north; that mistake was made based on wind data from Tsawassen, the same mistake that Westmar has made. Local conditions at Cherry Point are not identical to those at Tsawassen. Subsequent studies for Ecology established that the net shore drift for the drift cell from Point Whitehorn to southern Sandy Point is to the south - the presence of the Sandy Point sandspit is unequivocal evidence of this net shore drift direction. Other studies (Bauer 1974, Jacobsen 1980, Schwartz 1972, 1986, Coastal Consultants, Inc. 1986, and ACOE, 1984) support the southward net shore drift.

The result of this conclusion is that interruption of net shore drift will have impacts on the Neptune Beach and Sandy Point shorelines. Several of the above studies have documented erosion of these Reservation shorelines from previous projects that reduced the volume of sediment nourishing these beaches. This is a shoreline of intensive residential development with increasing bulkhead construction that is contributing to damage of Lummi Nation shorelines and tidelands. Protection of private residential property and tribal resources and property along Reservation shorelines, necessitates that the longshore drift nourishing these beaches be preserved.

b) *"Because of the relatively large sediment sizes at the site, any sediment transport tends to occur as bed-load rather than as suspended load."* (Westmar, p. 4).

In contrast to the above statement, the large sediment sizes at the site indicate that this is a high energy shoreline and that sediment smaller than the cobble-and-boulder beach material is transported through this sector to depositional areas to the south. Smaller grain sizes eroded from feeder bluffs at the site are also transported off-site by longshore drift processes. The large sediment sizes on the beach are a lag deposit while the smaller grain sizes are removed by the high energy waves as suspended sediment. Westmar's statement is in error and mistakenly diminishes the significance of this sector of the drift cell to the continued nourishment of Lummi Reservation shorelines.

c) *"...wave heights at the shore will be somewhat reduced in the vicinity of the creek to the East Southeast of the approach trestle, and consequently there may be the potential for some sediment accretion here. However this is not expected to be significant, particularly as the more frequent waves from the South would tend to disturb any such accumulation."* (Westmar, p. 6-7).

44

Westmar has established that "...waves from the west undergo a slight reduction; and waves from the West Northwest would be reduced more significantly, since the waves would then need to propagate past many rows of pile." Deposition of sediment will result from refraction of waves and reduced velocity around the piles. Since it is these waves that sustain the predominant net shore drift to the south, this will have a significant impact on the sediment transport to the depositional areas at Neptune Beach and Sandy Point. The fact that waves from the South would "disturb" the accumulation does not mitigate this impact, since they do not result in transport to the south, but rather to the north. It is possible that sediment currently being transported to the south will be deposited around the piles and the mouth of the creek and will not be available for critical nourishment of Reservation shorelines.

An important factor that was not addressed is the impact on incoming wave energy of vessels tied up at the docks. Waves are not only affected by the pilings for the pier; vessels moored on the pier according to the design will be approximately parallel to the shoreline. This will result in wave refraction and changes in wave energies and directions that impact the littoral zone and the beach. Information should be provided which demonstrates the effects of vessels at the pier on wave heights and directions and their impact on sediment deposition and transportation.

4.2 Shorelines Summary

In addition to the above impacts, the 100 foot setback from the bluff and the resulting potential for future need to protect contributing feeder bluffs from erosion would reduce sediment to the system. In a 1986 study Schwartz concluded that, particularly in light of the long-term erosion resulting from previous projects that diminished the sediment volume, "Any interference with the sediment transport regime along the Pt. Whitehorn-Neptune Beach sector will have serious consequences in the vicinity of Neptune Beach and Sandy Point."

The Westmar study and the DEIS are in error in indicating that the project will have no significant adverse impact on beach processes at the site. Provisions for the long-term monitoring of beach profiles in cooperation with the Lummi Nation between the project site and southern Sandy Point, and mitigation measures pertaining to possible adverse impacts should be demonstrated.

Shorelines References

Bauer, Wolf, 1974, Drift Sectors of Whatcom County Marine Shores, for Whatcom County Planning Commission, Bellingham, WA.

Coastal Consultants, Inc., 1986, Quantification of Net Shore Drift Rates in Puget sound and the Strait of Juan de Fuca, Washington State Dept. of Ecology Report, WDOE 87-10.

Jacobsen, Edmund E., 1980, Net Shore Drift of Whatcom County, Washington, unpublished Masters Thesis, Western Washington University Department of Geology, Bellingham, Wa.

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Schwartz, M.L., R.C. Fackler, E.A. Hoerauf, C.E. Larsen, K.L. Lingbloom, and M.A. Short, 1972, Nearshore currents in southeastern Strait of Georgia, SYESIS, vol. 5, pp. 117-130.

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- Cummins JM & Gangmark CE. 1986. Results of oyster larvae assays conducted on Mobil, Arco and Intalco effluents and receiving waters in the vicinity of Cherry Point, Washington. US EPA, Region 10 Laboratory, Manchester, Washington.
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- Kocan RM & Landolt ML. 1990. Use of herring embryos for *in situ* and *in vitro* monitoring of marine pollution. In: *In Situ* Evaluation of Biological Hazards of Environmental Pollutants. Environm. Sci. Res., Plenum Press, N.Y.
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- Westernhagen H v., Landolt ML, Kocan RM, Furstenberg G, Janssen D, & Kremling K. 1987. Toxicity of sea-surface microlayer: Effects on herring and turbot embryos. Marine Environm. Res. 23: 273-290.

Letter 2
Lummi Indian Business Council #2

1. The importance of the project area to the Lummi People is acknowledged. The applicant will continue to work with the Tribe to resolve any issues relating to historic and cultural preservation and will develop a preservation plan.
2. The Lummi Nation's claim to primary fishing rights under the Treaty of Point Elliott of 1855 are acknowledged. The Draft EIS identifies potential impacts to commercial fisheries, along with recommended mitigation measures (Draft EIS pages III-56 to III-62). The applicant will continue to work with the Lummi Tribe to address these concerns.
3. The PUD has indicated that it has sufficient water, under water rights currently held by the PUD, to serve the proposal. This comment relates more appropriately to issues concerning the PUD, not the proposal.
4. The commenter's concerns regarding marine water quality, fish and shellfish resources and their protection with appropriate plans and facilities are acknowledged. Please see the responses to the technical comments in this letter (Lummi) for further information on this issue.
5. Project plans available at this time are conceptual in nature. Detailed facility plans will be provided in conjunction with construction-level permitting processes. These plans will allow agencies to make appropriate decisions regarding design measures to minimize or prevent environmental impacts. Additional environmental review will occur as appropriate. The proponent will continue to coordinate with the Lummi Nation regarding facility plans and appropriate responses to the Lummi Nation's cultural and environmental concerns.
6. The suggestion to monitor water quality with herring egg bioassays during April and May can be addressed as a permit condition if it is determined to be a reasonable requirement for mitigation. The Draft EIS discusses impacts to herring spawn and proposed mitigation. Possible mitigation includes retention of all process stormwater during the herring spawning season, depending on feasibility. If there is no stormwater discharge during time when herring eggs are available, the need for such bioassay would be unnecessary.
7. Please see the littoral drift discussion by Westmar Consultants in Appendix A to this Final EIS, which is an addendum to their July 1996 report "Beach Processes at Cherry Point, Washington State."
8. SEPA documents are focused on environmental effects. The SEPA rules provide that EISs are not required to evaluate economic impacts (WAC 197-11-448).

9. Please see Appendix E-4 to the Draft EIS, which addresses vessel interactions. Mitigation for impacts resulting from vessel interactions is discussed on page 16 of Appendix E-4 and on page III-61 of the Draft EIS. The proponent will collaborate with tribal and non-tribal fishers to set up specific actions to minimize and mitigate for vessel interactions that relate to the proposed action.
10. Table 1 of Appendix E-4 to the Draft EIS has been revised and is included below (see next page) to show the breakdown of barge movements. Included in the Table revision is the addition of tank ship movements that was inadvertently omitted. In addition, the number of barge movements included in the original Table 1 was reduced by half because, by definition, barge transits are one movement, not an entrance and exit movement that describe entering transits of cargo, passenger and tank ships. The revisions resulted in probabilities that were about 21 percent higher than originally calculated. Please note that number of barge movements presented are only those transporting crude oil, refined petroleum products or chemicals. The numbers do not include barges carrying all other commodities or tug-and-logboom operations.
11. Correction acknowledged.
12. It is acknowledged that areas defined as vessel traffic lanes comprise a large area in the Georgia Strait and other nearby waters. Marine charts are reproduced in Appendix 2 of Appendix E-4 to the Draft EIS. A calculation of acreage affected by marine traffic is not necessary for this response or to identify impacts.
13. Comment acknowledged. Herring larval development can be impacted if exposed to low concentrations of hydrocarbons and other toxins. The level of effect depends on the toxin, level of concentration, length of exposure and physical parameters such as temperature and salinity. In the attached literature, the first two studies dealt with oyster larvae.
14. Comment acknowledged. The findings of the cited studies are acknowledged. However, the studies were not able to establish what caused the high percentage of malformations in herring larvae.

**Table 1: Vessel Movements¹ and Pollution Incidents in Northern Puget Sound,
1993 through 1995**

Movement and Incident Type	1993	1994	1995
Cargo & passenger vessels, via Puget Sound	4,196	4,814	4,894
Cargo & passenger vessels, via Straits of Georgia	1,154	1,876	1,302
Tank Ships ² via Puget Sound	1,132	1,136	996
Tank Ships via Straits of Georgia	40	68	46
Tank Barges Transits ³	2,978	3,030	2,854
Total Movements	9,500	10,924	10,092
Pollution Incidents (<1,500 gallons)	175	145	110
Pollution Incidents (1,500 to 25,000 gallons)	0	0	0
Pollution Incidents (> 25,000 gallons)	0	1	0
Total Incidents	175	146	110
Probability	1.84%	1.34%	1.09%

1. Source: Shapiro & Associates, 1997. VEAT '93, VEAT '94, VEAT '95 from the Washington State Office of Marine Safety.

2. Tank ships are motor driven of any gross tonnage engaged in transport of crude oil, refined petroleum products or chemicals.

3. Tank barge transit is any move between two locations via Puget Sound, while transporting crude oil, refined petroleum products or chemicals.

15. Regarding the specific questions asked in this comment:

1. The project description and Appendix D-2 to the Draft EIS contains a description of how the proposed commodities would be stored and handled. The exact size and locations for uncovered, stored commodities has not yet been determined because the site plan for the facility is still conceptual at this time. Process stormwater will be collected at a location down-gradient of the facility operations areas. Process stormwater that cannot flow by gravity to that location will be pumped. Secondary containment will be provided in areas that are most likely to produce contaminated stormwater. The details of the stormwater conveyance, storage and treatment systems cannot be determined until a final site plan and final grading plan are prepared. Adequate mitigation for stormwater handling is addressed in the Draft EIS.
2. Per the BMPs identified in the Draft EIS, any incidental storage of fuel at the facility will be in double-walled tanks with complete overfill and spill protection. Secondary containment for fuel storage facilities will be provided as required by local fire code.
3. The current proposal does include covering of the train unloading areas. Depending on the commodity, truck loading/unloading areas will be covered. Transfer areas will be curbed so that stormwater runoff can be captured and conveyed to treatment facilities.

4. The final facility spill response plan will outline the responsibilities and actions to be taken in the event of a spill. These issues are discussed generally in the Draft EIS.
 5. Petroleum hydrocarbon commodities are not currently being considered for the proposed action. Amendments to the BMPs and Spill Response Plan will be made if the proponent considers adding petroleum hydrocarbon products to the list of commodities to be handled.
 6. At this time, the designs of stormwater facilities are not finalized. When stormwater facilities are fully designed at a later date, stormwater facility plans would need to conform with stormwater retention requirements.
16. Regarding the specific questions asked in this comment:
1. The use of washdowns to control dust will be minimized because it produces more process water to treat and dispose.
 2. The BMPs will provide closed and covered transfer and storage for those commodities that can leach contaminants.
 3. Same as the above response.
 4. Secondary containment for spills will be provided along conveyor systems where spills would most likely occur.
 5. The use of water for washdown purposes cannot be completely eliminated. The BMPs, however, are designed to minimize the production of washdown water. Baghouses could also be considered as a means of dust control.
17. Regarding the specific questions asked in this comment:
1. Secondary containment will be provided at all liquid storage tanks and transfer points.
 2. The only liquid storage on-site under the proposed action will be in above-ground storage tanks for petroleum hydrocarbon fuel for on-site machinery. All tanks will have secondary containment; all integral piping will be double-walled with leak detection. All fuel storage facilities will be designed, constructed and operated in compliance with the local fire code.
 3. There are currently no plans to handle liquid petroleum hydrocarbon commodities at the proposed facility. No vessel booming is planned at this time.
 4. The final site-specific Emergency Response Plan will outline specific actions to be taken in the event of a spill. Available on-site cleanup apparatus will be discussed in that Plan.
18. All terminal areas would not be paved and curbed. The final site plan would be designed to include paved and curbed areas to facilitate operations, spill containment and stormwater management.

The word “minimize” is intended to mean “come as close to eliminating” the discharge of contaminated stormwater to receiving waters as reasonable and practical.

19. Comment acknowledged.
20. Comment acknowledged. When the final facility site plan and grading plan has been completed, the proponent would provide stormwater conveyance, storage and treatment for the largest storm event possible. Containment will be designed to meet applicable Whatcom County and WDOE stormwater regulations.
21. "Process stormwater" is stormwater collected from the various facility operations areas. Process stormwater may or may not be contaminated. Contaminated stormwater is stormwater known to be contaminated by a spill or some other means.
22. Please see the response to comment 12 and 13 in this letter (Lummi). The comment regarding monitoring is noted. The Draft EIS notes that the Final Stormwater Management Plan will address monitoring (DEIS, page 3-21). The Plan will be developed with input from federal, tribal, state and local agencies with expertise.
23. The BMPs using washdown as a part of the cleanup process are described in the Draft EIS. The use of water for dust control and cleanup would be minimized whenever possible.
24. Comment acknowledged. Appropriate BMPs may be different for each commodity.
25. Disposal of ballast water from international vessels can adversely impact the local environment. Release of ballast water from ships is not legal in Washington waters, but has been known to occur in the past. Various port authorities are currently looking into technologies to treat ballast water before disposal. For example, the Port of Valdez has constructed an on-shore ballast water treatment facility that treats water prior to releasing into the bay. Prior to construction approval, the proponent will collect more information about alternatives for addressing ballast water disposal.
26. The Emergency Response Plan is conceptual at this time, consistent with this conceptual phase of the proposal. The final site-specific Emergency Response Plan will more specifically discuss emergency responses and cleanups related to oil spills.
27. The spillage of dry bulk commodities from conveyors will be cleaned up manually. During operation, the continual inspection of conveyor machinery would be as described in a facility Operations and Maintenance manual. All spills will be cleaned up as quickly as possible to minimize potential stormwater impacts. Overwater conveyors will be enclosed to prevent any spillage from reaching marine waters.
28. Spills and releases from liquid storage tanks will be contained by secondary containment features. Other liquid spills outside of secondary containment areas will be cleaned up in a manner consistent with the liquid product.

29. Comment acknowledged. Based on separate dive surveys at the site (Appendices E-3 and E-5 to the Draft EIS), the substrate that supports the majority of macroalgae is predominantly cobble, with gravel and sand, to about the -13 feet MLLW level from shore. This tidal level is about 590 to 610 feet from the shoreward face of the proposed wharf. Beyond the -13 feet MLLW level, the substrate is characterized by sand, silt, shell and mud, with little or no macroalgae. The operating area of tugs assisting barges to dock on the shoreward side of the wharf (see Figure 7) likely will not exceed 275 to 335 feet from the shoreward side of the wharf. This is at least 250 feet from the deepest edge of the macroalgae beds. Figure 8 shows a schematic of a tug docking a barge. However, based on normal barge docking procedures, it would be extremely rare that the tug would ever be perpendicular to the shore as shown.

Normal docking procedures can be summarized as follows (Mark Gazeley, Foss Maritime, personal communication, Feb. 1997): as the tug and barge approach the northwest end of the wharf, the tug would slow, reeling in the slack of the tow line. The tug would turn to starboard and approach a position between the barge and the wharf. The tow line would be left attached, and three additional lines would be attached between the tug and the barge. The barge would be turned, and when stopped would be in a position near the shoreward face of the end of the wharf. The barge would then be backed by the tug into docking position on the shoreward face of the wharf. During this procedure, the tug would travel parallel to the shore. Lines from the wharf would then be used to pull the barge to the wharf and secure it, and the tug would release its line and depart.

The draft of the tug would range from 10 to 12 feet. Any significant turbulence (greater than 1 knot/hour) from the propeller is estimated to be confined to within a half-cone 8 feet (at the stern of the tug) to 32 feet (200 feet from the stern) below the water's surface, assuming the tug would be at less than one-half power. The tug would most likely be at one-quarter power. Turbulence from tug prop wash would be unlikely to stir up bottom sediments, because the turbulence would dissipate prior to coming into contact with bottom sediments. In addition, the frequency of these events would be less than once per day and would probably last less than one hour. Because of the relatively high currents along this shore, it is unlikely that enough fine material would settle permanently on the substrate supporting marine vegetation such that a noticeable change in the distribution of marine vegetation could be detected. The impact would be no greater in magnitude than the prop wash of purse seine vessels and their skiffs used in setting and retrieving the purse seines close to shore during the herring and salmon fishing periods.

High levels of turbidity reduce available light that macroalgae use for photosynthesis. During storm events, short-term periods of naturally high turbidity occur. Additional turbidity that may result from stormwater runoff from the project site has the potential to contribute to the natural turbidity that could affect growth of marine vegetation. Mitigation for potential impacts to macroalgae and eelgrass resulting from project-related stormwater runoff is addressed on Draft EIS pages III-21 and III-22, and Appendix D to the Draft EIS.

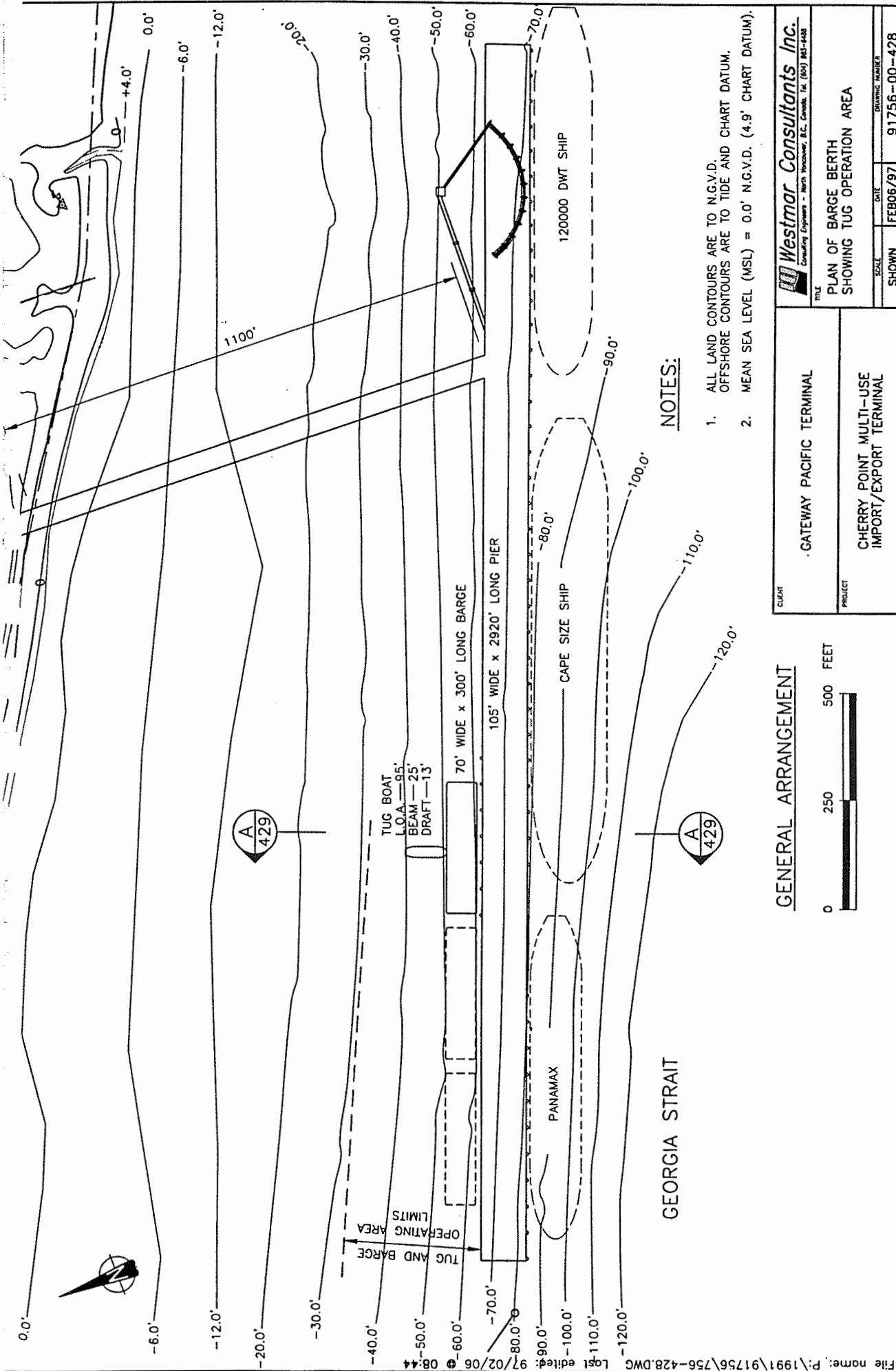
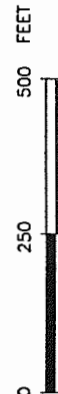
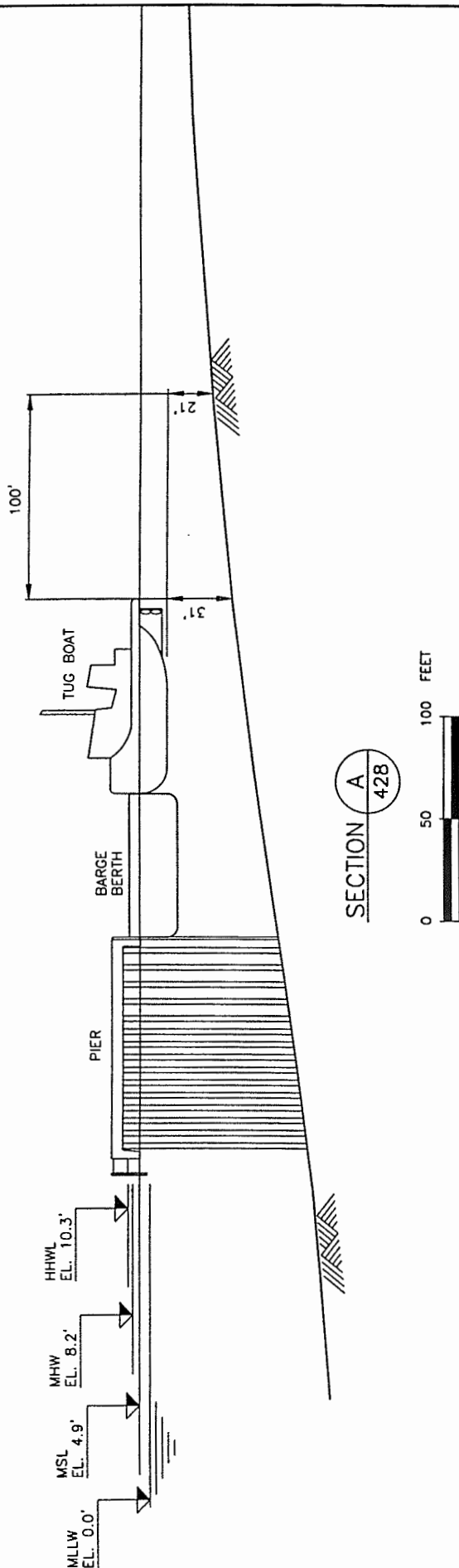


FIGURE 7 - PLAN OF BARGE BERTH SHOWING TUG OPERATION AREA

CLIENT	Westmar Consultants Inc. Consulting Engineers - North Vancouver, B.C. Canada, Tel. (604) 943-4408		
	TITLE PLAN OF BARGE BERTH SHOWING TUG OPERATION AREA		
PROJECT	SCALE	DATE	DRAWING NUMBER
	SHOWN	FEB06/97	91756-00-428

GENERAL ARRANGEMENT





NOTES:

1. ALL LAND CONTOURS ARE TO N.G.V.D.
OFFSHORE CONTOURS ARE TO TIDE AND CHART DATUM.
2. MEAN SEA LEVEL (MSL) = 0.0' N.G.V.D. (4.9' CHART DATUM).

CLIENT		Westmar Consultants Inc. Consulting Engineers - North Vancouver, B.C. Canada Tel. (604) 855-4488	
PROJECT		TITLE CROSS SECTION OF TUG AT BARGE BERTH	
SHOWN		SCALE	DATE
91756-00-429			FEB06/97
		DRAWING NUMBER	

**FIGURE 8 - CROSS SECTION OF TUG
AT BARGE BERTH**

30. Comment acknowledged.
31. It is acknowledged that the tribe's fishing activities pre-date the establishment of the shipping lanes. According to Dick Burge, Shellfish Policy Lead for Washington Department of Fish and Wildlife (personal communication, 1997), the tribe has not submitted (nor was it required to by the U.S. Federal Court) any documentation regarding pre-European-settlement off-shore crab fishing in the Cherry Point area.
32. Although some increase in crab pot loss could occur, it is not probable that *any* increase would be significant or unavoidable. To develop meaningful estimates of projected loss of commercial crab pots directly related to the proposed action, an estimate of the current loss due to bulk carrier vessels and barge traffic would be needed. As discussed in Appendix E-4 to the Draft EIS, this type of data is not available nor is it currently reasonably possible to gather such information. While there have been reports of pot loss ranging from 7 to 15 percent per year, it is unknown what portion of these losses is due to theft, storms, otter trawls, cargo vessels, bulk carriers, tug-and-barge, or tug-and-logboom operations.
33. This suggestion of specific advance notification of scheduled vessel traffic could be incorporated into the mitigation for this impact. The reasonableness and feasibility of this mitigation measure will be further evaluated.
34. The potential for an increased number of spill incidents is discussed in Appendix E-4 to the Draft EIS.
35. The typographical error cited in this comment should be corrected to 125 feet beam width for cargo vessels.
36. The increase in vessel traffic would be primarily for cargo vessels rather than barges. While there are no specific plans for barge use of the facility, this could potentially occur. The estimated increase in traffic for the proposed action is described in the EIS (refer to Chapter 2).
37. Appendix E-4 to the Draft EIS did not use the term "trend" to characterize the pollution incident data. The data show there was a significant decline in the number of incidents between 1993 and 1994 and again from 1994 to 1995. It is impossible to supplement the database because the number of traffic movements is not available prior to 1993 for Puget Sound as a whole. Data for 1996 are not yet available.
38. In general, the EIS uses the best available data to estimate the potential risk of spills. Based on comments received on the Draft EIS, these data were verified. The Office of Marine Safety, for example, confirmed that available, relevant data were provided, and that Shapiro accurately characterized the suitability and availability of data (Fishel, personal communication, Feb. 12, 1997). The SEPA rules provide that agencies should disclose when there are gaps in relevant information (WAC 197-11-080(2)). The Draft

and Final EISs note that only three years of data are available with which to quantify risk. the Draft EIS also contains an analysis of a catastrophic spill, which is considered a “worst case” scenario.

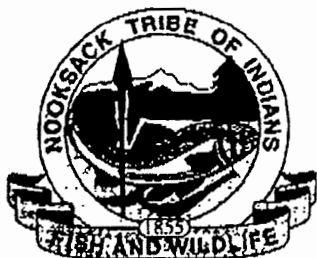
While it is true that mortalities would result from small marine spills of toxic substances that came in contact with herring spawn or larvae, the increase in risk of such an occurrence resulting from implementation of the proposed action is not considered to be significant, based on available data. From 1986 through 1995, three pollution events over 25,000 gallons occurred in northern Puget Sound, in 1988, 1991 and 1994. None of these events were in the Cherry Point vicinity. It is not possible to predict with any certainty when or where a major pollution event would next occur.

39. Vessels are not proposed to receive bunker fuel or transfer any oil at this facility. Booming could be implemented as an extra precautionary measure if a situation warranted such action.
40. An increase in crab gear losses at the same percentage as increased vessel traffic is not likely for the following reasons: existing anecdotal information suggests that cargo vessels are not the largest source of lost crab gear; the large majority of the vessels using the proposed facility would be cargo vessels; and, the proponent will work with fishing groups to develop programs to minimize losses of crab gear that could result from increased vessel traffic due to the proposed action.
41. The PUD has indicated that it has sufficient water to supply the proposal. Your comments question the accuracy of the PUD’s calculation of its water rights and water supply. This issue is outside the scope of this EIS.
42. The geology report in Appendix A of the Draft EIS indicates that a 100-foot setback would be sufficient, based on geological conditions, as measured from the top of the slope. The upland components of the project are more than 200 feet from the OHWM and therefore not subject to the setback requirement in the County’s Shoreline Master Program (150 feet). Since the proposal was vested prior to adoption of the County’s Critical Areas Ordinance, it is not subject to the setbacks in those regulations.
43. 3.1(a): There are no proposals to develop other portions of the site at this time. All future filling or impacting of any amount of wetlands on the remainder of the site would require permitting through the U.S. Army Corps of Engineers and Washington State Department of Ecology, as well as other State and Federal agencies. Since the entire 1,092-acre property is a “single and complete” parcel and will be included in the Major Development Permit, any additional work would require compensatory mitigation to replace the area and function of wetlands impacted.

3.1(b) The entire site was evaluated for the presence of wetlands and the current site layout was a result of reducing impacts to wetlands and avoidance of the seasonal stream corridor. However, wetlands were not formally delineated on portions of the site not

currently proposed for development. Additional work to identify wetlands, other critical habitat, and a functional assessment of existing upland biota of the site, would be performed for any future development proposals. As noted in the Fact Sheet, the proposal is being evaluated pursuant to phased environmental review.

44. Please see the discussion provided by Westmar Consultants in Appendix A to this Final EIS, which is an addendum to their July 1996 report "Beach Processes at Cherry Point, Washington State."



Nooksack Indian Tribe Fish & Wildlife

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(360) 592-5176 • Fax (360) 592-5753

January 27, 1997

WHATCOM COUNTY
PLANNING & DEVELOPMENT SERVICES

JAN 29 1997

RECEIVED

Roland Middleton, Deputy SEPA Official
Whatcom County Land Use Division
5280 Northwest Drive Suite B
Bellingham, WA 98226

Dear Mr. Middleton:

The Nooksack Tribe's spiritual and cultural use of the project site will be impacted. Current use includes clam digging, crabbing and other forms of gathering also culturally significant and are site specific. Spiritual renewal is another reported use of the area.

- 1 The Nooksack Tribe's concerns of significant impacts to traditional cultural properties have not been adequately addressed. It is recommended that Alan Richardson be retained at proponents expense to work in consultation with the Nooksack Cultural Committee to determine specific issues that the tribe desires to bring forward.

- 2 The reported data on vessel interactions with fishing vessels and gears are not adequate to address impacts to tribal fishing operations (a reserved right). A study should be conducted to determine what actual losses will be imposed upon Herring, Salmon, and Crab fisherman. Treaty and non-treaty fishers will suffer from gear loss, fishing time reductions and area restrictions. The proposed 50% increase in vessel transits will significantly increase interactions and the proposed mitigation is totally inappropriate and does not address any of the impacts outside of the immediate site vicinity.

The burden of defining and quantifying impacts to the environment and the tribal fishing community is on the project proponent. During scoping and in consultation with the project consultants the Nooksack Tribe has routinely asked about the impact of 50% increase in vessel transits to the proposed dock upon the fishing community.

Please review enclosed document (which was provided to you at least two years ago). Please feel free to contact me about study design on vessel interactions. Thank you.

Sincerely,

Dale T. Griggs
Biologist

enclosure

Post-It® Fax Note 7671		Date 1/30	# of pages 25
To RICHARD		From MIDDLETON	
Co./Dept.		Co.	
Phone #		Phone # (360) 676 6907	
Fax #		Fax # (360) 738 2525	

NOOKSACK INDIAN TRIBE

5048 Mt. Baker Hwy • P.O. Box 157 • Deming, WA 98244

Phone: (206) 592-5176 • Administrative Fax: (206) 592-5721 • Fisheries Fax: (206) 592-5753

Department: _____

WHATCOM COUNTY
PLANNING & DEVELOPMENT SERVICES

JAN 29 1997

Re: Proposed extension of ARCO Cherry Point Dock
Proposed Cherry Point Industrial Park Dock
Proposed Pacific International Industrial Park

RECEIVED

Comments of Nooksack Indian Tribe re. scope of required
environmental analyses

The several proposals to expand the Cherry Point industrial corridor create potential for significant adverse environmental effects. The proposed ARCO Dock expansion, Cherry Point Industrial Park Dock, and the Pacific International Industrial Park Dock each have potential to infringe or abrogate the Tribe's treaty rights.

The Nooksack Fisheries Department is primarily concerned with the potential of each of these projects to increase risks of damage to fishery resources in northern Puget Sound and southern Georgia Strait. Increased vessel traffic, with associated increases in fuel and other toxic substance handling, along with the presence of new or enlarged structures to service the increased traffic, will increase risks of direct damage to the fish resource, degradation of fish habitat, damage of fishing vessels and gear, and geographic and temporal loss of fishing opportunities.

3 These risks have great significance to treaty fishers who must try to make a living from usual and accustomed fishing places in nearby waters, where commercial salmon fishing has already been severely restricted by a combination of actions taken under the Pacific Salmon Treaty and the federal Endangered Species Act. The loss of fishing time or gear or both will affect all tribes who hold treaty fishing rights in the area.

The first step these project proponents should take is to assess the risk of loss or damage to the marine environment and fishing communities. Please do not consider the following list as all-inclusive but as a starting point for analysis. This information should be provided so that Nooksack Tribe and the environmental community can make informed decisions about the historical risks and the projects' potential for loss or damage.

At a minimum, the project proponents should calculate all of the following or, in cases where calculation is impossible, should provide their best estimates along with the reasons why calculation is impossible:

4 1. The probability of pollution events, based upon historical records, in such form that any scientist can make reasonable estimations of risk to commercially significant species and other objects of environmental concern. Environmental concerns of Nooksack Tribe include protection of all endangered and threatened plant and animal species, promotion of regional biodiversity, and prevention of marine pollution. Risk calculations should include categories based upon known spill size and frequency within Puget Sound and the Straits of Georgia and Juan De Fuca. Estimates of size and frequency of unreported spills and pollution in these areas should also be given (see the accompanying matrix for spills).

5 2. The probability of interference with fishing vessel operations and of damage to fishing vessels and gear. The probability of interactions with gear should be categorized by gear type, including fixed gear (crab pots, reef nets, and shrimp pots), drift gear, gill nets, and seine gear. The probabilities for all potential interactions between tankers, barges, and necessary tractor tugs, with the various fishing gears and operations, should be given (please see matrix).

6 3. Loss of fishing time due to Coast Guard regulation of vessel transits, taking into account the proposed number of transits and all current vessel movements in the designated areas.

7 4. Extent of loss of fishing places due to increased dock and vessel size and frequencies of use. Tribal and State-licensed fishers using seines, gillnets, and fixed gear types will be prohibited from using a larger area than under present regulations. Currently, the potential extent of loss is poorly understood because the area around docks that will be defined as off limits, or rendered useless for fisheries as a practical matter, has not been clearly delineated for either the ARCO products dock, Cherry Point Industrial Dock, or Pacific International Terminal Dock.

8 5. The extent to which larger or additional structures at Cherry Point may increase the extent of predation by:

a. Concentrating juvenile salmon in deep water that could increase their risk to predation; and

b. Increasing the number of predator species in this highly productive area.

9 6. The extent to which herring survival at various life stages may be affected by:

a. Creating micro-habitats and currents; and

9 | b. Altering the function of larval retention zones and
littoral drift.

10 | 7. The extent to which larger or additional structures at
Cherry Point may interfere with access to tidal and subtidal areas
for the exercise of treaty shellfishing rights.

11 | 8. The extent of potential cumulative effects of pollution
and other impacts created by all vessels that use or will use
existing and proposed dock facilities.

2 | 9. The extent to which increased size and usage of this area
may discourage its use by endangered and threatened species which
reside within the dock vicinity or may frequent this area.

	Cherry Point	San Juan Islands	Straits
Minor Unreported Spills			
Small Spills (<1500 g)			
Medium Spills (1500-5000 g)			
Large Spills (5000-25000 g)			
Catastrophic Spills (>25000 g)			

1. Historical probability of events (release of oil-fuel or cargo).
2. Projected increase in probability of events based on projected increase in transits.

	Minor Unreported Spills			Small Spills (<1500 g)			Medium Spills (1500-<5000 g)			Large Spills (5000-25000 g)			Catastrophic Spills (>25000 g)		
	CP	SJI	STS	CP	SJI	STS	CP	SJI	STS	CP	SJI	STS	CP	SJI	STS
Salmon															
Herring															
Crab															
Shell fish															
Marbled Murrelet															
Other E/T species															

What is the risk of the designated spill categories to the indicated species in the areas shown?
 (CP = Cherry Point; SJI = San Juan Islands; STS = eastern Strait of Juan de Fuca and southern Georgia Strait)

	Cherry Point	San Juan Islands	Straits
	1.a.	1.a.	1.a.
	1.b.		
Drift nets	2.a.	2.a.	2.a.
	2.b.	2.b.	2.b.
All fixed gears	2.a.	2.a.	2.a.
	2.b.	2.b.	2.b.
Crab gear	3.a.	3.a.	3.a.
	3.b.	3.b.	3.b.
Gill net	2.a.	2.a.	2.a.
	2.b.	2.b.	2.b.
Seine	2.a.	2.a.	2.a.
	2.b.	2.b.	2.b.

1. (a) With what frequency are vessels projected to transit during fishing seasons?
(b) For what duration do vessels remain in the dock vicinity?
2. (a) How much fishing time is lost each season when nets are damaged by vessel traffic in each area, stated in the value of lost time and as a percentage of total hours?
(b) What percentage of total hours has historically been spent moving nets to avoid vessel traffic in each area?
3. (a) How many buoy lines are destroyed by vessel traffic during crab season?
(b) For how many of these is compensation provided?

Letter 3
Nooksack Indian Tribe

1. The comment regarding the spiritual and cultural importance of the site is acknowledged. The applicant will retain a qualified expert to work with the Tribe to develop a historic preservation plan.
2. The Draft EIS identifies and discusses possible impacts to commercial fishing operations. As discussed in Appendix E-4, it is not possible to quantify the level of existing vessel interactions because such data have not been documented. Because quantitative baseline characteristics of vessel interaction do not exist, a quantitative assessment of the change in number of fishing vessel interactions resulting from project implementation is not possible. Please see the response to Letter 2 (Lummi), comment 36 for a discussion of SEPA provisions regarding incomplete data.
3. The Draft EIS identifies and discusses possible impacts to fish resources, fish habitat, fishing vessels and fishing opportunities. Please see the response to comment 2 in this letter (Nooksack).
4. Appendix E-4 to the Draft EIS used the best, most complete data available to calculate current probabilities of pollution events by the size categories very similar to those recommended by the Nooksack Tribe from the Strait of Juan de Fuca to the Straits of Georgia. No documented data are available to estimate the size or frequency of unreported spills. Please see the response to Letter 2 (Lummi), comment 9.
5. Data are not available to calculate the probabilities of vessel interactions with fishing operations. The Draft EIS and Appendix E-4 disclose the nature of interactions and impacts by type of fishing gear. Mitigation measures for these impacts are also discussed in the Draft EIS.
6. Data are not available regarding the amount of fishing time lost due to vessel traffic interference in vessel traffic lanes. This type of data would be highly variable by year because of the variation in fishing seasons and number of vessels.
7. The footprint of the wharf with three bulk vessels (maximum beam to 160 feet) plus approximately 600 feet (to depth of -12 Mean Low Water) of 50-foot wide trestle would cover nearly 18 acres. There would be no formal off-limit restriction around the facility as there would be for an oil and gas receiving pier. It would be practical to assume that fishing vessels would want to maintain at least a 100-foot buffer from the wharf. If this was the case, the total area of impact would be about 34.7 acres. While the exact location of the fishing sets by gear is not known, if it is assumed that local salmon and herring seine gears operating within 8 miles between Point Whitehorn and Sandy Point would use a 2,000-foot wide band near the beach (deeper than -12 feet MLLW) to fish, the total fishing ground for these gear is estimated at 1,939 acres. The 34.7 acres of potential

project impact would thus represent 1.8 percent of that salmon and herring area. For crab pot and other fixed gears, the area of impact would be much less than one percent.

8. To address issues of juvenile salmon migration, the proponent has allowed for spacing of pilings at 75 to 100 feet intervals and raised the trestle. Night lighting would be designed in collaboration with WDFW to minimize disruption of salmon movement patterns. It is speculative to assume the facility would increase juvenile salmon predators.
9. Little is known about the relationship of herring survival to microhabitats and currents or herring larval retention zones. The information in the studies in the Draft EIS suggest that there will be no significant effect on these elements. Because the project is not expected to have a significant impact on littoral drift and because spacing of the pilings across the near-shore zone are expected to be 75-100 feet apart, the project is not expected to have a significant impact on larval herring distribution. The cost to model such relationships and attempt to predict the proposed action's effects on herring survival would be exorbitant. The results of such studies would likely be inconclusive because of the many other physical and biological factors that influence herring survival.
10. There would be no restriction on tribal access to shellfish resources from the beach or small boats. It is possible that if commercial crab fishing was pursued from larger vessels, then impacts described in the response to comment 7 may apply.
11. Cumulative effects of pollution are difficult to assess because there are many kinds of pollution and their impacts depend on physical parameters as well as synergistic effects. Any attempt to model such relationships and to predict the proposed action's effects on all life history stages of each species would be speculative and inconclusive because of an array of other physical and biological factors that are involved.
12. Appendix E-5 to the Draft EIS presents information on current use of the site by bald eagles, peregrine falcons, marbled murrelets and northern fur seals. Pages III-64 to III-66 of the Draft EIS describe potential significant impacts and mitigation measures.



Letter 4

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

P.O. Box 47600 • Olympia, Washington 98504-7600
(360) 407-6000 • TDD Only (Hearing Impaired) (360) 407-6000
WHATCOM COUNTY
PLANNING & DEVELOPMENT SERVICES

January 22, 1997

JAN 29 1997

Mr. Roland Middleton
Whatcom County
5280 Northwest Dr, Ste B
Bellingham WA 98226

RECEIVED

Dear Mr. Middleton:

Thank you for the opportunity to comment on the draft environmental impact statement (DEIS) for the Gateway Pacific Terminal proposed by Pacific International Terminals (DEIS #960865). We have reviewed the document and have the following comments.

Permit Coordination Unit Comments:

- 1 We would like to acknowledge Pacific International Terminals' efforts in reducing the proposed wetland impacts from 23.1 acres to 5.86 acres.
- 2 The Fact Sheet should identify the need to obtain a Section 401 Water Quality Certification from the Department of Ecology and an Aquatic Use Authorization from the Department of Natural Resources.
- 3 The DEIS states that "During the herring spawning season of March through June, process stormwater may be stored in a series of lined ponds and diverted via pressurized pipes to existing and newly constructed wetlands." All known and reasonable technology (AKART) for any wastewater treatment system is continuous treatment not intermittent only during the herring spawning season as proposed. If the constructed wetlands can be used to infiltrate stormwater during the herring spawning season, it can and must be used to infiltrate stormwater all year.
- 4 Lined ponds by themselves may not be an adequate method of pretreating process stormwater prior to discharge into natural wetlands. We encourage detention ponds to be designed to function as vegetated, constructed wetlands in conjunction with other methods, thereby increasing the quality of the stormwater prior to discharging into natural or created/enhanced mitigation wetlands on-site.
- 5 The DEIS indicates that both covered and open storage would be provided. To the extent possible, materials with the potential to leach contaminants to waters of the state should be covered.
- 6 The DEIS indicates that one of the goals for mitigating lost wetland acreage is "to provide compensation for the loss of western red cedar trees important to the Lummi Indian Tribe's cultural heritage" but does not indicate how this will be accomplished.
- 7 The mitigation site should be developed in advance of filling wetlands on the project site. The entire wetland mitigation site (73.60 acres) and buffers should be designated as a Native Growth Protection Area and maintained as such, in perpetuity. This designation should be recorded as such on the property deed.

Roland Middleton
January 22, 1997
Page 2

- 8 Success of plantings in the wetland mitigation site should be defined as 80% coverage with native species, and less than 5% coverage with invasive species (i.e., reed canary grass) five years after revegetation. If there is a concern that floating logs will destroy vegetation planted at the mitigation site during times of inundation, the logs could be secured to protect vegetation.
- 9 The applicant should establish photo-monitoring points and include photographs of the mitigation site with the as-built report and annual monitoring reports.
- 10 The site plan shows a culvert inlet and outlet weir. Is this to control the seasonal stream or is hydrology flowing through the site by some other means?
- 11 The dimensions of the seasonally saturated "island" are not given. Our concern is that the island be of adequate size to prevent erosional loss of trees. It is not clear what the "celtic spirals" are made up of. Are they "islands" also, or just vegetation?

For questions regarding the comments from our Permit Coordination Team, please contact Ms. Vernice Santee at (360) 407-6926.

Water Quality Program Comments:

- Section III-22 states: "Process wastewater and contaminated stormwater will be treated by an on-site collection and treatment system prior to discharging to the receiving environment. The process wastewater and contaminated stormwater treatment system will consist of: screening; flow equalization and gravity sedimentation basins; physiochemical treatment, including neutralization and pH adjustment, chemical precipitation, and coagulation and flocculation; and sludge removal and dewatering system."
- 12 The specific treatment for a process wastewater discharge is determined after an AKART analysis of the specific industrial discharge and the specific wastewater characteristics of that discharge are determined. This is done through an engineering report as outlined in Chapter 173-240 WAC. This must be submitted to and approved by the Department of Ecology prior to construction and at least 180 days prior to the proposed discharge.
- Any industrial discharger that occupies space in the complex after completion must submit a wastewater discharge application to Ecology and obtain a wastewater discharge permit prior to commencing operations.
- If the construction site is greater than 5 acres a general stormwater permit for construction activities is required.
- 13 Wind blown fugitive emissions of green coke from unloading activities at Texaco has been identified as contaminating Puget Sound. Page 11-8 states Gateway will use environmentally sensitive equipment to provide protection from dust and spills. The contamination of water by fugitive emissions and

Roland Middleton
January 22, 1997
Page 3

windblown discharge to Puget Sound is not AKART, which is required under an NPDES permit. The portion of the trestle over land must also be enclosed to prevent wind blown emissions from entering the water.

13 The contamination of Puget Sound can be minimized by the use of baghouses to collect fugitive emissions. Baghouse control is up to 99 percent efficient at controlling the emission of particulates, much better than the 50 percent or less achieved with the proposed spray bars. Baghouses have been successfully used at cement plants and secondary metals refining of aluminum, copper, and zinc. Controls are used for materials handling, eliminating the handling and discharge of spray bar wastewater, providing greater air pollution control and together with covering the storage piles may eliminate all process wastewater for the terminal. The applicant should be required to provide justification if they will not be using baghouses.

Further, if spray bars are used this is process water requiring an individual NPDES permit. The permit may conclude baghouses are AKART for control of conveyor belt dust control. AKART may also be determined to be coverage of all storage piles.

If all loading and unloading activities are covered, baghouses are used, the area is paved, and good housekeeping such as sweeping or vacuuming is maintained, contamination will be minimized in the discharges to the treatment system.

14 Sulfate reducing bacteria (SRB), molds, fungi, and yeast contamination of ballast water has reached almost unacceptable proportions according to "Microbial Attack on Ships and their Equipment" written by Richard Stuart of Lloyd's Register. More than 2.4 million gallons of ballast water arrive every hour in coastal waters of the United States, and with it hundreds to thousands of non-indigenous species into U.S. waters.

Reballasting at sea has been made compulsory in certain areas and voluntary in others. But the study says that random tests have shown that, many of the ships which claimed to have been cleaned are still contaminated. Plant and animal life is also being transported on board and discharged into areas where indigenous populations can be severely disrupted (Motor Ship, December 1993). AKART for ballast water is zero discharge to surface or ground water.

For questions on the comments made by our Water Quality Program, please contact Mr. John Drabek at (206) 649-7293.

Nooksack Watershed Project Team Comments:

15 General - The DEIS is inconsistent in its references to what site is being addressed - whether it is the approximately 180 acres planned for the upland terminal storage facilities and rail loop (pages I-2, 4) as phase one, or the entire 1,100 acres (page III-80). We understand that the county is attempting to provide a phased environmental review, however, the current evaluation does not clearly make the case for the "phases" nor does it consistently use "site" as the Phase 1 proposed development in the documentation. For instance, are the impacts of 8.2 million tons of total annual through-put (pages II-7&8, III-116) proposed for the terminal based on the 180 acre proposal or on a 1,100 acre buildout? The

Roland Middleton
January 22, 1997
Page 4

- 15 | pier and related impacts need to be based on the final 1,100 acre buildout. Are stormwater flows and capacity based on the larger or smaller acreage? How are infrastructure requirements e.g. roads, rail, utilities, etc. considered in the context of the larger site features such as wetlands (page III-30), habitat, and hydrology? For instance, does the mitigation for wetland and stormwater impacts only consider direct infrastructure development i.e. the rail line or does it consider the indirect impacts from the initial phase of the industrial development footprint e.g. lot runoff?
- 16 | Page II-8 refers to the proponent's desire "to use the most environmentally sensitive equipment to provide protection to the environment from dust and spills." All conveyor and transfer systems within the shoreline jurisdiction should be completely enclosed to prevent spills and weather dispersed materials. Pier and Trestle - An option to locating the 22-foot wide conveyor system enclosure adjacent to the 50-foot wide pier by stacking the structures should be explored to lessen the overwater footprint (72 ft wide total). The maneuvering area required for the up to six barges that may be docking on the inner pier should be mapped, described, and addressed in the context of "prop wash" and other impacts, and consider other water surface uses.
- 17 | The analysis on page III-12 regarding beach and coastal processes including currents, sediment transport, and wave sheltering appears to have been done based on an "empty" facility having no vessels moored. Realistically, three large ocean-going vessels and up to six large barges may be docked, and will essentially create a floating breakwater. This "worst case" scenario should also be analyzed for the same parameters as the "empty" scenario. Similarly, water quality impacts associated with incidental loading; from minor spills, routine bilge water discharge, introduction of foreign species, stormwater diffusion, etc.; needs to be re-evaluated in the context of the "new protected nearshore area", as applicable.
- 18 | Page III-42 to 66, Significant Unavoidable Adverse Impacts - Marine Resources: the sub-lethal and cumulative impacts on seasonally sensitive juvenile and larval marine forms e.g. crab (page III-43 March-September), salmon, etc. besides herring (April-August) (page III-54) need to be recognized and mitigated for either by avoidance of discharge, or other means (Appendices).
- 19 | Page III-46 Potential Increase in Risk of Petroleum Pollution Resulting From Project Vessel Traffic: again, it is not clear if the 180-acre proposal or the entire 1,100-acre site is being used as the basis for vessel trip generation. Assuming it is the latter, the short "historical" record does not yield a useful or realistic projection based on the project description (Appendices). A tidal current study including docking procedures for barges and a range of vessels and weather conditions, day and night, in the context of existing fishing and other marine activities needs to be completed to address this complex issue. A "worst case" scenario should be provided which describes a catastrophic oil or chemical tanker/freighter collision.
- 20 | The top of the page III-68 mentions "ship fueling operations," however no further description is supplied.
- 21 | Public access requirements (Pages III-69, 82, 83, 91, 93) for "phase I" and the larger site need to be identified and planned simultaneously with the infrastructure. Impacts from the overwater structures on the public water body use and visual enjoyment need to be specifically addressed up front.

Roland Middleton
January 22, 1997
Page 5

For questions regarding any of the comments from our Nooksack Watershed Project Team, please call Mr. Barry Wenger at (360) 738-6245.

Sincerely,



Rebecca J. Inman
Environmental Review Section

RI:

EIS #968651

cc: John Drabek, NWRO
Lori LeVander, NWRO
Bob Newman, NWRO
Vernice Santee, CP
Janet Thompson, NWRO
Barry Wenger, Nooksack

Letter 4
Washington State Department of Ecology

1. Comment acknowledged.
2. Comment acknowledged. These required approvals have been added to list in the Fact Sheet.
3. All known and reasonable technology (AKART) has been considered for the conceptual stormwater management plan and will be included in the final plan. The proposal to recirculate stormwater through constructed wetlands during the herring spawning season was intended as a seasonal measure to minimize stormwater discharge to the bay during this period. It may not be possible or desirable to recirculate stormwater year-round, especially during the wettest periods of the year.
4. Because this stormwater management plan is conceptual, the engineered design for the stormwater retention ponds has not yet been prepared. The location and design of all stormwater conveyance, treatment and storage will be undertaken once the facility site plan and final grading plan has been determined. Where possible, the use of biofiltration treatment in stormwater retention ponds and constructed wetlands would be used. Water balance calculations would need to be reviewed with the wetland consultant to determine the seasonal feasibility of treating and storing stormwater in constructed wetlands.
5. The proposed facility's Best Management Practices (BMPs) are designed to provide covered storage in areas that would provide the most potential for the generation of contaminated stormwater. The BMPs are discussed in Appendix D-2 of the Draft EIS.
6. Locations for the planting of trees and the periodic harvesting of these trees has not been determined at this time. Discussions with the Lummi Tribe have not yet been completed. The intent is to provide a cultural resource of western redcedar trees for future use by the Tribe.
7. The mitigation process was started by spraying the restoration/study/creation site (located in the southwest corner of Aldergrove and Gulf Roads) with glyphosate to eliminate the reed canarygrass. This spraying occurred in the Fall of 1996. The site would be plowed, disked and planted with annual rye in the Spring/Summer of 1997 to compete with any reed canarygrass that survived the herbicide application. The intent is to reduce the percent coverage of reed canarygrass prior to excavation.

The entire mitigation site, which includes the above-mentioned area and the creek corridor, would be placed into a Native Growth Protection Area as you suggest. However, Henry and Lonseth Roads, which presently bisect the creek corridor, would not be part of the Native Growth Protection Area.

8. The suggested coverage of 80 percent native species and less than 5 percent invasive species five years after revegetation is considered an appropriate performance standard. If the logs and stumps placed within the mitigation area are perceived to become a threat to the newly-planted vegetation or the naturalized vegetation, the logs would be secured.
9. Photo monitoring points are established and would be included in the as-built and annual monitoring reports.
10. Presently, two culverts pass under Gulf Road and convey seasonal flow into a ditch that traverses the mitigation site. The ditch extends through the entire field. The culverts under Gulf Road would remain. The weir would be placed to control and adjust the water level as needed. The elevational drop between the culvert and proposed weir is approximately 3 feet in about 1,750 feet of length. This site is presently seasonally inundated with about two inches of water in most of the field and up to three feet within and adjacent to the existing ditch. Prior to its clearing, ditching and use as a field, this site is believed to have been a hummocky area of scattered seasonally-flooded and seasonally saturated areas similar to the forested scrub-shrub area directly south of the mitigation site.
11. The islands that would occur outside and around the celtic spiral would be at least 30 feet in diameter and about 8 to 12 inches above grade (seasonal saturation would be assured by controlling the water level at the outlet weir and partially regrading the field). Water level control at the weir would occur during the monitoring period as needed. The source of topsoil for these islands would come from the newly-excavated rail line directly west of this site.

The celtic spiral would be a new ditch. This ditched area would be similar in depth as the present ditch. The "spoils" for the ditch would be placed adjacent to the ditch and spread out in a fashion to become seasonally saturated areas. Some of the islands and the spoils from the spiral would be higher in elevation and become "uplands." It is intended that these upland portions would be approximately 14 to 18 inches above the saturated zone. This would assure areas for planting conifer trees.

The compensation objective of the mitigation site is to create a hummocky habitat of diverse hydrological wetlands with small areas of upland. The upland areas would be less than one acre. Since the elevational drop within this field is approximately 6 feet from the extreme north end to the south line of the property (a distance of about 2,500 feet), excavation would be kept at a minimum.

12. Comment acknowledged.
13. The proposed facility's BMPs describe that the transfer of green coke would be covered and enclosed (see Figure 2-2, Appendix D-2 to the Draft EIS). With regard to the BMPs, the use of baghouses in place of washdown operations will be further investigated. Baghouses typically require extensive and expensive air handling units. Baghouses do

provide an opportunity to filter air-borne contaminant emissions specific to the commodity being handled, however.

All known and reasonable technology (AKART) was used in the research and preparation of the BMPs. Additional modifications to the proposed BMPs may occur prior to the BMPs' incorporation into the facility's general stormwater permit. The proposed BMPs are based, in part, upon AKART and environmental approvals granted at similar state-of-the-art facilities.

14. Comment acknowledged. Please see the response to Letter 2 (Lummi), comment 25.
15. On pages II-6 and II-7, the Draft EIS notes that environmental review only covers facilities identified as part of the proposal: i.e. development of 80 acres for marine terminal facilities, 100 acres for the rail loop, and pier construction. The EIS does not cover the rest of the property. Any future development of other portions of the 1,092-acre site will require supplemental environmental review, pursuant to WAC 197-11-060(5) rules for phased review. As noted in the Fact Sheet, the shoreline application and development permit application include the entire 1,092-acre site. Development is currently limited to that proposed in the major development permit. Other uses of the site are not known at this time and any attempt to analyze a "build out" of the site would be speculative. Any additional development proposed in the future will be evaluated consistent with phased review (WAC 197-11-060(5)).

Chapter III of the Draft EIS describes the entire 1,092-acre site where relevant to particular elements of the environment. Impacts identified in the Draft EIS pertain only to the development of the Proposed Action (or Alternatives), whether or not they are "direct" or "indirect."

16. As shown on Figure 4 (refer to Chapter 2 of this Final EIS), the conveyor is already proposed to be constructed on the trestle. Thus, the "overwater footprint" of the trestle (with conveyor) is 50 feet wide, not 72 feet wide. Regarding potential for prop wash impacts, please see the response to Letter 2 (Lummi), comment 28. Regarding enclosure of conveyor and transfer systems, the Best Management Practices in Appendix D-2 to the Draft EIS (see pages 18-21), "wind covers for all conveyors including the transfer conveyor to the traveling shiploader" are listed for all of the materials except grain, for which are listed "enclosed conveyors." Drip pans and other collection devices for all conveyors are listed for green coke and calcined coke.
17. Please see the discussion provided by Westmar Consultants in Appendix A to this Final EIS, which is an addendum to their July 1996 report "Beach Processes at Cherry Point, Washington State." Please see the response to comment 16 in this letter (Dept. of Ecology, and the responses to Letter 2 (Lummi), comments 25 and 28.
18. Comment acknowledged. Appendices D-1, D-2 and D-3 to the Draft EIS describe the Stormwater Management Plan, Best Management Practices (including development of a

Stormwater Pollution Prevention Plan) and Emergency Response Plan for the proposed project. All have the objective of preventing pollutant discharge into the marine that may affect marine life, and are consistent with the commenting agencies protocols. If storm events that exceed the capacity of the treatment for process impacted stormwater and discharges occurred during times and in areas where larval and juvenile forms of economically important species occur, there could be sub-lethal and cumulative effects. Consideration of mitigation in addition to that already proposed would occur in collaboration with agencies after final designs have been prepared.

19. The basis for vessel trip generation is the development of the proposed action described in this EIS. Please see the response to comment 15 in this letter (Dept. of Ecology).

The request for a tidal current study involving docking procedures for a range of vessels in the context of their relationship to weather conditions, fishing and other marine activities is based on speculative assumptions about impacts; these are not considered to be "probable" impacts and not required to be addressed by SEPA. Probable significant environmental consequences are disclosed in the EIS. A worst-case scenario is discussed on pages III-48 through III-51 of the Draft EIS.

20. This statement should be corrected to omit ship fueling operations. No ship fueling is proposed for this facility.
21. Impacts of the Proposed Action and alternatives on public access, recreation and aesthetics are discussed in the Draft EIS. The comment does not specify what "public access requirements" need to be identified or planned with the Proposed Action. Any adopted regulatory requirements pertaining to public access, recreation or aesthetics would be incorporated in detailed development plans.



STATE OF WASHINGTON
DEPARTMENT OF FISH AND WILDLIFE

333 E. Blackburn Road • Mount Vernon, Washington 98273-0006 • (FAX (360) 428-1571

January 27, 1997

WHATCOM COUNTY
PLANNING & DEVELOPMENT SERVICES

Whatcom County Planning and Development Services
Attention: Roland Middleton, Deputy SEPA Official
5280 Northwest Drive, Suite B
Bellingham, Washington 98226

JAN 28 1997

RECEIVED

Subject: Comments - Draft Environmental Impact Statement - Gateway Pacific Terminal - Berthing Pier/Bulk Commodities Terminal Facility - Strait of Georgia, Tributary to Strait of Georgia, Section 17, 18, 19, & 24, Township 39 North, Range 01 East, Whatcom County, WRIA 01.MARI

Dear Mr. Middleton:

The Washington Department of Fish and Wildlife (WDFW) reviewed the above-referenced Gateway Pacific Terminal Draft Environmental Impact Statement for a berthing pier and bulk commodities terminal facility at Cherry Point and offer the following comments for your consideration:

1. Wave Sheltering: page III-12

The reduction of wave energy as a result of ship and barge moorage at the proposed 2820 foot long pier and the consequent affect on the littoral drift process at Cherry Point is not addressed. Ship and barge moorage frequency and duration needs to be considered in the wave analysis.

2. Oil Spills: page III-46

WDFW is concerned with regard to natural resource damages that would result from a major oil spill in the Cherry Point vicinity. The potential risk of a major oil spill in the Cherry Point vicinity will increase as a result of the additional shipping traffic associated with the proposed bulk commodities terminal facility. The project proponent will need to develop a spill prevention and response action plan subject to the approval of the Department of Ecology.

Post-It® Fax Note	7671	Date	1/28	# of pages	8
To	RICHARD	From	MIDDLETON		
Co/Dept		Co.	Whatcom County		
Phone #		Phone #	360 676-6907		
Fax #		Fax #	360 728-2525		

3. Stormwater: page III-16

3 The stormwater management plan for the proposed bulk commodities terminal facility is conceptual. A detailed stormwater management plan consistent with the Washington Department of Ecology and Whatcom County guidelines will need to be submitted for WDFW review and approval prior to the issuance of the Hydraulic Project Approval.

4 It is unclear how the stormwater gathered from roofs and other non-process areas will be treated for water quality. The discussion regarding the treatment of stormwater gathered from roofs and other non-process areas in paragraphs 3 and 4 on page III-18 is confusing. The discussion regarding stormwater management at the proposed CPIP facility is somewhat misleading. In response to agency concerns regarding the disruption of the long shore migration of juvenile salmonids by the trestle shadow, the CPIP facility incorporate light permeable grating along sections of the trestle roadway. As a consequence, capture and conveyance of trestle stormwater was infeasible. WDFW is also concerned that the shadow cast by the proposed Gateway Pacific trestle will disrupt the long shore migration of juvenile salmonids. WDFW will require the incorporation of light permeable grating into the Gateway Pacific trestle.

4. Upland Wetlands: page III-38

5 The wetland delineation and mitigation plan should be subject to the Department of Ecology and Army Corps of Engineers approval.

5. Marine Vegetation:

5a. Shadow Impact Avoidance: page III-27

6 Pacific International Terminals, Inc. is to be commended for employing design elements that reduced the potential shadow impact of the proposed trestle on the marine vegetation community. Design elements that are commendable include:

1. Relocating and reorienting the trestle to a north-south aspect.
2. Increasing the deck height of the trestle.
3. Lengthening the spacing between the trestle pilings.

5b. Barge Moorage: page I-3

7 The DEIS indicates that barges will be moored on the landward side of the proposed pier. However, the DEIS does not specifically indicate that barges will not be moored along the trestle element. In order to avoid shade and prop scour impacts to the marine vegetation community at the project site, barge moorage should not be permitted landward of the -30.0 tide elevation (MLLW = 0.00).

5c. Shade Model: page III-26

8 WDFW has reviewed the shade model referenced in the DEIS. WDFW believes that with further refinement and validation, the shade model under development by Shapiro, Inc. on behalf of Gateway Pacific Terminal, Inc. could potentially provide resource scientist with a valuable assessment tool. However, in its current form, WDFW believes that it is premature to use the Shapiro, Inc. shade model to make predications or draw conclusions regarding shade related impacts of overwater structures on marine vegetation communities.

WDFW has identified the following shade model concerns:

1. The maximum available light for algal growth used in the model document appears to be twice as large as the maximum available light measured by Thom and Albright. This discrepancy will need to be clarified.

The model document states that the available light for algal growth was calculated for the Fox Island Bridge and the Cherry Point project site. Though the value is not specifically referenced in the text, figure 4 indicates a maximum of 55,000,000 uE/m²/day or 55 E/m²/day available on June 21 during a clear weather period.

The model document references available light work conducted by Thom and Albright 1990. Thom and Albright recorded a maximum of 28E/m²/day and 22E/m²/day for clear days on June 1982 and July 1993 respectively.

2. The model document states that the available light for algal growth was calculated for the Fox Island Bridge and the Cherry Point project site. In addition to clarifying the maximum available light values referenced above in item 1, the maximum light available parameter for the model should be validated through field measurements in the Puget Sound vicinity.

3. The proportion of light available for algal growth on a cloudy day set at 29% of light from clear days may not accurately represent an average of overcast day in the Puget Sound vicinity. Per the discussion at the December 5 meeting, it appears that the 29% value is a product of research from outside of the Puget Sound vicinity. It will be important to refine this value with field measurements from the Puget Sound vicinity.

4. Per the discussion at the December 5, 1996 meeting, the use of instantaneous light or accumulative light parameters needs further discussion.

5. The shade model evaluates the light requirements and responses of ulva and laminaria. Per the discussion at the December 5 meeting, ulva and laminaria were selected for analysis because the light requirements of these two species is well documented. However, before it can be assume that the light requirements of ulva and laminaria are representative of the other macro algae species that comprise the macro algae community at Cherry Point, the light requirement of the other macro algae species will need to be evaluated.

6. The nomenclature used to reference light intensity needs to be standardized. How does the saturation light intensity values in Table 1 (uE/m²/sec) relate to the values used in figures 7-17 (uE/m²/day).

7. The shade model evaluates the effect of the pier shadow on marine vegetation (ulva and laminaria) distribution and %

cover along an axis parallel to the pier centerline. The model should also evaluate the effect of the pier shadow on marine vegetation distribution and % cover along an axis perpendicular to the pier centerline.

11 Figures 5 and 6 demonstrate a dramatic decrease in available light directly below the centerline of the pier. In addition, figures 5 and 6 demonstrate that the available light increases with distance away from and perpendicular to the pier centerline.

WDFW analysis of the shadow cast by the Arco Pier at Cherry Point in relation to marine vegetation distribution under and adjacent to the trestle indicates that the density of eelgrass and the % cover of marine vegetation is reduced by the trestle shadow along an axis perpendicular to the trestle. Our analysis indicates that the greatest reduction of available light and consequently marine vegetation occurs near the centerline of the trestle. Our analysis also indicates that the available light and vegetation increase with distance away from and perpendicular to the trestle centerline.

12 8. The % cover categories are extremely broad and do not allow enough detail to clearly define or validate the shadow dynamic of the Fox Island Bridge or model. Actual % cover field measurements for the marine vegetation should be provided and used.

13 9. The fact that there are data gaps in the Fox Island vegetation survey precisely where the modeled shade dynamic occurs is unfortunate. As a consequence, the modeled dynamic is only approximated and not really defined or validated by the field observations. A more detailed survey should be designed and implemented to validate the shadow dynamic of the Fox Island Bridge and the model.

14 10. The shade model document states that because of the extremely rich and dense algal communities under and adjacent to the Fox Island Bridge, slight revisions to the cover classes were necessary to adequately represent the data. The "slight revisions" will need to be identified and clarified.

15 11. The shade model document notes that the light available under the Fox Island Bridge on a sunny day exceeds the light available away from the bridge on cloudy days. The more important question that needs to be answered is what is the net effect (cumulative days) of the bridge shadow on the marine vegetation.

It is also important to note that the available light in the vicinity of the bridge is based on maximum and minimum available light thresholds that need to be clarified as noted above in items 1 and 3 respectively. In addition, it is also important

15 | to note that the light available in the vicinity of the bridge has not been validated through field measurements.

16 | 12. In order to refine and validate the Shapiro shade model, other shade models under development in the Puget Sound region should be evaluated.

5d. Marine Vegetation Shade Impacts: page III-26, 27, & 28

As noted above in item 5c, it is premature to use the Shapiro shade model to make predications or draw conclusions regarding shade related impacts of overwater structures on marine vegetation communities. As a result, the DEIS assertion "that it is reasonable to conclude that there is little risk that macro algae communities under the proposed trestle would disappear or be noticeably different in function and value from habitat adjacent to the trestle" is inaccurate and unsubstantiated.

17 | In 1996, WDFW analyzed the shadow cast by the Arco Pier at Cherry Point in relation to marine vegetation distribution under and adjacent to the pier. Our analysis indicates that though eelgrass and macro algae species are not entirely eliminated by the trestle shadow, the density of eelgrass and the % cover of macro algae species are reduced by the trestle shadow along an axis perpendicular to the trestle. The Arco trestle analysis indicates that the greatest reduction of available light and consequently marine vegetation occurs near the centerline of the trestle and that the shade effect decreases with distance from the trestle centerline. Within the shadow footprint near the centerline of the Arco trestle, the density of eelgrass and the % cover of macro algae species were reduced by 89% and 85% respectively when compared to adjacent areas beyond the trestle shadow.

Though WDFW anticipates that the macro algae community within the shade footprint of the proposed Gateway Pacific trestle will be impacted to some degree, further shadow analysis and agency consultation will be necessary in order to quantify the impact.

5e. Marine Vegetation Piling Impacts: page III-28

18 | Macro algae species will be lost as a result of displacement by the footprint of the piles supporting the trestle. The DEIS states that the footprint of the trestle piles waterward of the +5 tide elevation equals 459 square feet. It is unclear whether the 459 square feet represents the trestle piles from +5.0 to the waterward end of the trestle or the waterward extent of the macro algae community. The area of macro algae displaced by the pile footprint will need to be clarified and appropriate mitigation identified through agency consultation.

5f. Marine Vegetation Mitigation: page III-27-28

19 | Macro algae impacts identified through additional evaluation and consultation will need to be mitigated in kind and in the immediate vicinity of the proposed project. In addition, the macro algae community at the project site is documented herring spawning substrate for which successful mitigation has not been proven. As a consequence, successful mitigation of the impacted macro algae

habitat will need to be provided in advance of implementing project construction activities.

- 19 WDFW does not consider macro algae species growing on the trestle piles in the upper water column an appropriate mitigation for impacts to bed level macro algae species. In addition, artificial lighting and light reflecting devices are unproven mitigation measures.

5g. Marine Vegetation CPIP Alternative: page III-28

- 20 The DEIS statement " Impacts at the GPT pier location (Preferred Alternative) appear to be less than at the CPIP pier location because of the reduced cover of macro algae and eelgrass located within the footprint and shade area of the site proposed for pier construction" needs to be substantiated. It is not evident that the macro algae communities at the two sites are significantly different.

6. Herring Spawning Habitat

6a. Herring Spawning Habitat Impacts: page III-50

- 21 The Georgia Strait herring stock utilize the eelgrass and attachment macro algae species in the Cherry Point vicinity as spawning substrate. Though, the DEIS contends "that there is little risk that macro algae communities under the proposed trestle would disappear or be noticeably different in function and value from habitat adjacent to the trestle", WDFW anticipates that the macro algae community within the shade footprint of the proposed trestle will be impacted to some degree. As a consequence, WDFW anticipates that herring spawning within the trestle shade footprint will also be lost due to the loss of available macro algae spawning substrate.

6b. Herring Spawning Habitat Mitigation: page III-53

- 2 Successful mitigation has not been demonstrated for herring spawn. As a consequence, successful replacement of the macro algae habitat in concert with successful herring spawn will need to be provided in advance of implementing project construction activities.

WDFW does not consider SOK like net pens containing vegetative substrate suitable mitigation for herring spawn impacts resulting from the loss of macro algae spawning habitat.

7. Juvenile Salmonids

7a. Juvenile Salmonid Impacts: page III-51

- 3 For a period of weeks after transition from freshwater to saltwater, juvenile salmonids migrate close to shore in order to avoid their natural predators. In addition, certain invertebrate species found in shallow water are ideally suited as salmonids prey because of their size. WDFW is concerned that the shadow cast upon the water from overwater structures may disrupt the long shore migration of juvenile salmonids.

7b. Juvenile Salmonids Mitigation: page III-53

- ✓ In order to avoid disruption of juvenile salmonid migration, grating should be incorporated into the trestle roadway surface from the ordinary high water line (OHW) to the -25.0 tide elevation (MLLW =

23 0.00) to ensure maximum light incident to the water surface. The selected grate material should maximize open space while minimizing the thickness of the grating.

8. Epibenthic Invertebrates

8a. Epibenthic Invertebrates Impacts: page III-48

24 The DEIS does not address impacts to epibenthic invertebrate species that are prey for juvenile salmonids and resident marine fish species. Numerous studies have shown that certain epibenthic invertebrates found in shallow water marine habitats between approximately the +9.0 and -10.0 tide elevations (MLLW = 0.00) seem to be ideally suited as prey for juvenile salmonids and resident juvenile marine fish species because of their high visibility, size, and abundance. Marine algae called epiphytes grow on the surface of eelgrass blades, attachment macro algae leaves or the beach surface and provide an important food source for epibenthic invertebrates. Epiphyte production depends on available sun light. WDFW anticipates that the proposed trestle structure, between approximately the +9.0 and -10.0 tide elevation (MLLW = 0.00), will reduce the sun light available for epiphyte production and consequently reduce the production of epibenthic invertebrates within the trestle shade footprint by approximately 50%. In order to address shade related impacts to epibenthic invertebrate production associated with bare substrate areas, the applicant will need to quantify and delineate the bare surface areas between the +10.0 and -10.0 tide elevations (MLLW = 0.00) within the shade footprint of the pier structure.

8b. Epibenthic Invertebrates Mitigation: page III-52

25 Suitable mitigation for impacts to epibenthic invertebrate species that are prey for juvenile salmonids and resident marine fish species will need to be identified through consultation with agencies of jurisdiction.

9. Benthic Invertebrates

9a. Hardshell Clam Impacts: page III-48

26 Page III-42 of the DEIS indicates that the intertidal infauna in the vicinity of the project site includes a variety of clams including those sought by recreational clam diggers, such as cockles, native littleneck and butter clams. Though the footprint of the trestle piles waterward of the +5 tide elevation (MLLW = 0.00) will displace approximately 459 square feet of benthic habitat, the DEIS does not address potential clam or clam habitat impacts. The applicant will need to identify and quantify the distribution of clam species within the trestle footprint in order to assess clam impacts resulting from pile displacement.

9b. Hardshell Clam Mitigation: page III-52

27 Appropriate mitigation for clam related impacts will need to be developed through consultation with agencies with jurisdiction.

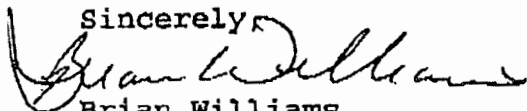
WDFW does not consider marine organisms attached to the trestle piles as suitable mitigation for clam related impact.

28 9c. Benthic Invertebrates - CPIP Alternative: page III-55

The CPIP alternative discussion is confusing and misleading. The CPIP cobble mitigation project is portrayed in a negative context and yet page III-42 of the DEIS professes the habitat benefits and species diversity of a cobble boulder bed at Cherry Point.

If you have any questions, please call me at (360) 428-1053

Sincerely,



Brian Williams
Area Habitat Biologist
Habitat Program

CC:

Ted Muller - WDFW Mill Creek
Kurt Fresh - WDFW
Mike McKay - Lummi Natural Resources
Barry Wenger - DOE
Bob Vreeland - NMFS
Mike Naylor - DNR
Tim Ramanski - USFWS
Steve Roy - EPA

Letter 5
Washington State Department of Fish and Wildlife

1. Please see the response to Letter 2 (Lummi), comment 50.
2. Comment acknowledged. The Draft EIS evaluates the potential risk of a major oil spill. A spill prevention and response plan, subject to the approval of the Washington Department of Ecology, will be prepared before project construction. This is identified as a mitigation measure on page III-52 of the Draft EIS.
3. Comment acknowledged. The Stormwater Management Plan is still conceptual. A detailed plan, consistent with Washington Department of Ecology and Whatcom County guidelines, will be submitted to WDFW review and approval prior to and in conjunction with the issuance of Hydraulic Project Approval.
4. As soon as conceptual facility plans are finalized, rainfall runoff volumes from roofs and gutters can be calculated and addressed as process stormwater. A detailed plan for the collection and treatment of process and non-process stormwater will be included in the final Stormwater Management Plan.

Methods for controlling runoff from the trestle will be explored and incorporated into the final design. Please note that the area needing grating is only a portion of the trestle. Portions of the trestle over deeper water would not need to be grated. Stormwater control would be provided for non-grated portions of the trestle.

5. Comment acknowledged. Wetland delineation and mitigation plans will be submitted to the Department of Ecology and U.S. Army Corps of Engineers, as applicable.
6. Comment acknowledged.
7. Barges would not be moored along the trestle or at depths less than -30 feet Mean Low Low Water (MLLW). The trestle is proposed as wharf access, not moorage for vessels.
8. Please note that Shapiro & Associates worked with the Department of Fish and Wildlife in designing the shade model. Regarding the concerns stated in this comment:
 - 1) Shapiro's model applied approximately 55 E/(m² day) for a perfectly clear June day with no shade. The 55 E/(m² day) value is calculated as the theoretical total light over the course of a day at the project site. Values measured by Thom and Albright reflect the effects of haze (or air quality), topographic influences (shading due to bluffs east of the Seahurst monitoring site) and other conditions on actual light intensity. Reductions from theoretical maxima to measured conditions as a result of environmental conditions are expected to be greater under extreme (clear sky) conditions than under the reduced light intensities associated with cloudy days.

- 2) Shapiro is currently discussing protocols for light measurements with Dr. Annette Olson of the University of Washington School of Marine affairs.
 - 3) Cloudy day conditions are one of the matters being discussed with Dr. Olson.
 - 4) Instantaneous light is a measure of the light impinging on a given point at any given moment. Accumulative light is a measure of the total amount of light energy experienced at a given point over a time period, usually one day. Growth rate at any particular moment is proportional to instantaneous light, while total growth over a time period is generally proportional to total light.
-
9. *Ulva* and *Laminaria* are diverse representative species that represent approximately two ends of the spectrum in terms of light needs. Results of the light model for other species would be within the bounds represented by these species.
 10. The units of $\text{uE}/(\text{m}^2 \text{ day})$ represent integrated light over the course of a day, or daily light. The unit $\text{uE}/(\text{m}^2 \text{ sec})$ is the appropriate unit for instantaneous light level.
 11. Because of the north-to-south orientation of the modeled pier, light levels at the water's surface would be nearly invariable along the length of the pier. The Shapiro shade model did address light attenuation and impact to algal communities perpendicular to the centerline of the trestle. By using multiple transects to sample algae and by modeling shade effects in both directions perpendicular to the trestle, the model actually provides a two-dimensional analysis of shading effects, rather than a one-dimensional assessment along a single transect.
 12. Comment acknowledged. The percent cover data was supplied to the commenting agency in late December 1996. The categories represented the natural clustering of the collected data.
 13. This issue of data gaps in the Fox Island vegetation survey and its relationship to the model was discussed in a December 5, 1996 meeting with the commenting agency. There are no data gaps in the Fox Island dive survey. The Fox Island study area was sampled every 20 feet along transects spaced 25 feet apart. Future research will take this into consideration.
 14. The cited revisions to cover classes in the model were discussed during the December 1996 meeting with the commenting agency. Cover data at the two sites exhibited slightly different clustering. The cover class definitions will be clarified in the next draft of the Shapiro shade model. At Cherry Point, cover ranges of 0-10%, 15-40%, 45-70%, and 75-100% best represent the data set. At Fox Island, ranges of 0-40%, 45-70%, 75-95% and 100% best represent clustering of the data set.
 15. The clear and cloudy day scenarios modeled represent an upper and lower bound of actual impacts. The results are similar under both scenarios. The final results for depth of algal dominance is not very sensitive to the saturation and compensation thresholds. As shown

during the December 1996 meeting, an order-of-magnitude change in saturation light intensity resulted in substantially the same modeled results.

While the absolute light levels have not been validated through field measurements, the presence and elevation of algal communities under the Fox Island bridge have been documented. The net effect of bridge shadow under the Fox Island Bridge is indicated by the extensive algal species cover under the bridge and in waters adjacent to the bridge. The data suggest that while zonation of the algal community may rise somewhat in the water column, there is no evidence of a reduction in productivity, because algal cover under the bridge is comparable to algal cover outside the influence of the bridge shadow. The data indicate that shading under the bridge has not greatly affected the algal communities. In fact, the survey results indicate only a slight variation in the elevation of the overall distribution of the algal plant communities, not the complete eradication that has been suggested.

16. Other shade models under development in the Puget Sound region, including the model of the University of Washington's Office of Marine Affairs, are being evaluated in relation to the proposed action.
17. The analyses in the Draft EIS did not identify any significant, non-mitigatable impacts to marine vegetation due to the proposed project. The potential impacts to marine vegetation from the proposed project are less than the impacts that would result from the CPIP project. The potential impacts on marine vegetation from shading of the trestle is site-specific, not local or regional. It would not impact any threatened or endangered species.

The statement of limited risk of shading impacts to algal communities under the proposed pier is not based exclusively on the shade model; it is also based on the observation that algae survive and in fact thrive under a facility of similar size, orientation and height. Based on this existing information, it is neither inaccurate nor unsubstantiated. The model is not intended to draw conclusions, but rather to explain phenomena that have been observed in the field and extrapolate those observations to other locations.

While it is agreed, and the shading model confirms, that the greatest impact would be along the centerline of the pier, the WDFW study of the Arco pier fails to acknowledge that the Arco pier is oriented in an east-west direction rather than the north-south direction of the proposed pier. Furthermore, the WDFW study of the Arco pier failed to acknowledge the difference of substrate under and the vicinity of the pier, which is primarily sand and silt, when compared to the primarily cobble substrate at the proposed GPT pier. WDFW states that their analysis indicated macroalgae grew in the shade zone of the Arco pier, although reduced beneath the centerline by 85%, diminishing in effect away from the centerline.

Since the preponderance of information presented in the Draft EIS and technical appendices demonstrates that macroalgae grow under other piers and likely would exist

under the proposed trestle, it is reasonable to conclude that the macroalgae community would not disappear. The issue under further investigation is the amount of impact and whether it is significant. It should be kept in mind that the Shapiro model assumed worst-case lighting conditions (i.e. no light-transmitting grating, reflective devices or artificial lighting associated with the trestle). In the next version of the shading model, the conclusions will be more specific, will address questions raised in critique of the model, and the need to have measurements of light intensity in the field.

Additional consultation with natural resource agencies will be conducted to further quantify the impact of shading. Such consultation will determine if there would be a significant impact in terms of intensity and extent. The potential impact on marine vegetation is site-specific, not local or regional. It would not impact any threatened or endangered species.

18. Comment acknowledged. The calculated area represents area lost from the footprints of pilings under the trestle between the +5 foot MLLW tidal elevation to where the trestle meets the wharf. The area of piling displacement within the vegetative zone (to -20 MLLW) would be 245 square feet (up to 35 pilings displacing approximately 7 square feet each).
19. Comment acknowledged.
20. The EIS for the CPIP proposal specifies that eelgrass will be impacted by the project and will need to be mitigated. There is no eelgrass directly impacted by the proposed Gateway Pacific trestle. Based on the EISs, the proposed CPIP trestle would shade 0.8 acre compared to 0.46 acre of shading by the proposed Gateway Pacific trestle.
21. Impacts to marine vegetation at the project site would not be significant for herring spawning success. Existing research shows the area of macroalgae under the footprint of the trestle to be 0.46 acres, or approximately 0.16% of marine vegetated area between Point Whitehorn and Sandy Point, where this stock of herring spawns. In addition, most of the marine vegetation at the project site is not preferred for herring spawning substrate. This conclusion is based on dive surveys at the site, that revealed species frequency composition, and data from WDFW herring spawn deposition surveys conducted from 1991 and 1993 (K. Stick, in Canadian Technical Report of Fisheries and Aquatic Sciences 2060). Data from the 1996 dive survey suggested marine vegetation at the site was dominated by six species (in descending order): *Sargassum*, *Cryptopleura*, *Laminaria*, *Ulva*, *Rhodamela*, and *Microcladia*. WDFW data suggested that herring prefer to spawn on eelgrass (58% of the eelgrass sampled had spawn) and *Desmarestia* (47% sampled had spawn). Next most important were *Laminaria* and *Botryoglossum*, which had spawn 18% of the time. *Ulva* that had spawn 5% of the time. Spawning was rare or not found on four of the six dominant species at the project site. The two species that showed herring spawn appear to be used infrequently.

At any one time herring use only portions of the available spawning substrate in the Cherry Point area. Even if the entire amount of vegetation at the site is lost, it is unlikely that the loss of less than 0.16 % of the potential spawning habitat would have some measurable effect on the spawning success of this stock of herring. At least 99.84 % of the spawning substrate in the spawning range of this stock would still be available. This conclusion of no significant loss of habitat is further supported by the fact that not all of the vegetation potentially shade-impacted would be lost as herring spawning substrate. Further, the surface area available for spawning substrate would be supplemented by the macroalgae growing on pilings in the inter and subtidal zones. While WDFW does not consider herring spawning on algae attached to pilings to be mitigation, herring are known to spawn on these types of surfaces. While the additional surface area of the pilings is not considered mitigation, it would exist if the project is implemented and cannot be ignored.

In addition, the mitigation measures of providing supplementary light to minimize affects to macroalgae habitat by using grating and light reflection measures have been accepted by agencies for other projects where shading has been an issue.

22. The limiting factor for herring spawning success is unlikely to be abundance of vegetative substrate. The dominant limiting factor appears to be predation. WDFW estimates that predation by seagulls and diving ducks can cause up to 90 percent mortality of herring spawn at Cherry Point. The mortality rate for herring larvae is high due to predation (including cannibalism), competition and starvation. The herring fishing tribes and WDFW allow a sac-roe gill net fishery, that kills about 8 percent of the adult harvest quota (20 to 30 tons of adults per year), and herring spawn-on-kelp fisheries that take 20 to 25 tons of herring spawn annually and kill several tons of adult fish due to handling. The potential decrease of a negligible amount of spawning vegetation would not significantly impact the reproductive sustainability of the Cherry Point herring stock compared to current sources of herring mortality.

No explanation is offered as to why WDFW does not consider spawn-on-kelp (SOK) pens, which would reduce predation, as acceptable mitigation. In the SOK fishery, it is well documented that herring use the preferred vegetation in the ponds as well as the pond net material as spawning substrate. By regulation, WDFW requires SOK ponds and kelp trimmings to remain in place until the eggs hatch. The rationale is that this is beneficial to maintenance of the herring stock because it helps mitigate for mortalities of adult herring in SOK fishing operations.

23. Comment acknowledged. This potential impact is disclosed on page III-51 of the Draft EIS. The requested mitigation measure is proposed in the Draft EIS discussion of mitigation for impacts to herring spawning habitat.
24. Epibenthic invertebrates that are prey for juvenile salmon include amphipods and copopods. These species are mentioned in Appendix E-1 of the Draft EIS. It is true that microalgae (epiphytes) require sunlight. It is unknown to what extent shading effects

would have on epiphyte production. The comment provides no basis for its estimate that the quantity of epibenthic invertebrates important to fish would be reduced by 50 percent.

The bare surface area from +10 feet to -10 feet MLLW within the footprint of the trestle is estimated to be approximately 8,025 square feet. This represents about 32 percent of the estimated 25,000 square feet under the footprint of the trestle between +10 and -10 feet MLLW. This estimate is based on the following: macroalgae cover data from the August 1996 survey at the site was used; the trestle would be 50 feet wide; there is 110 feet between the +10 feet MLLW and +2.5 feet MLLW level that is 100 percent bare; there is 20 feet between the +2.5 feet MLLW and 0 MLLW level that is 95 percent bare; there is 20 feet between the 0 MLLW and -0.5 foot MLLW level that is 70 percent bare; and there is 350 feet between the -0.5 foot MLLW and -10 feet MLLW level that is 5 percent bare.

25. The proponent would consult with agencies with jurisdiction regarding appropriate mitigation.
26. The impact to clam habitat was not considered significant because of the following:
 - the habitat area affected is negligible compared to the quantity of habitat available;
 - there is negligible risk that the reproductive success and maintenance of the populations at pre-project levels would not be maintained; and
 - there are no threatened or endangered species of clams involved.

When the locations of the piles are determined during final design, the proponent would sample the sites to determine if there are hardshell clams present.

27. Comment acknowledged. If mitigation is determined to be required, the proponent would consult with agencies with jurisdiction.
28. The Draft EIS did not intend to portray the CPIP cobble mitigation project in a negative context. The discussion points out the tradeoffs of such actions in relation to other habitat types and the organisms that use those habitats. The text acknowledges that such mitigation would increase invertebrate species that inhabit cobble substrates.



WASHINGTON STATE DEPARTMENT OF
Natural Resources

Letter 6

JENNIFER M. BELCHER
Commissioner of Public Lands
KALEEN COTTINGHAM
Supervisor

January 28, 1997

Rolland Middleton
Deputy SEPA Official
5280 Northwest Drive
Bellingham, WA 98226-9094

RE: Comments on Gateway Pacific Terminals' Draft Environmental Impact Statement (DEIS)

Dear Mr. Middleton:

Enclosed are the comments from the Aquatic Resources staff of the Department of Natural Resources regarding the Gateway Pacific Terminals Draft Environmental Impact Statement:

• **Sediments**

1 The DEIS did not provide sediment data or a discussion of the sediment chemistry. Based on the wide range and large volume of cargos that are anticipated to utilize the facility, sediment quality could be degraded through accidental spills or loading or off loading handling practices. The specific cargos listed in the DEIS could critically impact sediment quality should accidental releases occur. Any accidental releases of petroleum hydrocarbons from vessels could also impact sediment quality. The DEIS provided an analysis of the potential for petroleum pollution resulting from project vessel traffic. Based on the analysis, a spill of any size resulting from marine activities associated with the proposed project could be a rare event. Though unlikely, it remains that in 1995 there were 100 incidents in the northern Puget Sound region, involving more than 1,500 gallons of hydrocarbons being released.

2 It appears that the facility will be required to obtain a National Pollution Discharge Elimination System (NPDES) permit for stormwater. We strongly suggest that the proponent find other means by which to dispose of the stormwater other than through the means he currently proposes. The long term effects from discharges of stormwater have a long term impact on water and sediment quality. The Department would require pre-construction sediment sampling to determine the state of health of the sediments, prior to any construction. Additionally, should changes occur in the type of materials transported over the pier or at the end of any agreement term, additional sediment sampling would be required.

60

Page 2

Gateway Pacific Draft EIS

January 28, 1997

• **Aquatic Environment**

- 3 | Beach ownership- There is no mention made of or determination of beach ownership on the proposed site or adjacent tidelands. Our role as a proprietary agency is missing.
- 4 | Eelgrass impacts- No eelgrass has been identified directly under the footprint of the pier and hence no mitigation is being proposed. If there are impacts from wave shading which alter the sediment composition at some distance, eelgrass will be impacted. At the least, there should be a monitoring program to determine unanticipated impacts. This should be discussed in its entirety in the final EIS.
- 5 | Bull kelp- The Department's 1995 survey of near shore habitat identified a band of Nereocystis approximately 400-600 feet wide at the pier site and extending continuously in either direction. This is considerably more than was identified in the proponent's 1996 survey (p. III-25). Nereocystis is not likely to grow under the pier. Mitigation should be required for this resource.
- 6 | Cumulative impacts- There is no analysis of cumulative impacts other than in a few resource specific discussions (herring, macroalgae). No analysis is made of the total amount of the shoreline shielded by pierheads. These analyses should be included in the final EIS.
- 7 | Wave action shading- These impacts have been dismissed as not significant (p. III-14). The analysis did not take into account the presence of any vessels tied to the dock acting as floating breakwaters. The dock is built to accommodate up to three vessels on the outside and six barges on the inside. These vessels are likely to have considerable impacts in wave energy on the shoreline. There is also no analysis of prop wash impacts from the vessels or tugs working on barges inside the pier. The analysis is not sufficient.
- 8 | Alternative site analysis- The only alternatives considered are "no action", and then in a strange manner, the CPIP pier is considered more as a comparison of impacts, not as a real alternative to the proposed action. I would like to have a real alternatives analysis performed, considering the use of existing harbor areas, and other sites in the state, as well as sites in the lower BC mainland.
- 9 | Mitigation not on state-owned aquatic lands for private development impacts, not addressed.
- 10 | Mixed species seaweeds - This area, based on personal examination according to Dr. Mumford, has one of the most diverse macroalgal biota assemblages in northern Washington. The analysis in the DEIS is the most thorough of all the resource impact analyses and considerable effort has been made to model shading effects and mitigate for impacts. However, the general statement that all the seaweed "zones" shift landward (upwards 2-4') with no overall impact is not defendable- the upper limit of seaweeds is often determined by exposure and desiccation, not

Page 3

Gateway Pacific Draft EIS

January 28, 1997

10 light, and there will likely be an overall loss of habitat at the lower end without comparable replacement in the upper zones. Mitigation for macroalgal habitat loss should be discussed and required.

Herring stocks.

11 1. Page III-43-4. Abundance relative to smelt and sandlance have not been quantified. There is some evidence that smelt and sandlance may be locally more abundant at times. The relative abundance question is not likely to be resolved until biomass estimate methodologies are developed for these species. Never -the-less, herring play a dominant role in marine foodwebs.

2. Page III-43-4. Needs to cite herring embryo sensitivity to oil specifically here and risks from that on p. III-46.

3. Page III-43-4. Could use herring spawn data to better define spawning habitat and use at a site with more detail.

12 4. Page III-45- next to last sentence, first paragraph. Very cursory overview of herring spawning habitat potential and actual use. The second to last sentence in particular lacks context and is misleading. The proposed site is in fact one off the broadest bands of herring spawning habitat. It is also one of the most frequently and most heavily utilized sites used by the stock.

13 5. Page III-45- last sentence, first paragraph. According to Mr. Bill Graeber of our Aquatic Division staff, indicated that he has not read the cited paper, and he would take exception to this sweeping of a statement as mentioned in the DEIS. The scale of the quantification may not fit the needs of the developer. However, the importance of the Cherry Point herring stocks spawning grounds can certainly be quantified. It is then a policy call as to whether multiple use warrants the risks posed to the productivity of the stock.

6. So what stock size do you manage the habitat for? Once you decrease habitat capacity it is gone for a long time.

14 7. Why would you site the terminal here where the sensitivity is the greatest? Injury from even a minor event can be devastating to the herring resource. The site is suspected of playing a key role in spawning migration behavior, i.e., movement from offshore to spawning grounds. The barrier imposed by the vessels/pier could pose a major disruption to migration.

15 Dungeness crabs- Impacts of uncertain magnitude are identified (p. III-52).

Juvenile salmonids- Impacts of uncertain magnitude are identified (p. III-52).

Herring spawn on kelp fishery- See comments on fishery.

Page 4

Gateway Pacific Draft EIS

January 28, 1997

- 16 | Shellfish resources- Little quantification other than catch statistics for the Cherry Point reach. No surveys done for specific stocks.
- 17 | Navigation and fishing- There are identified impacts on crab, herring, salmon, and herring roe-on-kelp fisheries. The department, as natural resource trustee with treaty obligations, must work with the affected tribes and WDFW to ensure treaty rights are protected.
- 18 | Birds- The presence of large numbers of scoters (5-8,000) are noted on p. 8 of the bird study- in the Appendices. Approximately 11,000 birds are totaled for the year not counting the scoter. Scoter counts should nearly double the number. Scoter populations are in serious decline. The impact analysis should include habitat functions for scoters, which are believed to use the Cherry Point area as a critical feeding stopover in their northward migration.
- 19 | Oil and material spills- Concerns are addressed through BMP's. See comments above in the herring section- the risks from even a modest spill are enormous.
- 20 | Adaptive management- not addressed. Any land use agreement considered being issued by the Department, may require a monitoring plan, criteria and thresholds for mitigation, or remediation in case of unanticipated impacts for any resource for at least the resources of concern mentioned in this letter. Security bonds could be required by the Department to ensure the needed financial resources are available for remediation.

Other issues

- 21 | 1. Page ii- required approvals- no mention of the Department's lease.
- 21 | 2. Relationship to Plan and Policies- Page III-85. The state as landowner and its policies are not included.

Summary:

- 22 | Overall, many impacts to resources are identified, but not quantified. Dr. Mumford and Mr. Graeber believe the applicant has been honorable in identifying those impacts. However, many are then called "not significant", with no mitigation proposed, leaving it up to the resource manager to determine the proper course of action. In most cases, impacts are connected with the construction phase of the project, with little solid information about long-term impacts from operations and maintenance. Several issues have serious shortcomings; wave shading, fisheries, cumulative impacts, and alternative analysis and actions leading to adaptive management. There is no consideration given to the fact that the resources at stake at this site have enormous importance on a state-wide and international level.

Page 5
Gateway Pacific Draft EIS
January 28, 1997

• **Proprietary Issues:**

23

Past discussions with representatives of Gateway Pacific Terminals indicated that the facility being proposed will accommodate other waterfront landowners' access across the pier, in the vicinity of the Gateway Pacific Terminals' complex. This has been reaffirmed and will be the expectation if the Department agrees to issue a use agreement for another pier at Cherry Point.

• **Department Decision**

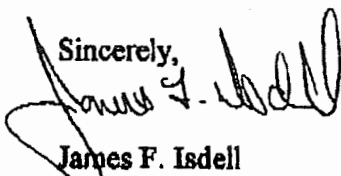
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The Department of Natural Resources as managers of state-owned aquatic lands, strives to provide a balance of public benefits for all of the citizens of the state. Our charge as the underlying land owner of the beds of navigable waters, is to determine if this proposal is in the states' best interest. The Commissioner of Public Lands has previously stated in her October 5, 1995 letter to Cherry Point Industrial Park, that "we will only be in a position to make a decision after all of the permit processes have been completed, and all appropriate information has been disclosed". The position the Commissioner has taken with Cherry point Industrial Park, will be the same position we will take on the Gateway Pacific proposed pier.

We will not object to either proponent obtaining the necessary, regulatory permits for a pier at Cherry Point. However, our decision to lease or not lease, will be an independent one, and will be made only after all of the environmental analysis total cumulative impacts, have been clarified and evaluated.

I hope these comments in conjunction with those raised in our previous letters (attached) will be helpful in responding to our concerns in the Final EIS.

Sincerely,



James F. Isdell
Section Administrator
Northwest Region

c: Craig Partridge, AQ
Ann Essko, AQ
Tom Mumford, AQ
Bill Graeber, AQ
Tim Goodman, AQ
Danie Kitchel, AQ
Todd Palzer, AQ
John Osborn, NW
Region file 20-013265
Oly file 20-013265



WASHINGTON STATE DEPARTMENT OF
Natural Resources

JENNIFER M. BELCHER
Commissioner of Public Lands
KALEEN COTTINGHAM
Supervisor

December 20, 1995

Roland Middleton
Whatcom County, SEPA Deputy
5280 Northwest Road
Bellingham, WA 98226

RE: Revised Scoping Notice for Gateway Pacific Terminal's, Marine Terminal at Cherry Point

Dear Mr. Middleton:

We have reviewed the Revised Scoping Notice for the Gateway Pacific Terminal's proposed marine terminal at Cherry Point, and we have the following comments regarding the proposal:

1. There should be alternative siting analysis done for the proposal. This type of development would normally be located in industrialized harbor areas, such as Bellingham, Blaine, or Anacortes. What are the exceptional circumstances for this wharf to be located at Cherry Point and not in areas such as Bellingham, Blaine and Anacortes?
2. The environmental analysis should include a detailed discussion of cumulative impacts of another wharf at Cherry Point. Discussions and analysis should include the effects of wave dampening interactions with the shoreline, which may result in changes to the physical dynamics and characteristics of the shoreline.
3. The proposal should also be evaluated from the wave shading impact on existing micro algae communities such as eel grass and bull kelp beds etc. Analysis of the possible disruption in the transportation of sand, gravel, and organic debris as a result of another pier at Cherry Point should be discussed.
4. There should be a detailed survey of the beach and subtidal areas. This survey should include the mapping of specific micro algae and their densities.
5. An evaluation and discussion of the productivity of the site as habitats for raptors, fish and wildlife, and any endangered species which utilize the site. Discuss impacts of the wharf on those habitats.

Page 2
Middleton

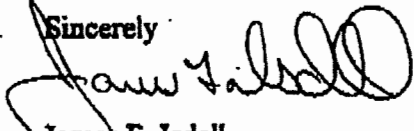
6. A detailed analysis, on impacts the wharf will have on herring habitat, herring behavior, and tribal herring spawn-on-kelp fishery.
7. Discussion of the wharf's impacts on commercial and recreational crab fisheries and any long term cumulative impacts to this fishery.
8. In depth analysis of the impacts on juvenile and adult salmon habitats, and their behavior patterns as a result of the wharf. Also, a detailed analysis of the cumulative impacts on these fisheries resources.
9. Discussion of the impacts of this wharf on recreational and commercial shellfish resources, both intertidal and subtidal.
10. Impacts on the aquatic ecosystem by the increase of vessel traffic at the wharf.
11. Impacts on the micro algae community as a result of shading by the wharf. Discussion of alternatives to minimize the effects of the wharf's shading, and any mitigation alternatives or mitigation measures which may be required by a regulatory agency as a resulting from the shading of micro algae.
12. Discuss the preventive measures which will be taken to minimize or eliminate the potential for accidental spills of materials transported across the wharf.
13. Development of a spill prevention and response plans, should an accidental spill occur on the wharf or an accidental spill from a vessel.
14. The proposed wharf will interfere with tribal fishing rights, discussions in the EIS should address them, and discuss alternatives for mitigation.

It should be noted that the Department of Natural Resources as manager of state-owned aquatic lands, strives to provide a balance of public benefits for all citizens of the state. Our charge as the underlying property owner of the beds of navigable waters is to determine if this proposal is in the states best interest. The Commissioner of Public Lands as previously stated in her October 5, 1995 letter to Cherry Point Industrial Park, that "we will only be in a position to make a decision (wether to lease or not) after all of the permit processes have been completed, and all appropriate information has been disclosed." The position the Commissioner has taken with Cherry Point Industrial Park, will be the same position we will take on the Gateway's proposed wharf.

Page 3
Middleton

We will not object to Cherry Point Industrial Park or Gateway Pacific Terminals obtaining the necessary, regulatory permits for a wharf at Cherry Point. However, our decision to lease or not will be an independent one, and will be made only after all of the environmental analysis total cumulative impacts, have been clarified and evaluated.

Sincerely



James F. Isdell,
Program Specialist
Northwest Region
919 Township Rd
Sedro Woolley, WA 98284

c:File-NW-20-013265
File-OLY

Letter 6
Washington State Department of Natural Resources

1. Potential impacts on sediment quality from accidental releases of environmental contaminants would be mitigated through implementation of effective pollution prevention strategies and Best Management Practices related to the use, handling and transport of materials at the site. Monitoring of sediment quality would be conducted as a condition of the NPDES permit (see below). According to Table 3-7 in the Draft EIS, there were 110 pollution incidents during 1995 in the northern Puget Sound region. All of these incidents involved less than 1,500 gallons, not more than 1,500 gallons as suggested in the comment.
2. Treatment approaches used for non-process and process stormwater will include state-of-the-art stormwater designs developed in accordance with applicable local, state and federal regulations and standards. Treatment requirements for process-impacted stormwater will depend upon specific materials handled and will be more fully developed during the final design and permitting stages of the proposal. Supplemental process-impacted stormwater treatment methods will be developed and implemented in the future to accommodate materials not currently planned for handling on the site.

As mentioned in the description of the proposed action (Draft EIS Chapter II), the final Stormwater Pollution Prevention Plan will include operational approaches to minimize discharge of treated, process-impacted stormwater into the bay. During the sensitive herring spawning season, for example, such discharges will be minimized or eliminated by using lined ponds for on-site storage with controlled releases to constructed wetlands designed to provide further water quality treatment.

The stormwater outfall will include an engineered diffuser design located approximately 1,000 feet off-shore at the face of the pier. The objective of the design is to maximize vertical and horizontal mixing to minimize or avoid adverse impacts on water quality and sediments in the nearshore environment. The outfall design will be based on plume modeling conducted during the final design of the facilities.

NPDES permit conditions, developed through consultation with the Department of Ecology, are anticipated to include a plan for monitoring marine sediments and water quality in the site vicinity prior to construction and within prescribed time intervals thereafter. Monitoring is recommended as a mitigation measure in the Draft EIS. Monitoring the character of the sediments and water quality over time would provide a basis for determining if supplemental stormwater treatment technologies are appropriate. It is anticipated that the NPDES permit could stipulate additional sediment sampling requirements depending on the nature of materials to handled at the site.

3. It is acknowledged that the Washington Department of Natural Resources is a proprietary agency and owns tidelands in the project vicinity. The proponent has title to second-class tidelands at the proposed wharf site. Approval of an aquatic lands lease has been added to

the list of required approvals. WDNR will be closely involved in the permit and approval process for the proposed project.

4. The implied concern is that the piles of the proposed pierhead and trestle, in combination with the periodic presence of vessels berthed at the pier, could alter wave actions that influence the character of adjacent shoreline and algal communities. Evaluation of changes in the eelgrass community along the adjacent shoreline could be incorporated into the monitoring program for the project's NPDES permit. It is recognized that year-to-year changes in this and other eelgrass communities along shorelines of the state also occurs in response to natural processes.

Monitoring program approaches would be considered that provide opportunities to distinguish between natural and project-related causes of potential changes in the eelgrass community in the project vicinity. Information developed as part of monitoring efforts for other Cherry Point facilities would be examined for use as a baseline, subject to its availability.

5. Two underwater surveys were conducted by the proponent. Both the 1994 and 1996 dive surveys were conducted in August and were site-specific. In 1994, bull kelp was sparse (only 6 plants were counted along the 7 transects) compared to other species of marine vegetation. These occurred mainly in the -9.6 to -10.9 feet MLLW about 400 feet from shore. Other plants were seen at -5.1 feet MLLW, about 200 feet from shore, and at -1.2 feet MLLW (although the latter was suspected to have been dislodged from a greater original depth). During the 1996 survey, there were two narrow bands of bull kelp (one 260 to 300 feet from shore, the other 400 to 460 feet from shore) between 70 and 100 feet apart. The proponent has requested opportunity to evaluate the methods and data from the DNR's 1995 survey to determine why there is a difference in the amount of bull kelp between the two surveys.
6. An impact discussion including consideration of the cumulative impacts of the existing and proposed piers and wharves is provided on pages 30 to 32 of Appendix E-1 to the Draft EIS. This discussion lists the size and construction type of the existing and proposed facilities, includes a graphic depiction (Figure 10) of the facilities and evaluates potential cumulative impacts on herring fisheries. Cumulative impacts are also discussed in Whatcom County (1992) listed in the References for Appendix E-1.
7. Please see the response to Letter 2 (Lummi), comment 50.
8. As noted in the Draft EIS, the CPIP alternative recognizes the possibility that only one additional pier may be permitted in the Cherry Point area. WDNR stated in its letter of October 5, 1995, to the Whatcom County Council, that only one lease at Cherry Point will be considered. The CPIP alternative is intended to assist WDNR and the public in considering the relative differences between the two proposals. The SEPA rules do not require evaluation of other off-site alternative for private proposals when no rezone is

involved (WAC 197-11-440(5)(d)). The Draft EIS discusses other on-site alternatives that were considered during project planning.

9. It is acknowledged that WDNR policy, as stated in its Draft Marine Vegetation Management Plan (June 1996) does not permit off-site mitigation for private projects on aquatic lands. However, the proponent has title to second-class tidelands at the proposed wharf site.
10. Mitigation measures for impacts on the marine algal communities have been incorporated into the conceptual project design as described in the Aquatic Plants section of the Draft EIS.
11. It is acknowledged that smelt and sandlance may be locally abundant at times in the project vicinity. It is also acknowledged that herring play a dominant role in the marine foodweb. As stated on page III-43 of the Draft EIS, "Pacific herring is the most important baitfish species in Washington." The Cherry Point herring stock is of key importance because it represents "the largest stock in the state." Herring embryo sensitivity to petroleum pollution is discussed as a potential impact in paragraphs one and two on page III-50 of the Draft EIS. As noted in the Draft EIS, supplemental environmental review will be conducted as appropriate, in subsequent stages of project design and permitting.
12. Please see the response to comment 11 in this letter (Dept. of Natural Resources). The statement that indicates the zone of potential herring spawning substrate at the proposed trestle site is the narrowest between the Arco dock and the Intalco pier was based on analysis of aerial photos and the examination of the bathymetry. This shows the photic zone (to about -18 feet MLLW) is the narrowest from the site to where Gulf Road parallels the shore. North and south of this stretch of beach, the bathymetry widens between the Arco dock and the Intalco pier.

Based on WDFW data, herring spawning events occur frequently from the southern part of Birch Bay to the Tosco dock. It is difficult to say if the proposed site is one of the most heavily-used between these points, due to year-to-year variability. For example, during the 1993 to 1995 seasons (Figures 3, 5 and 7 of Appendix E-1 to the Draft EIS), more spawning events occurred at Point Whitehorn and the Arco pier than at the proposed site.

13. Comment acknowledged. It is agreed that historic herring spawning survey data from Washington Department of Fish and Wildlife indicate the Point Whitehorn to Sandy Point shoreline supports the largest stock of herring in the state with significant regional and international importance. WDFW data show that spawning abundance varies annually in this area. Herring propagation is known to be susceptible to changes in environmental conditions. However, factors affecting the species are not well understood. For this reason, quantification of the importance of discrete habitat sources at a shoreline site to

herring production is not possible with a meaningful level of accuracy. Please refer to page III-51 of the Draft EIS, paragraph two, for further discussion on this matter.

As presented in the Draft EIS, shading of about 23,500 square feet of the primary vegetative zone (of which macroalgae coverage was about 20,000 square feet) would result from construction of the proposed trestle. Modeling of the shading effects on the underlying macroalgae community indicates that potential loss of herring spawning habitat would be insignificant due to the orientation, width and height of the proposed trestle. The natural fluctuation in the biomass of available herring spawning habitat along the Cherry Point shoreline is greater than the potential habitat loss anticipated for the proposed project.

The risk of impacts to the herring stock would be controlled by the facility design, nature of materials handled on the site, operational Best Management Practices, pollution prevention procedures, mitigation measures, permit conditions and monitoring practices as defined in the final project design.

14. Site selection criteria and advantages of the site for the proposed use are described on pages II-1 and II-5 of the Draft EIS. The Draft EIS identifies environmental impacts and mitigation measures associated with use of the site. The vessels that would be periodically berthed at the proposed facility are not expected to be a significant barrier to herring migrating to the Cherry Point shoreline. Frequent spawning occurs at and near the three existing dock facilities.
15. The nature of potential impacts on Dungeness crab are described on page III-49 of the Draft EIS. Potential direct losses of macroalgae habitat are limited to an area of 20,000 square feet that would be shaded by the proposed trestle. This is further described on page III-50 of the Draft EIS in the discussion related to herring. The relationship of this proportionately small amount of habitat loss to potential crab production at the site is unknown. Because the Cherry Point vicinity is an important area for molting and mating during late May and June, a toxic spill at this time could have devastating impacts on the resource depending on the nature of the spill and the ability to successfully implement emergency response procedures.

The nature of potential impacts on juvenile salmon are characterized on page III-51 of the Draft EIS. The magnitude of impacts related to potential loss of algal food sources and habitat is discussed above. The potential for toxic spills resulting from increased vessel traffic is of low probability as described on page 3-46 of the Draft EIS. Under a rare set of circumstances and events, potential impacts of an accidental spill or vessel collision on juvenile salmon and prey species would be catastrophic. It is not practical to quantify this, however, because of the variability involving several driving factors including type and quantity of pollutants, weather and other environmental conditions, time of day during initial response and timing of the event in relation to fish presence and life stage.

Potential impacts of salmonid migration patterns are characterized in the Draft EIS and are primarily related to construction activities, operational lighting and vessel traffic and berthing.

16. Shellfish resources are discussed on pages III-42, III-48, III-62 and III-63 of the Draft EIS and pages 4-6, 43 and 44 of Appendix E-1 to the Draft EIS. Several past studies are cited.
17. Comment acknowledged.
18. Scoters' breeding grounds are along the coast of the Bering Sea in Alaska (black scoter) or in northern Canada (white-winged and surf scoters) and would not be impacted by this project. These birds winter in Washington waters. They feed mostly on marine animals, primarily mussels and other mollusks, with crustaceans and fish comprising smaller portions of their diet. Scoter presence in large numbers at Cherry Point during the herring spawning season (April and May) indicates they are opportunistic feeders on herring spawn. The birds appear to prefer open water near shore from which to conduct feeding activities. The proposed wharf and vessels using it would comprise the space impacted by the proposed action. Impacts to epibenthic invertebrates upon which scoters feed are discussed on pages III-46 through III-49, III-52 and III-54 of the Draft EIS. None of these impacts are expected to be significant.
19. The risks from modest spills are not enormous. Risk is the probability of an incident occurring per some quantity of activity. The current and projected increase in probability of a pollution incident is discussed in Appendix E-4 to the Draft EIS. It is assumed the comment relates to the potential catastrophic effects that could result from a spill during a biologically-sensitive time period. The Draft EIS includes discussion of a worst case spill scenario.
20. Comment acknowledged.
21. The Fact Sheet has been revised to include approval of an aquatic lands lease. State policy regarding aquatic lands, as expressed in RCW 79.90, is discussed below in response to your comment.

Summary: State ownership of the beds and shores of navigable is established by the State Constitution (Article XVII Section 2). Chapters 79.90-79.94 RCW, and regulations adopted pursuant to these statutes, establish a framework for managing "aquatic lands," including tidelands, harbor areas, beds of navigable waters, improvements, and valuable materials. The Department of Natural Resources (WDNR) is responsible for the management, lease, and sale of aquatic lands, and has the power to establish terms, conditions, and periods of time for leases.

State-owned aquatic lands are legislatively described as a finite and valuable natural resource and an irreplaceable public heritage. The legislature also recognized the

importance of water-dependent industries and activities in the state's history and future and the conflicting use demands for aquatic lands. Management guidelines, established by the legislature to help achieve a balance of public interests and benefits, include:

- encouraging direct public use and access;
- fostering water-dependent uses;
- ensuring environmental protection; and
- utilizing renewable resources (RCW 79.90.455).

WDNR's management methods emphasize promoting uses and protecting resources of "state-wide value" -- such as harbor areas, parks and recreational areas -- and environmentally valuable areas (WAC 332-30-100(2), 332-30-106(66)). Planning for such lands is intended to prevent conflicts and mitigate adverse impacts. Special management programs -- including use preferences or environmental protection standards -- may be developed for resources and activities of state-wide value. Water-dependent uses are given preferential lease rates.

Administrative guidelines establish six key principles for aquatic land planning, including:

1. Management for multiple use of compatible activities;
2. Allowing a variety of uses to achieve stated planning goals;
3. Relying on the Shoreline Management Act and local master programs to identify uses of state-wide value;
4. Coordination with shoreline management programs;
5. Supplemental management plans for resources and activities requiring intensive management, special management or conflict resolution which cannot be met by shoreline master program planning; and
6. Mitigation for unacceptable adverse impacts on resources and uses of state-wide value (WAC 332-30-107).

The state's statutory scheme for managing aquatic lands also includes a categorization and prioritization of uses and activities. "Water-dependent" uses are defined as those that cannot logically exist in any location but on the water, such as terminal and transfer facilities, water-borne commerce, watercraft construction, moorage and launching facilities, log booming, ferry terminals, and public fishing piers and parks. State management of aquatic lands is intended to preserve and enhance water-dependent uses, which are generally favored over other (non water-dependent) uses in aquatic land planning and in resolving conflicts between competing lease applications. If conflicts arise between competing water-dependent uses, priority is to be given to uses that encourage water-borne commerce, the navigational and biological capacity of the waters, and to state-wide interests as opposed to local interests. WDNR evaluates environmental and habitat values of aquatic lands under its management. Lands with significant natural values may be withheld from lease or leased subject to requirements for environmental protection.

Discussion: The proposed action is water-dependent and, therefore, consistent with the statutory preference for aquatic lands. As identified in the Draft EIS, the proposed use is also consistent with the Whatcom County Shoreline Master Program policies, as well as other applicable County plans and regulations. The proponent owns second-class tidelands at the proposed wharf site.

Environmental impacts associated with the proposal are identified in this EIS. Impacts will be mitigated through the measures identified in the EIS, through ongoing environmental planning and consultation, and through mitigation programs developed in conjunction with WDNR and other affected agencies and tribes.

22. The Draft EIS identifies all marine resources for which significant impacts have been identified. It discusses the nature and the level of those potential impact as well as mitigation and unavoidable impacts. It is acknowledged that the salmon and herring resources are important to the Pacific states and Canada. Shellfish resources are important to the state. Forage organisms and vegetative habitats at Cherry Point are important to support economically-important marine species.
23. Your comment is acknowledged. That is the applicant's intent.
24. Your comment is acknowledged.

January 22, 1997

Roland Middleton
Deputy SEPA Official
Whatcom County Land Use Division
5280 Northwest Drive Suite B
Bellingham, WA 98226

RE: DEIS Comments for Gateway Pacific International Terminals

Dear Mr. Middleton:

The City of Ferndale has reviewed the DEIS dated December, 1996 for the above referenced project and offers the following comments:

The City recognizes the unique physical characteristics of the site and its suitability for use as a deep water port. We further recognize and support the policies contained in the Whatcom County Draft Comprehensive Plan that encourage the industrial development of Cherry Point. For these reasons, the City is generally supportive of the proposed project. However, we have serious concerns relating to the traffic impacts of the project and their effect on the City's street system. These impacts are not addressed in the DEIS.

Figure 17 (page III-115) of the DEIS projects that traffic volumes on Mountain View Road will increase by 350 daily trips or 50 peak hour trips as a result of the project. Presumably, these vehicle trips would be passing through Ferndale, via Main Street en route to the freeway. Traffic impacts of the project on Ferndale's street system were not specifically addressed in the DEIS, however, the document concluded that no mitigation measures were needed and no significant unavoidable adverse transportation impacts would result from the project (page III-118).

1 The City's Transportation Element of its Comprehensive Plan identifies Main Street as the primary arterial through the City. The City's transportation plan is based on a methodology of measuring vehicle miles of travel. Every development project that is proposed in the city is reviewed on the basis of its impact to the city street system. This is determined by both the volume of p.m. peak hour trips that it generates and the length of trips. Length of trips is determined by location within the City, with the primary assumption that vehicle trips are destined for the freeway from their point of origin. The transportation plan included an analysis of the existing street system, the growth projected over the next 20 year period and an identification of the capacity improvements needed to accommodate the traffic created by the anticipated growth. A mitigation fee of \$1,118 per each

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Letter to Middleton
January 22, 1997
Page 2 of 2

1 vehicle mile of travel was calculated as necessary to fund the street improvements identified in the plan. Under the City's methodology of assessing traffic mitigation fees, the Gateway Pacific Terminal project would be required to pay a fee of \$89,400 for the projected number of p.m. peak hour vehicle trips that would travel through the City's Main Street corridor. The City is not requesting necessarily that this fee be paid by the project's proponents, but uses it as an illustration of the severity of the impact that the project would have upon the City's street system.

2 Beyond the traffic volumes identified in the DEIS, the City is also concerned with indirect impacts that may result from related industrial development that will likely take place on Cherry Point as a result of the construction of the terminal project. Of particular concern would be any trucking facilities that may locate in the area and add truck traffic as well as passenger vehicle traffic to the Main Street corridor.

Given these concerns, the City strongly recommends that additional traffic mitigation measures be attached to the project. Mitigation could include any number of approaches or combinations of approaches including but not limited to:

- 3
- Improving Jackson Road to encourage traffic to access the site via Grandview Road and Jackson Road, rather than Henry Road and Mountain View Road. This may also eliminate the need to make improvements to Henry Road and the Henry Road railroad crossing;
 - Work with the project proponent to identify a commute reduction trip program, thereby reducing the number of peak hour employee trips that would travel the Main Street corridor;
 - Payment of traffic mitigation fees to the City of Ferndale.

Thank you for the opportunity to comment on the proposal. Should you wish to discuss this matter in further detail, please contact my office.

Sincerely,



Stan Strebel,
City Manager

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Letter 7
City of Ferndale

1. Of the estimated 50 project-related PM peak hour trips on Mountain View Road west of Lake Terrell Road, 38 project trips would travel on Mountain View Road east of Lake Terrell Road and 12 project trips would travel on Lake Terrell Road. Of the 38 project trips that would remain on Mountain View Road east of Lake Terrell Road, approximately 18 would be destined for Ferndale residential areas (employee home-based work trips) and the remaining 20 project trips would most likely travel via Main Street to I-5, stopping at local businesses/retail in this corridor. The project's traffic impact to the Main Street corridor through Ferndale would represent less than 1 percent of all trips during the PM peak hour and would not result in any measurable impact to city streets.

Project-related employees that might purchase new homes within the City of Ferndale would pay for traffic impact fees that would be built into their home purchase price.

2. The assumption that the proposed action would generate spin-off industrial uses that might generate truck traffic through Ferndale is speculative and beyond the scope of this EIS. Any future industrial use proposals in the Cherry Point area will be required to complete separate environmental review processes under SEPA.
3. The proponent and the County are currently evaluating alternative access routes for project-related traffic that would lessen traffic impacts and the scope of required transportation improvements. The Jackson Road route option is currently under exploration. However, existing access restrictions controlled by the Arco Refinery on Jackson Road south of Aldergrove Road make the feasibility of this access alternative unknown at this time.

Whatcom County's population reached the mandated threshold of implementing Commute Trip Reduction (CTR) programs in April 1996. This legislation requires all employment sites with 100 or more employees to identify trip reduction programs to reduce the number of peak hour employee trips to/from worksites. Employment levels at the proposed Gateway Pacific Terminal under this proposed action would be only 75 full-time employees working in shifts, with a potential maximum of 50 employees at the site during peak work periods. Therefore, this proposed project and future work site would not be required to meet requirements of CTR.

Please see the response to comment 1 in this letter (City of Ferndale) regarding City traffic mitigation fees.

North Cascades Audubon Society

Letter 8

P.O. Box 5805
Bellingham, WA 98227

January 22, 1997

David M. Schmalz, President
North Cascades Audubon Society
P.O. Box 5805
Bellingham, Wa. 98227

Bill Florea, Land Use Division Manager
Whatcom County Land Use Division
5280 Northwest Drive, Suite B
Bellingham, Wa., 98226

Mr Florea,

I am writing to express my concern regarding the SEPA timetable and notification process with respect to the Gateway Pacific Terminal proposal in Whatcom County.

Despite being listed on the distribution list, North Cascades Audubon did not receive the Draft Environmental Impact Statement on this project until January 21st when I came to the Land Use Division and picked one up personally. In the past, your office has sent mail regarding this project to an incorrect address, and in a telephone call to your department some months ago, I specifically corrected this error with the Deputy SEPA official.

I am also concerned about the schedule of deadlines and hearings regarding this project, for it does not offer enough time for concerned parties to comment on a lengthy and complex DEIS, nor prepare for the permit approval proceedings to be held by the Hearing Examiner and County Council.

It is my understanding that the Lummi Nation did not receive the DEIS until January 6th. Additionally, the Corps of Engineers and Washington State Department of Fisheries did not receive the DEIS until January 3rd. Given these delays in providing information to concerned parties, the scheduled public hearing for January 8th was not sufficient for gathering oral comments.

Because the DEIS was issued on December 22nd (the height of the holiday season) and this was shortly followed by Whatcom County's worst snow storm in decades, delays in providing information are understandable. However, maintaining the schedule of hearings and comment deadlines which prohibit a timely review of materials is not. It is my understanding that the Lummi Nation requested an extension on comments on the DEIS until Feb. 5th. I also request such an extension, and an appropriate adjustment of subsequent

79

- 1 | hearings and comment deadlines to allow for adequate time
for all concerned parties to comment on this project.

Thank You For Your Consideration,

David M. Schmalz

David M. Schmalz

cc

✓ Roland Middleton, Deputy SEPA Official
Michael Knapp, Planning and Development Services Dept.
Toby Thaler, Attorney at Law
David Mann, Washington Environmental Council

Letter 8
North Cascades Audubon Society #1

1. Whatcom County regrets any inconveniences caused by weather conditions, mail delivery or conflicting work schedules. SEPA provides for a 30-day comment period with the potential for extension by another 15 days. Whatcom County extended the comment period to the maximum allowed by State law in response to requests by the Lummi Nation and others.

North Cascades Audubon Society

P.O. Box 5805
Bellingham, WA 98227

January 30th, 1997

David M. Schmalz, President
North Cascades Audubon Society
P.O. Box 5805
Bellingham, Wa. 98227

Post-It® Fax Note	7871	Date	2/5	# of pages	3
To	RICHARD WEINMAN		From	MIDDLETON	
Co./Dept.			Co.	Whatcom County	
Phone #			Phone #	360-626-6507	
Fax #			Fax #	360-738-2525	

Roland Middleton, Deputy SEPA Official
Whatcom County Land Use Division
5280 Northwest Dr., Suite B
Bellingham Wa. 98225

Mr. Middleton,

Thank you for the opportunity to comment on the Draft Environmental Impact Statement (DEIS) for the Gateway Pacific International Terminal proposal.

SETBACKS

1 There appears to be a discrepancy in setbacks from the shoreline for the proposed development vs. facility improvements. Under the heading Upland Terminal Storage Facilities on p. I-2, the document states that "facilities would be located ... adjacent to the shoreline but outside the 200 foot setback." This same language appears on p. II-10. However, on p. III-3, under the heading Geology and Slope Stability, the document states "According to the site plan provided, the proposed slope setbacks for facility improvements are a minimum of 100 feet." This 100 foot reference also appears on p. I-7 under Mitigation Measures. Under the Whatcom County Shoreline Master Plan, I believe the minimum setback required in all cases is 150 feet. I recommend that the 200 foot setback be consistently maintained in all instances.

RELATIONSHIP TO PLANS AND POLICIES

The discussion of the relationship of this proposal to Whatcom County's Shoreline Master Program (p. III-91, 92) is incomplete. The discussion only points out those ways in which the proposal is harmonious with the SMP and omits those areas in which adverse and potential adverse impacts would conflict with the goals of the SMP.

2 In particular there is no reference to the fact that a number of agencies are on record as opposing the Cherry Point Management Unit of the Whatcom County SMP including the U.S. Fish and Wildlife Service, the National Marine Fisheries Service and the Federal Office of Coastal Resource Management (OCRM). The creation of the Cherry Point Management Unit, according to federal officials, allows for substantial risk of destruction of a shoreline of state-wide significance which had previously possessed conservancy and

- 2 aquatic designations intended to afford protection from such development activities. The OCRM in September, 1988 denied routine program implementation of the Cherry Point Management Unit, and to this date such implementation has not been obtained. OCRM requirements stated that the revisions contained in the Management Unit must be submitted as an amendment pursuant to 15 CFR Section 923.80(c). To date, this has not occurred.

VESSEL TRAFFIC SAFETY/OIL SPILL RISK ANALYSIS

Appendix E-4, Analysis of Vessel Traffic Issues, is an alarmingly poor treatment of issues relating to some of the most serious potential environmental impacts from this project.

- 3 The trend analysis and calculations of risk of major and minor pollution events and spills are not based on sound scientific sampling or methods. The historical information provided is extremely limited and the conclusions drawn from it hardly seem to take the proposed project and its particular characteristics into consideration. Specifically, the conclusion that the risk of 25,000 gallon spills would be 0.003% for the entire study area and 0.0 % for the Cherry Point area is preposterous. The conclusions of this entire report are highly suspect and appear to be based on nothing more than a brief history of events that do not take into account the very existence of the proposed facility that will increase ship traffic in the area by some 30%. Answers to the following questions would provide the beginning of a meaningful analysis of these important issues.

- 4 What is the operational history of bulk carriers as compared to incident reports from vessels of all types calling on Washington waters?

- 5 Why does this section not contain a quantitative risk assessment? Such an assessment is a fundamental component of an analysis of potential environmental impacts from a project of this nature. This analysis should include a discussion (including impacts) of the most likely sizes and types of spills as well as the worst case scenario. The analysis should address docking procedures, weather conditions and existing fishing and marine activities. It should also analyze and project likely cumulative environmental damage from small contaminations.

- 6 Why is there no analysis or discussion on the difference in potential impacts between alternative routes that may be taken by ships calling on this facility?

- 7 Will bulk carriers calling on this facility be receiving bunker fuel at this site? What are the potential impacts from this activity? What are the potential impacts from the introduction of foreign organisms into Washington state waters from ballast?
- 8

Talk to
Office of
Marine
Safety —
there is an issue
here

OTHER WATER QUALITY ISSUES:

- 9 Will the portion of the trestle over land be enclosed to prevent wind blown emissions from entering the water? Please discuss the relative merits of baghouse control vs. spray bars for the control of emission of particulates.

NEEDS ANALYSIS

- 10 The DEIS should provide an analysis of the need for such a facility. This analysis should include an investigation of economic factors and the capability of existing regional facilities and infrastructure to accommodate regional port needs. This analysis should include waters and existing facilities in British Columbia and inland and coastal waters of the states of Oregon and Washington.

AESTHETICS:

- 11 Under Mitigation Measures (p. I-19) I recommend that neutral colors and materials not prone to reflection be utilized in construction of ALL structures, where possible, rather than limiting this requirement to just the larger structures.

Good idea

Thank You For Your Consideration,

David M. Schmalz

David M. Schmalz

Letter 9
North Cascades Audubon Society #2

1. Please see the response to Letter 2 (Lummi), comment 42.
2. Your comment is acknowledged. The Draft EIS discussion of the County's Shoreline Master Program (SMP) is an accurate discussion of the project's relationship to the goals of the SMP. The Cherry Point Management Unit was adopted in the Whatcom County Shoreline Master Program (SMP) in 1987. The SMP was approved by WDOE as required by State law, as confirmed by a February 16, 1993 letter from WDOE to Whatcom County. Pursuant to State law (RCW 90.58.090), the SMP is a legal and valid basis for reviewing permit applications and for purposes of evaluating consistency with the State's Coastal Zone Management Program. The U.S. Office of Ocean and Coastal Resource Management (OCRM), however, has not granted "routine program implementation status" to the Cherry Point Management Unit.
3. Two data elements are needed to calculate risk: the number of incidents and the number of vessel movements. While Coast Guard incident data are available from 1986 to the present, vessel movement data are only available since 1993 from OMS. Information was presented on incidents prior to 1993 on page 13 of Appendix E-4 to the Draft EIS. The Washington Department of Ecology database was also examined but the information could not be related to the number of vessel movements. Spills were recorded for all causes and vessel-related spills could not be segregated.

The analysis used all data available from state and federal agencies for calculating the probability of a pollution incident [see the response to Letter 2 (Lummi), comment 9]. OMS verified that available data were incorporated into the EIS (Fishel, personal communication, Feb. 12, 1997). Consistent with SEPA, provisions for situations where data are unavailable (WAC 197-11-080), the Draft EIS generally indicates the worst-case analysis and the likelihood of occurrence to the extent information can reasonably be developed. The most likely size and type of spill, as well as a worst-case scenario, is discussed on pages III-46 through III-50 of the Draft EIS. SEPA does not require analysis of improbable, remote or speculative impacts.

4. The analysis includes all vessels for which data were available, including bulk carriers. Licensed Puget Sound Pilots take control of vessels at Port Angeles. Vessels are certified approved for transit before leaving Port Angeles. If they do not pass requirements for safe passage, they are detained until repairs are made. From Port Angeles, vessels are guided by Puget Sound Pilots. A Seattle Times article published February 1, 1997 reported "East of Port Angeles, the crowded shipping lanes are heavily monitored and tugs are plentiful, helping give the area one of the finest safety records in the country, marine-safety officials say."

5. Please see the response to comment 3 in this letter (N. Cascades Audubon Society). Discussion of the most likely sizes and types of spills and a worst-case scenario is found on pages III-46 through III-51 of the Draft EIS.
6. Vessels calling on this facility would be limited to one route unless there were unusual circumstances. According to the Puget Sound Pilots Association and the U.S. Coast Guard, vessels would normally use Rosario Strait when approaching from the south and would transit the Georgia Strait Waterway. Because the Coast Guard limits transit of Rosario Strait to one large bulk carrier at a time, a second vessel would be subject to the option of waiting until the passage was clear, or it could be sent through Haro Strait at the discretion of the U.S. Coast Guard.
7. Vessels are not proposed to receive bunker fuel at this facility.
8. Please see the response to Letter 2 (Lummi), comment 25.
9. Please see the response to Letter 4 (Dept. of Ecology), comment 13.
10. SEPA does not require analysis of the "need" for a proposal or of economic issues. Please note that the Draft EIS includes the applicant's statement of the purpose and need for the project (page II-1).
11. Comment acknowledged. Your suggestion of neutral colors and non-reflective materials for all structures is noted for the record.

OCEAN ADVOCATES

Letter 10

a voice for the silent sea

Roland Middleton
Deputy SEPA Official
Whatcom County Planning and Development Services
5280 NW Drive Suite B
Bellingham, WA 98226

27 January 1997

Dear Mr. Middleton:

- 1 The following comments pertain to the Analysis of Vessel Traffic Issues in the Gateway Pacific Terminal Draft Environmental Impact Statement (DEIS) of December 1996. The timing of the release during the holiday season and short time period for review of such an important proposal bodes poorly for your office's commitment to broad public participation in this process.

I feel particularly inclined to submit these comments, having conducted thousands of hours of research around the San Juan Islands for my Masters in Fisheries from the University of Washington. I have also served on the Washington State Maritime Commission and currently serve as the environmental representative on the Washington State Office of Marine Safety Advisory Committee. I am writing these comments on behalf of Ocean Advocates. Ocean Advocates works with policy makers in government, industry and the academic community throughout the world to provide information needed to form sound global ocean policies. Our approach is objective and open minded, but not neutral — we have a bias for the oceans.

The DEIS does a remarkably poor job of characterizing the risks posed by this project to the marine environment as a result of the increased likelihood of an oil or hazardous waste spill. I will organize my comments in the order they appear in the Analysis of Vessel Traffic Issues.

- 2 1.0 Introduction - in characterizing vessel incidents and their potential impact on fisheries, efforts should have been made to define both the most likely size and type of spill as well as the worst case scenario. There should be a specific category 3) potential for incidents involving tankers for the worst case. This is especially important given that ARCO is the State's largest refinery and has recently been given a permit from the Army Corps of Engineers (#92-1-00435) to further expand their dock facilities. This refinery continues to expand its output and is currently attempting to connect its pipeline with markets to Rocky Mountain States, thereby increasing the demand for crude traffic. Furthermore, there is no effort to characterize the risks these ships themselves pose to the marine environment. Bulk carriers are internationally recognized for being the worst maintained class of vessels in the international fleet with some of the highest incident rates. The reason for this is at least twofold. They carry inexpensive products, with low profit margins, so there is not a lot of money put into the ships or crews which carry them. The products are loaded in loose form which put greater stress on the weld of these ships especially as they transit the North Pacific.

There is no mention as to whether the bulk carriers will be receiving bunker fuel while they are at the Gateway terminal. These ships can hold up to 2 million gallons of bunkers which is a persistent oil. Furthermore, no effort is made to describe the increasing body of evidence regarding the ability for these ships to introduce foreign organisms into Washington waters from their ballast water.

- 3 1.1 Project Description - It is stated that there is expected to be 140 cargo vessel transits made annually. It appears contradictory that this number is used to both describe the entering transit as well as round trip entry and exit. On page 11 it is clarified to mean 280 movements into and out of the terminal. This is the more important number to use when calculating risk of an incident. What limits this estimate? What would keep this terminal from accepting 5, 10 or more times that amount of traffic in the future? What are the limits on the size of ship that can call on this port based on the configuration of the dock?

Columbia Office: 6424 Misty Top Pass, Columbia, MD 21044
NW Office: 3004 NW 93rd St. Seattle, WA 98117
TEL: (206)783-6676 FAX: (206)783-1799

TOTAL P.04

87

1.2 Purpose and Objectives - see comments in 1.0. Specific analysis of collision risk with tankers and unique risks posed by bulk carriers need to be addressed. No mention is made of the specific route taken by these vessels. Will they transit Haro or Rosario Straits on their way to and from the terminal? The choice of route significantly affects their likelihood of colliding with a US tanker or a vessel trading with Canada.

- 4 There is no justification for not conducting a quantitative risk assessment. The lack of data and pathetic assumptions used to draw the conclusions made in this DEIS underscores the importance of such an analysis.

The question of risks from smaller spills and toxic materials from loading and unloading may be very critical to the risks posed in this area if it will be used to move hazardous materials and as a place to fuel the ships as well. The types of cargo and use of bunkers are not described in this document.

- 5 2.1 Study Area - The map used to describe the study area extends all the way to Cape Flattery, but the text describes only to Sekiu. It is important that all the data from the Strait are used, especially at the entrance where traffic congestion is a particular concern. However, the Vessel Traffic System in that region is run by the Canadian Coast Guard, who retains those data. At a recent meeting of the National Academy of Sciences Marine Board in Seattle (1/20-1/22) various speakers, including the Coast Guard spoke of the marginal quality of the Coast Guard's database which was used to estimate the number and size of incidents in the study area. It is surprising that the authors would be familiar with the State OMS and DOS databases (p. 8-9), but choose to only use the Coast Guard data.

- 6 2.2 Collection of Existing Information - Of the 10 references listed in Appendix 1 used for the analysis presented in the DEIS, 7 pertain to data pre 1980, 1 is the Coast Guard whose data are flawed (see above), 1 is the full DEIS for this project, and 1 is a 1993 document written by Bob Collins entitled, "Cherry Point Vessel Traffic Risk Analysis". There is no citation for that document other than Huxley College of Environmental Studies so I have not been able to review it to verify the data or assumptions made.

- 7 When it comes to estimate impacts to fishing gear, it would be helpful to know whether ships calling at this port will use Haro or Rosario Straits.

- 8 3.1 Existing Shipping Controls and Agency Responsibilities - In describing the limitations of the Coast Guard databases the report states that only data from 1992 to present were used to make calculations of risk. Since incidents or major consequence are relatively rare, it is particularly disturbing that the authors chose such a small sample in which to conduct their analysis. Furthermore it is stated that casualties resulting in fines less than \$25,000 are not even recorded by the Coast Guard, thereby making realistic calculations of fishery impacts impossible.

- 9 4.1 Current And Projected Type And Number Of Vessels Landing At Cherry Point - The report fails to account for the 265,000 dwt size class of coal carriers which trade in Canada. This section starts by stating that large vessel traffic in the Georgia Strait region has changed over the last few years, but cites 1992 data as the most current information for the traffic calling on the Port of Bellingham. Collins (1993) is cited for an estimate of 730 round trip transits made to existing Cherry point terminals as of 1992, but no data are presented. Furthermore, it is stated that "recent calculations" for the Strait of Georgia indicate approximately 5,500 ship movements per year without indicating where these data come from. The spotty data that is compiled is then used to conduct some primitive trend analysis which is used to suggest that fewer vessels of larger size are making calls in this region.

10

No suggestion is made about the fact that larger vessels are less maneuverable around fishing gear or other traffic and that larger vessel hold more bunker fuel and thereby pose a risk of a larger oil spill than smaller vessels. As previously stated, the type of vessel and the cargo it carries as well as the flag nation in which it is inspected are even more important indices of its risk to the environment than simply its size. The OMS has compiled a ranking of vessels by risk which should be used in future analysis of this subject.

11

It is stated on p. 11 that the average size of ship using this facility would be 60,000 metric tons. What is this estimate based on and what is the limit of ship size which can call on this dock? It is further stated that this project would increase the traffic at Cherry point by 38%. This is not trivial, given that much of the rest of the traffic are oil tankers which make for particularly bad subjects for collisions. What is being done to limit the potential for collisions with tankers in this area? Just listing the existing State and Federal authorities is not enough mitigation for such a significant contribution to traffic in such a vulnerable area. Furthermore, it is stated without any supporting justification, other than citing the DEIS, that the increase in shipping is not expected to have any impact on the vessel traffic control by the USCG. The more traffic on the radar screen, the more there is for the Coast Guard to attend to. There are practical implications to such traffic increases which need to be addressed.

12

4.2 Past Risk of Vessel Incidents in the Study Area - This section (p. 11) starts with an excellent disclaimer for this entire document which I will quote, "Collins (1993) was unable to obtain information to estimate the current risk of collision or marine pollution event." Despite this fact, the first sentence of the discussion (p.16) states, "The proposed Gateway Pacific Terminal Project could result in a small and insignificant increase in the number of pollution incident per year, assuming historical rates of occurrence for pollution incidents and that a direct correlation exists between the number of vessel movements and the occurrence of an incident." How, can these two contradictory statements be found in the same report?

13

On page 12 the authors attempt to make another trend analysis from three years worth of data. From this meager sample size, especially given the limitations of the data sources, they conclude that pollution incidents have dropped 20% per year while the traffic levels have remained stable for the entire study area. Then to make the calculation for the risk of a spill greater than 25,000 gallons, they use 1993 data only and find that there was only nine incidents resulting in spills ranging from 1 to 4 gallons at Cherry Point. Based on these remarkably limited data the report concludes that the risk of 25,000 gallon spills would be 0.003% for the entire study area and 0.0% for the Cherry point area. This calculation based on one year's worth of data from a confined area, extrapolated throughout the study area, is an outrageous insult to anyone the least bit familiar with risk analysis. To find this conclusion reported in the second paragraph of the discussion renders all other findings in this report highly suspect.

14

4.3 Projected Risk of Vessel Incidents in the Study Area - This section starts by trying to attribute the decreasing rate of pollution incidents to increased prevention activities, crew awareness, and improved cooperation among maritime contractors. Let me suggest some other possible explanations - 1) the trend may not exist, because inadequate data were used to address the question, 2) the years chosen to sample happened to have such a trend, 3) dumb luck on the part of the shipping industry. However, this trend analysis is then used to form the basis of the risk assessment of the proposed project. Building further assumptions into a questionable database does not strengthen, but weakens the conclusion.

15

No effort is made to address the poor operational history of most bulk carriers as compared to incident reports from vessels of all types calling on Washington waters. If the authors

15 were to look at the incident history of bulk carriers in Washington waters and then projected that rate on the traffic projected at Cherry Point, they may be closer to the mark. Both the OMS and USCG have found bulk carriers to be the most deficient during their regular inspections and have targeted this class of vessels for closer scrutiny.

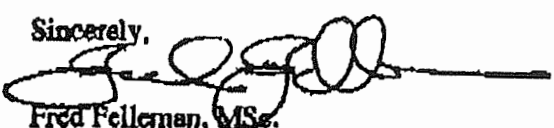
16 Perhaps the most outrageous statement in the report is found on page 14. "It should be noted that between 1993 and 1995 there were no spills between 1,500 gallons and 25,000 gallons. Therefore, based on that period of history, a zero probability would exist of a spill of that size." The ability to make such wild assumptions from such little data renders this report very little credibility.

17 4.5 Incidence and Nature of Past Vessel/Fishing Gear Interactions - One of the most honest statements made in this report is found on page 14. "Without the ability to estimate current probability of fishing gear interference and gear loss, projections of changes in the probability of gear loss because of changes in vessel traffic to Cherry Point cannot be made." The use of anecdotal information of historical interactions with fishing gear was interesting, but is difficult at best to extrapolate, especially given the fact the no routes for traffic to Cherry Point have been specified.

18 5.0 Discussion - Based on my critical read of this document the authors are not able to draw any conclusions from the analysis they conducted. This has not stopped them from trying to present this project in the most positive light imaginable. It is next to impossible to conclude that the type and amount of traffic projected for this project in the vicinity of the State's largest oil refinery does not pose a significant additional risk of an oil spill. A credible risk analysis needs to be conducted in order to quantify the level of risk posed to the highly sensitive shorelines of Cherry point which are not only critical to fish and finfish species, but to migratory shorebirds and waterfowl as well. Much more thought must be given to the risks posed to all of Washington's marine waters by bringing additional bulk carriers to waters which are already the most traffic laden in North America with rapid expansions in traffic projected in the near future.

Before any decisions are made to adding to the risk of an oil spill a determination needs to be made as to whether there is a need for more bulk port capacity in the near future.

Sincerely,


Fred Felleman, MSc.
NW Director
Ocean Advocates

Letter 10
Ocean Advocates

1. Comment acknowledged. The comment period was extended to 45 days, the maximum permitted by SEPA.
2. The most likely size and type of spill, as well as a worst-case scenario, is discussed on pages III-46 through III-50 of the Draft EIS. Cargo vessels' interaction with tankers are covered within discussions in Appendix E-4 to the Draft EIS involving cargo vessel pollution incidents. No proposed products would require tankers. The analysis includes all vessels for which data were available, including bulk carriers. Vessels are not proposed to receive bunker fuel at this facility. The issues of exotic species that might be introduced in ballast water is discussed on page 7 of Appendix D-3. Also, please see the response to Letter 2 (Lummi), comment 25 regarding ballast water.
3. The number of entering transits is equivalent to the number of round trips; 140 entering transits (or round trips) means a total of 280 vessel movements. The estimated number of vessel movements is based on the best available projections by the proponent. The facility is designed to accommodate vessels up to 250,000 dead-weight tons (dwt).
4. Risk of collision involving tankers and bulk carriers is included in the analysis in Appendices B and E-4 of the Draft EIS. Vessels using the proposed facility would transit the Georgia Strait Waterway and would use Rosario Strait when approaching from the south. Because the U.S. Coast Guard limits transit of Rosario Strait to one large bulk carrier at a time, a second vessel would be subject to the option of waiting until the passage was clear, or it could be sent through Haro Strait at the discretion of the U.S. Coast Guard.

The analysis used all data on incidents available from state and federal agencies for calculating the probability of a pollution incident. Generation of additional historic data that could be used in a Comprehensive Risk Assessment is not required by SEPA; see WAC 197-11-080. The Draft EIS evaluates a worst-case scenario and the likelihood of occurrence using reasonably available information. SEPA does not require analysis of improbable, remote or speculative impacts.

The types of cargo are described on pages II-10 and II-11 of the Draft EIS. They include grains, coke, iron ore, sulfur, potash and wood chips. Bunker fueling is not proposed to occur at the facility.

5. Figure 3 should be corrected to show the study area to include those waters east of Sekiu. The OMS database was used in this analysis (see Appendix E-4 pages 6 and 11). The Washington Department of Ecology database was also examined but could not be related to the number of vessel movements. The spills were recorded for all causes; vessel-related spills could not be distinguished.

6. Comment acknowledged. The Collins report is the property of the Lummi Tribe, who allowed the author to view it. The tribe would need to be contacted for the opportunity to review this report.
7. It is assumed that the vessels would use Rosario Strait. Please see the response to comment 4 in this letter (Ocean Advocates).
8. Two data elements are needed to calculate risk: the number of incidents and the number of vessel movements. While Coast Guard data on incidents were available to 1986, vessel movement data were only available since 1993 from OMS. Information was presented on incidents prior to 1993 on page 13 of Appendix E-4.
9. Comment acknowledged. Regarding the Collins report, see the response to comment 6 of this letter. The reference for the 5,500 ship movements is from Collins (1993).
10. Comment acknowledged.
11. The estimate of 60,000 metric tons is based on the experience of the proponent and is compiled from statistics on volumes of cargoes transported in this region. The facility is designed to accommodate vessels up to 250,000 dwt. While a 38 percent increase in substantial in percent terms, it is a percentage of a small number. The number of increased movements would average less than one per day. The Puget Sound Vessel Traffic Service (PSVTS) can easily accommodate one additional vessel movement per day (Lt. Pritork, PSVTS, 1996). The proponent would operate the entry and exits of the vessels with the latest technology and highly-trained pilots.
12. The cited statements are not contradictory. Collins (1993) was not able to obtain data on both the number of vessel movements (such data did not exist from OMS until 1993), and the number of incidents. Collins therefore was not able to calculate risk. Shapiro and Associates were able to obtain data to calculate risk, although based on three years, with partial data presented for 10 years.
13. The calculation of 0.003 percent risk was not based only on 1993 data for Cherry Point. The calculation was based on dividing the number of incidents (1) over 25,000 gallons for the three-year period for the whole study area by the sum of all vessel movements for the three-year period for the whole study area (30,516) [please see the response to Letter 2 (Lummi), comment 9]. Because the one incident did not occur in the Cherry Point vicinity, the risk of an incident over 25,000 gallons, based on all available information, was calculated as zero.
14. The conclusions regarding incident probability presented in Appendix E-4 are based on analysis of the best available data. The years used in the analysis were the only years for which data were available. The data used are consistent with SEPA procedures for conducting analysis when information is incomplete or lacking (WAC 197-11-080).

15. Please see the response to Letter 9 (N. Cascades Audubon Society), comment 4.
16. There is no other information available upon which to calculate the probability of a spill between 1,500 and 25,000 gallons.
17. Comment acknowledged. Please see the response to comments 4 and 7 in this letter (Ocean Advocates).
18. Please see the response to comment 4 in this letter (Ocean Advocates).



Kelly D Cox
Manager
Ferndale Terminal

Texaco Natural Gas Liquids
A Division of Texaco Natural Gas Inc

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Ferndale WA 98248-0129
360 384 1701
FAX 360 384 8142

January 16, 1996

WHATCOM COUNTY
PLANNING & DEVELOPMENT SERVICES

Mr. Roland Middleton, Deputy SEPA Official
Whatcom County Land Use Division
5280 Northwest Drive, Suite B
Bellingham, WA 98226

JAN 23 1997

RECEIVED

Subject: ENV - STUDIES, SURVEYS AND REPORTS
DRAFT ENVIRONMENTAL IMPACT STATEMENT-
PROPOSED "GATEWAY PACIFIC TERMINAL"

Dear Mr. Middleton:

We have received and reviewed the subject DEIS pertaining to the proposed "Gateway Pacific Terminal" at Cherry Point. Regrettably, I was unable to attend the public hearing on January 8, 1997; however, by this letter, I would like to provide the following comments relating to possible concerns pertaining to Texaco's Ferndale LPG Terminal, which is located at the west end of Unick Road (near Tosco and just south of Intalco):

- On page 109, Chapter III, in the section discussing "Daily Rail Movements", the DEIS states: ".....On the loop rail facility serving Cherry Point, daily shipments of materials are transported to each major industrial site via rail as follows: Arco-20 to 25 rail cars per day; Intalco-10 to 12 rail cars per day, and Tosco-8 to 10 rail cars per day of LP gas and other raw materials....."

Comment/Clarification: Although Texaco's Ferndale LPG (LP Gas) Terminal may not rank in the "major industrial site" category as the industrial neighbors mentioned in the DEIS, it is important to note that we do receive and distribute a considerable amount of our liquefied petroleum gas (LPG) via rail. In fact, our volume of rail traffic is relatively significant when compared to the other sites mentioned. Our 1996 rail traffic load was as follows:

1996 Total Annual Rail Cars: 2,744 rail cars per year
1996 Monthly Avg. Rail Cars: 229 rail cars
1996 Switch-Day Avg. Rail Cars: 9 rail cars per day that rail switch is received (6 days/wk.)
1996 Peak Monthly Rail Traffic: 412 rail cars per month
1996 Peak Daily Traffic: 24 rail cars per day

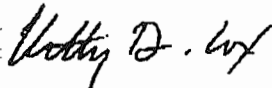
Post-It® Fax Note	7871	Date	1/27	# of pages	8
To	Richard Weinman	From	MIDDLETON		
Co./Dept.	GPIT	Co.	Whatcom County		
Phone #		Phone #	360 676-6907		
Fax #		Fax #	360 384-2525		

It is also important to note the following:

- 2 • Texaco Ferndale's rail traffic has been fairly seasonal in volume in the past, however, recent business strategy changes may cause an expected general increase in rail traffic over the period of a year, with less seasonal effects.
- 3 • We believe it is important for the EIS to acknowledge and discuss all significant rail traffic in the Cherry Point area; without the inclusion of Texaco's volumes, the report is incomplete.
- 4 • Based solely on our experiences at the Texaco Ferndale LPG Terminal, the railway service (provided by the same railway company serving the other industrial sites in your report) which we currently receive is already somewhat irregular/sporadic in scheduling dependability and traffic movement. This factor alone is already a major consideration in our business and operational planning, as a considerable portion of our product/s move by rail. Although we have no idea what the actual rail traffic load will be for the proposed terminal or what effect the use of "unit trains" would have on general rail traffic in the area, we are very concerned about the effects that the proposed terminal would possibly have on rail service to our terminal. Texaco requests comments and/or further elaboration as to the projected effects on rail service to existing rail customers in this area (specifically Texaco Ferndale Terminal).

We appreciate the opportunity to review the DEIS and share our concerns. Any information or feedback which you could provide will be appreciated. If you have any questions, please call me at (360)384-1701.

Sincerely,



Kelly D. Cox

cc: JJRoop, RSMorris, JMCollingsworth, RDSewell (Tulsa)
JWenker (Universal City, CA)
Ferndale file

Letter 11

Texaco

1. Prior to this comment letter, the transportation consultant was not aware of rail shipments of liquefied petroleum gas (LPG) movements to/from the Texaco Ferndale Terminal. The following paragraphs supplement and revise the Transportation section of the Draft EIS regarding existing rail service/operations and potential impacts to these services as a result of the proposed action.

Existing Daily Rail Movements in the Site Vicinity

In the site vicinity, six freight and two passenger rail movements occur on the mainline each day near Interstate 5. On the loop rail facility serving Cherry Point, daily shipments of materials are transported to each industrial site via rail as follows:

- Arco: between 20 and 25 rail cars per day.
- Intalco: between 10 and 12 rail cars per day.
- Texaco LPG Terminal: between 10 and 24 cars per day.
- Tosco: between 8 and 10 rail cars per day of LP gas and other raw materials.

These combined rail car movements result in between 47 and 70 rail car deliveries or shipments per day on the loop rail facility serving Cherry Point. Daily fluctuations occur in deliveries to each industrial site at Cherry Point reflecting market demand, production rates, and load/unload attributes as they relate to delivery schedules.

Recent railway improvements in the site vicinity include the construction of a 7-track switching yard on the Cherry Point loop rail line between Lonseth Road and Aldergrove Road (refer to Figure 3 of Draft EIS Appendix B). This facility was recently completed in order to provide adequate rail car storage and a switching facility off of the mainline to reduce conflicts between freight and passenger rail movements.

Impacts to Rail Transportation as a Result of the Proposed Action

Unit-train movements under the proposed action (estimated at between 2 and 3 unit-trains per day in the Draft EIS) would not significantly impact local switching and delivery schedules to the existing Cherry Point industrial sites (including Arco, Intalco, Texaco, and Tosco). Car switching and storage associated with the proposed action would be accommodated within the new 3-track loop system that spurs off of the Cherry Point BNSF line. This spur is proposed to be located north of the 7-track switching yard.

2. Comment acknowledged. The Draft EIS analyzed rail movements in the vicinity under peak seasonal conditions.

3. Comment acknowledged. Texaco's rail traffic volumes have been incorporated into the analysis of rail impacts, as described in the response to comment 1 in this letter (Texaco).
4. Please see the response to comment 1 in this letter (Texaco).

Letter 12



WASHINGTON ENVIRONMENTAL COUNCIL

By Facsimile and U.S. Mail

February 5, 1997

Rolland Middleton
Deputy SEPA Official
Whatcom County
Planning and Development Services
Land Use Services Division
5280 Northwest Dr., Suite B
Bellingham, WA 98226

Re: DEIS—Gateway Pacific Terminal

Dear Mr. Middleton:

Washington Environmental Council (WEC) has been actively involved in land use and resource management decisions regarding Cherry Point in Whatcom County for over twenty years. Most recently, on our own members' behalf, and on behalf of Whatcom County groups such as North Cascades Audubon Society (NCAS), Friends of Boundary Bay, and Whatcom League of Women Voters, WEC has been active in efforts to ensure that the public's interests in Cherry Point are protected.

Therefore, it was with some dismay that I learned that only one public interest conservation group (NCAS) was on the distribution list of the December 23, 1996 release of the DEIS for this proposal. I was further alarmed that NCAS did not receive the document until mid-January, after your agency's hearing on January 8 to take comments. If Whatcom County does not want to give the appearance of avoiding public review of this proposal, I suggest that you appropriately increase your distribution for all future actions.

Regarding the content of the DEIS:

- An underlying premise for the proposed project is a land use designation (Cherry Point Management Unit) that is invalid as applied, and has never been approved as a part of the state's coastal zone management program. The EIS section "Relationship to Plans and Policies" should reflect this fact.

LAUTY Washington State Division
Imperial Audubon Society
Alpine Lakes Protection Society
Ut - Trails
American Ocean Campaign
Association of Bainbridge Communities
Black Hills Audubon Society
Blue Mountains Audubon Society
Cascades Island Homeowners' Society
Cascade Bicycle Club
Center for Wildlife Conservation
Citizens Against Woodsmoke/Fumes
Citizens for Clean Air
Citizens for Clean Industry
Citizens for Sensible Development
Citizens to Save Puget Sound
Civil Action on Redmond's Environment
Clark County Citizens in Action
Clark County Natural Resources Council
Clark-Skumina Fly Fishers
Clean Air Coalition
Columbia Bioregional Education Project
Consumers United for Food Safety
Cowitz County Natural Resources Council
Dance Watch
Dishman Hills Natural Area Association
EarthSave Seattle
East Lake Washington Audubon Society
Everett Garden Club
Evergreen Islands
Federation of Fly Fishers
Steekhead Committee
Floating Homes Association
Four Creeks Community Association
Friends of Chuckanut
Friends of the Columbia Gorge
Friends of Cypress Island
Friends of Discovery Park
Friends of the Methow
Friends of Northshore
Friends of the San Juan
Friends of Sulzer Mountain
Habitat Watch
Hood Canal Environmental Council
Isaiah Apt Trail Club
Kettle Lange Conservation Group
Knap Audubon Society
Lower Columbia Basin Audubon Society
Marine Environmental Consortium
Methow Valley Citizens Council
Mt. Rainier National Park Associates
The Mountaineers
Nisqually Delta Association
North Cascades Audubon Society

North Cascades Communities Council
North Central Washington Audubon Society
North Cowitz Environmental Council
North University Garden Club
Northwest Bicycle Federation
Northwest Fly Fishers
Northwest Conservation Act Coalition
Northwest Steelhead and Salmon Council of Trout Unlimited
Oak Harbor Garden Club
Olympic Environmental Council
Olympic Park Associates
Olympic Peninsula Audubon Society
Okanogan Highlands Alliance
Organization to Preserve Agricultural Lands
Palouse Cleanwater Environmental Institute
Palouse Preservation League
Pend Oreille Environmental Team
Point Roberts Heron Preservation Committee
PNO-Salmon
The Parnassians
Puget Soundkeeper Alliance
Rivers Council of Washington
Save a Valuable Environment
Save Our Summers
Seattle Audubon Society
Seattle Citizens for Quality Living
Seattle Shorelines Coalition
Sierra Club - Upper Columbia
Skiat Alpino Club
Skiat Audubon Society
Spokane Audubon Society
Spokane Mountaineers, Inc.
Taberna Audubon Society
Vancouver Audubon Society
Washington Council of the Federation of Fly Fishers
Washington Falconers Association
Washington Fly Fishing Club
Washington Lark Club
Washington Native Plant Society
Washington State Lakes Protection Association
Washington Trout Coalition
Washington Trout Association
Washington Trout
Waste Action Project
Watershed Defense Fund
WEAPE
Wenatchee Valley Fly Fishers
Wetlands of West Hylebos
Yakima Valley Audubon Society

OLYMPIA
(360) 357-6548

SEATTLE
1100 2nd Avenue
Suite 102 Seattle, WA 98101
(206) 422-8103 FAX (206) 422-8111

SPOKANE
(509) 328-5077

Roland Middleton

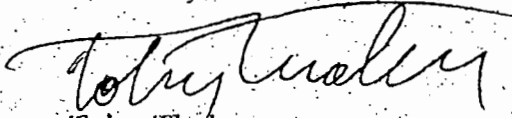
February 5, 1997

Page 2

- 3 • The DEIS fails to mention in the "Required Approval" list that the applicant must obtain a subtidal lands lease from the Washington Department of Natural Resources.
- 4 • The Corps of Engineers has stated that the alternative CPIP and PIT proposals will have their Section 10 and Section 404 permits reviewed jointly. This fact should be noted in the "Alternatives" section of the EIS and throughout where appropriate.

Further comments will be submitted either to the hearing examiner or to the county council as more detailed reviews are conducted.

Sincerely,



Toby Thaler
Legal Program Director

cc Lands Commissioner Jennifer Belcher
U.S. Corps of Engineers, Regulatory Branch (ref: 91-2-00203-R)

Letter 12
Washington Environmental Council

1. A notice of availability of the Draft EIS was published in the Bellingham Herald. Although WEC was not on the distribution list, this omission was noted by the responsible official and a copy of the Draft EIS was mailed to Jay Taber on December 23, 1996.
2. Please see the response to Letter 9 (N. Cascades Audubon Society), comment 2.
3. Thank you for your correction. The Fact Sheet is hereby revised to include an aquatic lands lease from WDNR.
4. Your comment is acknowledged and incorporated into the EIS.

LAW OFFICES OF
**SIMONARSON, VISSER,
ZENDER & THURSTON**
A PROFESSIONAL SERVICE CORPORATION



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Letter 13

PETER JAY VISSER
DANIEL D. ZENDER
HAL THURSTON
HUGH LEWIS
LAUGHLAN H. CLARK
DEBORRA E. GARRETT
STEVE CHANCE
ROBERT A. CARMICHAEL
BRYAN D. LANE

PLEASE REPLY TO:
Bellingham
E-Mail - carmichael@simonlaw.com

EINAR SIMONARSON
(RETIRED)

January 29, 1997

Mr. Roland Middleton
Deputy SEPA Official
Whatcom County Land Use Division
5280 Northwest Drive Suite B
Bellingham, Washington 98226

Re: Gateway Pacific Terminal - Draft EIS

Dear Mr. Middleton:

I represent Joseph Sheckter and Cherry Point Industrial Park. The purpose of this letter is to register my client's objection to the lack of notice for the hearing and comment period for the draft EIS for the Gateway Pacific Terminal Project. We did not learn of the draft EIS publication, the January 8th hearing, or the comment period deadline, until late last week.

I am well aware of the statutory and regulatory notice provisions. Nevertheless, the timing of published notice in the paper (December 23, 1996) was during the first of two almost unprecedented area storms over the holiday season. The Bellingham Herald was not delivered to many neighborhoods during these storms (including mine), and people in the community were warned over the radio not to leave their homes due to bad weather and road conditions. I specifically recall that Bellingham and Whatcom County experienced heavy snowfall in the late morning and afternoon of December 23, 1996. This was the first of two big storms that week. I was at home on December 23rd, and recall advising my assistant by phone that she should leave the office early because of road conditions and the snow. As a result of this storm, we closed our law offices on the 24th.

The Bellingham Herald admits it did not deliver papers to all of its carriers during many of the storm days. Additionally, not all carriers that obtained papers were able to deliver them. While the Bellingham Herald was published on December 23rd, it was not delivered to all its subscribers. Due to the weather and road conditions, many in the community simply did not have access to the newspaper on December 23rd. Under these circumstances, the newspaper publication on December 23rd did not provide fair notice of the hearing and comment period for the Gateway project. While statutory and regulatory notice provisions may have been met, the notice is constitutionally defective. Accordingly, we object to the lack of notice for the hearing and comment period on due process grounds.

Not surprisingly, I understand that few people offered comments at the hearing on this major

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101

January 29, 1997

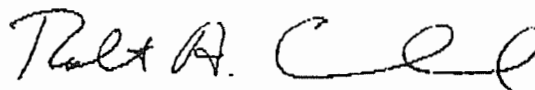
Page 2

project proposal. While we appreciate your one week extension of the comment deadline (to January 29, 1997), it is not possible to prepare meaningful comments on such a large project within such a short time frame. The timing of the newspaper publication and the absence of actual notice to interested parties has assured that the County will not receive the degree of public comment warranted for this project.

1 Furthermore, the distribution list for the draft EIS includes major landowners at Cherry Point (c.g. Arco and Intalco), but not Cherry Point Industrial Park, which is the neighboring property owner. If the County is interested in the proposed Gateway project receiving the kind of scrutiny it deserves, it ought not have left the most affected property owner off the distribution list. My client has deep concerns that the Gateway Pacific Terminal is not receiving the same level of review as was applied to his project. The large presence of wetlands and other environmental constraints associated with the Gateway site require more careful review and public input than the County is currently offering.

Due to a lack of notice, we ask that another public hearing be scheduled and that the comment period be extended. Thank you for considering these comments.

Very truly yours,



Robert A. Carmichael

RC

cc: Joseph Sheckler

Letter 13

Robert Carmichael, representing Cherry Point Industrial Park

1. The difficulties posed by the snowstorm are acknowledged. Notice of availability of the Draft EIS was published in the Bellingham Herald in compliance with legal requirements. In response to requests, Whatcom County extended the comment period twice to the maximum of 45 days allowed by SEPA. Following the severe weather, there was approximately five weeks in which to prepare comments to the Draft EIS. The fact sheet in the Draft EIS properly informed recipients of the hearing accepting comments on the Draft EIS. Your legal opinion regarding due process is noted. The commenter did not provide written comments to the EIS after being verbally notified that the comment period had been extended.

DISTRIBUTION LIST

Port of Bellingham
Northwest Air Pollution Authority, Terry Nyman, Director
Council of Governments
Lummi Tribal Council, Al Scott Johnnie
Lummi Tribal Council, Leroy Deardorff
Skagit System Cooperative, Joseph Shedlock, Chairperson
Nooksack Tribal Council, Dale Griggs
Nooksack Tribal Council, Ross Cline, Chairperson
Swinomish Indian Tribal Community, Robert Joe, Sr., Chairperson
Upper Skagit Tribal Council, Floyd Williams, Chairperson
Suquamish Tribal Council, Lyle Emerson George, Chairperson
City of Ferndale, Stan Strebel, City Manager
Washington Department of Ecology, Environmental Review Section (2 copies)
Washington Department of Ecology, Shorelands and Coastal Management Program
Washington Department of Ecology, Barry Wenger
Washington Department of Natural Resources, SEPA Center
Washington Department of Natural Resources, James Isdell, Land Manager (Aquatic)
Washington Department of Transportation, Planning Section
Washington Department of Fish and Wildlife, Brian Williams
Washington Office of Archaeology and Historic Preservation, Environmental Review Section
Natural Resource Conservation Service
U.S. Environmental Protection Agency, Region X
U.S. Army Corps of Engineers, Regulatory Branch, Muffy Walker
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Arco, Intalco, Texaco, Burlington Northern
CPIP, Robert Carmichael
Lummi Indian Business Council, Merle Jefferson
Lummi Indian Business Council, Henry Cagey, Chairman
Ocean Advocates
Washington Environmental Council
Wise Use Movement, David Ortman

Appendix A

***Addendum to “Beach Processes at
Cherry Point, Washington State”
by Westmar Consultants***

MEMORANDUM

To: Jack Wood
Westmar Consultants

From: Dr. Michael Isaacson
Department of Civil Engineering
University of British Columbia
Vancouver, B.C. V6T 1Z4

Tel: 985 6488
Fax: 985 2581

Tel: 822-4338
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e-mail: isaacson@civil.ubc.ca

No. of pages: 5

February 12, 1997

Re: Beach Processes at Cherry Point, Washington State

Further to our discussions and correspondence, this serves as an addendum to the July 1996 Report "Beach Processes at Cherry Point, Washington State", prepared by myself for Westmar Consultants Inc.

Sincerely,

Additional Issues Considered

Two additional issues have been raised which require further consideration. One is that the presence of vessels berthed at the site should be taken into account in assessing the impact of the proposed marine terminal on the beach processes in the immediate intertidal beach areas. The second is that an assessment of the potential impact that the terminal and berthed ships may have on littoral drift processes along the shorelines extending from Cape Whitehorn to Sandy Head is required, particularly in response to the technical points raised in the February 1997 comments on the initial July 1996 Westmar report that have been made by Lummi Natural Resources, the Department of Ecology, and the Department of Fish and Wildlife.

Vessel Characteristics

The facility is to include three berths (see Fig 2 of the July 1996 report): a West berth for "Panamax" vessels; a centre berth for Cape size vessels, and an East berth for 120,000 dwt vessels. In addition, up to 3 barges may be berthed alongside the inside face of the wharf. Additional information relating to the vessels occupying the berths which has been provided is summarized in Table 8. The table indicates that vessel lengths will typically be about 750 - 800 ft, vessel beams will be about 100 - 130 ft, and vessel drafts will range from about 20 ft to 68 ft (including light and loaded conditions). The barges have an average length of 300 ft, a beam of 70 ft, and drafts ranging from 4 ft to 18 ft.

The berths are expected to have an average occupancy rate of 50 - 60%. The corresponding percentage of time for which no vessels, and one, two and three vessels will be berthed are indicated in Table 9. In addition, during normal operations a barge will be berthed for about 50% of the time. Occasionally, there may be 2 or 3 barges in berth. Normally, ships will have a light draft when arriving to load at the West and East berths. At the centre berth, ships may occasionally arrive fully loaded and will decrease to light draft as they discharge their cargo.

Impact of Vessels on Wave Sheltering

The impact of berthed vessels may be assessed by considering the reduction of wave energy reaching the shoreline on the sheltered side of the vessels, and then considering how this change in wave energy may influence sediment transport behaviour.

Waves may propagate past a berthed vessel by transmission under the vessel, in the case of longer waves, and also by diffraction around the vessel. The wave field on the sheltered side of a vessel may be estimated on the basis of linear diffraction theory for a vessel with a specified beam, length, and draft, and a given wave condition described by the wave height, wave period and water depth (e.g. Sarpkaya and Isaacson, 1981). On the sheltered side of the vessel, the wave height reduction will be most severe immediately adjacent to the vessel, and the extent of this reduction will become less severe with distance downwave of the vessel because of wave diffraction around the ends of the vessel. This results in a relatively minor reduction in height at the point where the waves reach the beach. For shorter waves, there will be no transmission under the vessel, whereas for longer waves, transmission under the vessel also occurs, so that there is proportionately a smaller reduction in wave height on the sheltered side at the shoreline.

The above assessment of the extent of wave sheltering needs to be combined with an assessment of the vessel berthing frequency, tide levels, and the frequency of occurrence of various wave conditions. For each of the three berths, the average berth occupancy is assumed to be 60%. The tide causes the water depth at the berths to range from approximately 80 ft at low tide to 89 ft at high tide. As an extension to the hindcast analysis used to develop the design wave conditions given in Table 3 (of the July 1996 report), the expected wave conditions at the site over a year can be broken down into the expected numbers of hours per year that wave conditions with different levels of severity and with different directions occur. Such an analysis has been carried out for waves from the West Northwest, West, Southwest, and South, and for significant wave heights within the ranges 0 - 2 ft; 2 - 4 ft; 4 - 6 ft and 6 - 8 ft. The corresponding results are given in Table 10. The table indicates that the significant wave height exceeds 4 ft about 120 hours per year, with approximately equal contributions from the West Northwest, West and South directions, and that Southwest waves are much more infrequent.

Figure 9 provides a sketch relating to waves from the four directions propagating past berthed vessels and indicates zones of possible sediment accretion. Of the four wave directions, waves propagating from the West Northwest only give rise to a wave height reduction due to the vessels in deep water, and those waves from the West Northwest which reach the beach inshore of the terminal will do so without attenuation (see Fig. 9). Thus the berthed vessels should not impact sediment transport behaviour associated with such waves. Waves from the Southwest which have significant wave heights over 2 ft are relatively infrequent, and it is expected that the Southwest waves have a relatively insignificant impact on sediment transport behaviour. It is the waves from the South and from the West that may possibly be sheltered occasionally by vessels and result in some reduction in wave energy at the shore. Taking account of wave diffraction around the vessels, wave transmission under the vessels for the larger (and longer) waves, wave refraction as the waves propagate towards the shore, and water depths below which sediment transport behaviour may be affected, the corresponding zones in which possible sediment accretion may occur are sketched in Fig. 9. The figure indicates that there may be some locations on the intertidal beach inshore of the jetty where there is reduced wave energy for a few hours a year, and thus where some sediment accretion might occur. However, it is certain that a new equilibrium condition will be quickly reached, and the longshore sediment transport past the site will continue.

Littoral Drift

The July 1996 report did not address any potential impact of the facility on the net littoral drift between Point Whitehorn and Sandy Point (see Fig. 1). A general outline of the corresponding process is summarized here, and specific aspects of littoral drift relating to this shoreline are considered further below in the form of responses to the comments that have been made to the July 1996 report.

Littoral processes relate to the transport of finer materials along the beach, parallel to the waterline. This movement is associated with waves, and with wave-induced and tidal currents parallel to the beach. This longshore movement of sediment is most pronounced along the upper intertidal beach, and less significant offshore of the low water line. For the cobble beach at Cherry Point, the littoral drift applies primarily to silts, sands and finer gravels, whereas the cobbles and large size materials do not move to a significant extent parallel to the shore. The direction of littoral drift corresponds to the direction of the longshore currents parallel to the beach, which in turn depend in part on the incident wave direction, which may change from storm to storm, and in part on circulation patterns of prevailing tidal currents. Therefore the direction of littoral drift may undergo reversals throughout a year, and the net direction of littoral drift will depend on the relative strengths and durations of the reversing longshore currents.

Response to Comments made by Lummi Natural Resources, Department of Ecology, and Department of Fish and Wildlife

The various comments to the July 1996 report have been examined, and specific responses are provided below.

The comments indicate that the impact at the beaches of incoming wave energy caused by vessels tied up at the docks was not addressed in the July 1996 report. This is true, and the present addendum is intended to provide a consideration of this aspect.

The comments interpret "predominant" within the phrase "The predominant direction of strong winds is the South" used in the July 1996 report as "those (winds) that move the majority of sediment". However, this terminology had not been intended, but rather the statement was simply made with regard to strong winds as a direct observation based on Table 1. In fact, no inference was drawn in the July 1996 report with respect to the direction of net littoral drift.

The comments indicate that the net longshore drift from Point Whitehorn to Sandy Point is to the south. This conclusion is justified in those comments by the presence of the Sandy Point spit and by several references which are cited. This conclusion appears to be correct: that is, the net movement of littoral drift is indeed to the South.

The comments go on to state that the net movement of littoral drift to the South implies that if interruption of net shore drift occurs, this will have impacts on the Neptune Beach and Sandy Point shorelines. The report refers to "erosion of these Reservation shorelines from previous projects that reduced the volume of sediment nourishing these beaches"; and goes on to state "This is a shoreline of intensive residential development with increasing bulkhead construction that is contributing to damage of Lummi Nation shorelines and tidelands. Protection of private residential property and tribal resources and property along Reservation shorelines, necessitates that the longshore drift nourishing these beaches be preserved." Thus, the central concern is that the proposed facility will interrupt the "net movement of littoral drift to the South" and thereby lead to increased erosion of the shorelines. In fact, this is not expected to be the case. Even though the presence of berthed ships may shelter different areas of the upper beach near the jetty for short periods of time, possibly resulting in some localized and temporary sediment accretion in the immediate vicinity of the jetty, it is certain that the net movement towards the South will continue after a brief transition period. Thus, the erosion of beaches at Sandy Point and Neptune Beach will not be increased by the ships and barges berthed at the pier.

In fact, it is well known that the construction of vertical bulkheads on a beach is likely to cause increased erosion due to wave reflection and increased flow velocities, sending the littoral drift materials offshore into deeper water.

Other aspects which relate to the stated concerns are as follows:

- U.S. Chart 19431, 3rd edition, dated July 31, 1993, indicates that there were shore fills constructed at the INTALCO and BP piers. The seabed contours indicate that the littoral drift is bypassing these areas, although there may have been short periods when there was some interruption to the littoral drift until a new equilibrium condition was reached.
- There should be no reduction in the amount of sediment reaching the beach system from the cliff adjacent to the proposed facility, since there is a 200 ft wide buffer zone that will not have any anti-cliff erosion features. Further to the Northwest of Cherry Point, the Point Whitehorn bluffs are similar and are probably also eroding to provide the feeder material for the beaches.
- Construction of artificial feeder beaches of gravel upstream of Neptune Beach and Sandy Point would likely not provide significant relief to the erosion problem as long as the vertical bulkheads remain.

Conclusions

The presence of vessels berthed at the site has been taken into account as an additional factor that may influence beach processes at the site. Furthermore, the littoral drift behaviour between Point Whitehorn and Sandy Point has also been considered. It is concluded that there may be some localized and temporary sediment accretion near the pier, but that after a brief transition period the proposed facility should not have any significant impact on the net littoral drift towards Sandy Point. Erosion along the Neptune Beach and Sandy Point shorelines is probably due to the construction of vertical bulkheads, and will likely continue while these bulkheads are in place.

Additional Reference

Sarpkaya, T. and Isaacson, M. 1981. Mechanics of wave forces on offshore structures. Van Nostrand Reinhold, New York.

Table 8. Characteristics of vessels berthed at the facility.

Berth		Tonnage (dwt)	Length (ft)	Beam (ft)	Draft, loaded (ft)	Draft, light (ft)
West berth, Panamax	Max.	65,000	787	113	42	21
	Average	50,000	755	103	39	20
Centre berth, Cape size	Max.	250,000	1,099	184	66	30
	Average	80,000	820	123	43	23
East berth	Max.	120,000	919	138	49	26
	Average	65,000	787	113	42	21
Barge	Average	-	300	70	18	4

Table 9. Percentage of time different number of vessels are berthed at the facility.

Average berth occupancy	No vessels	1 vessel	2 vessels	3 vessels
50	12.5	37.5	37.5	12.5
60	6.4	28.8	43.2	21.6

Table 10. Estimated hours per year for various wave conditions.

Wave direction	Hours per year				
	$H_s = 0 - 2$ ft ($T = 2.1$ sec)	$H_s = 2 - 4$ ft ($T = 3.6$ sec)	$H_s = 4 - 6$ ft ($T = 4.7$ sec)	$H_s = 6 - 8$ ft ($T = 5.6$ sec)	All heights
West Northwest	450	135	36	5	626
West	687	140	38	6	871
Southwest	497	62	3	0	562
South	904	192	34	4	1,134

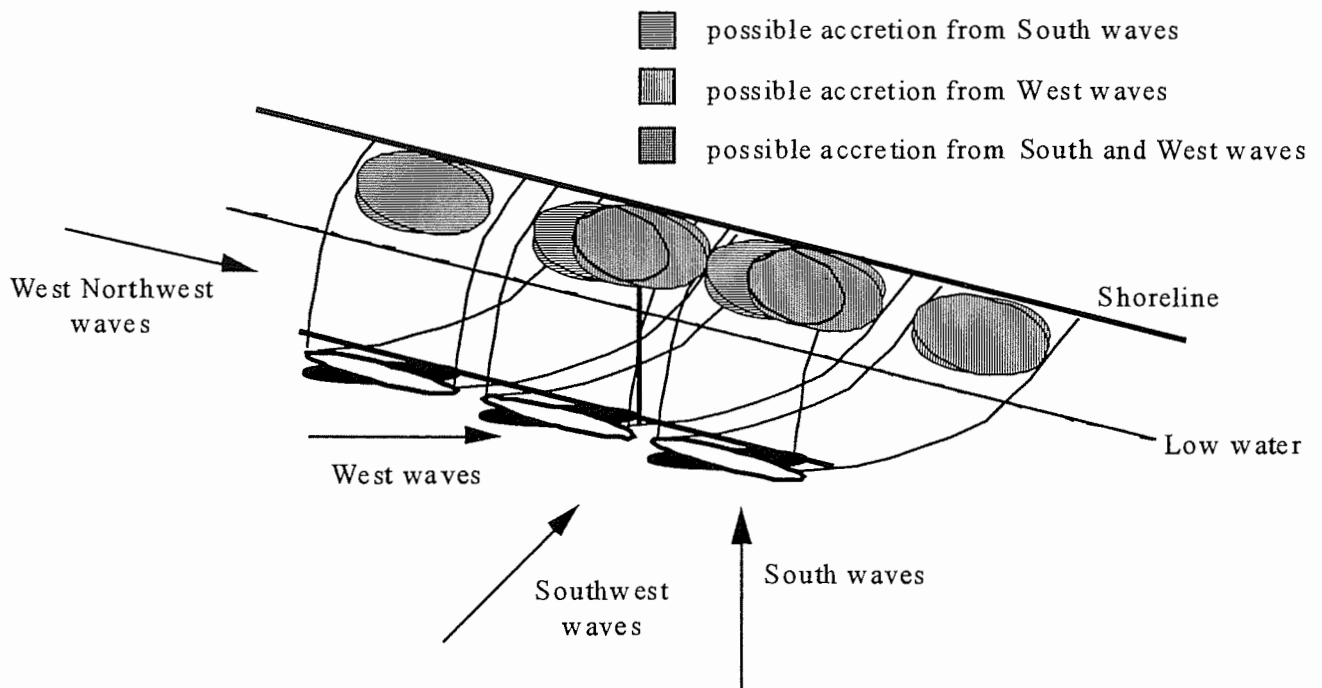
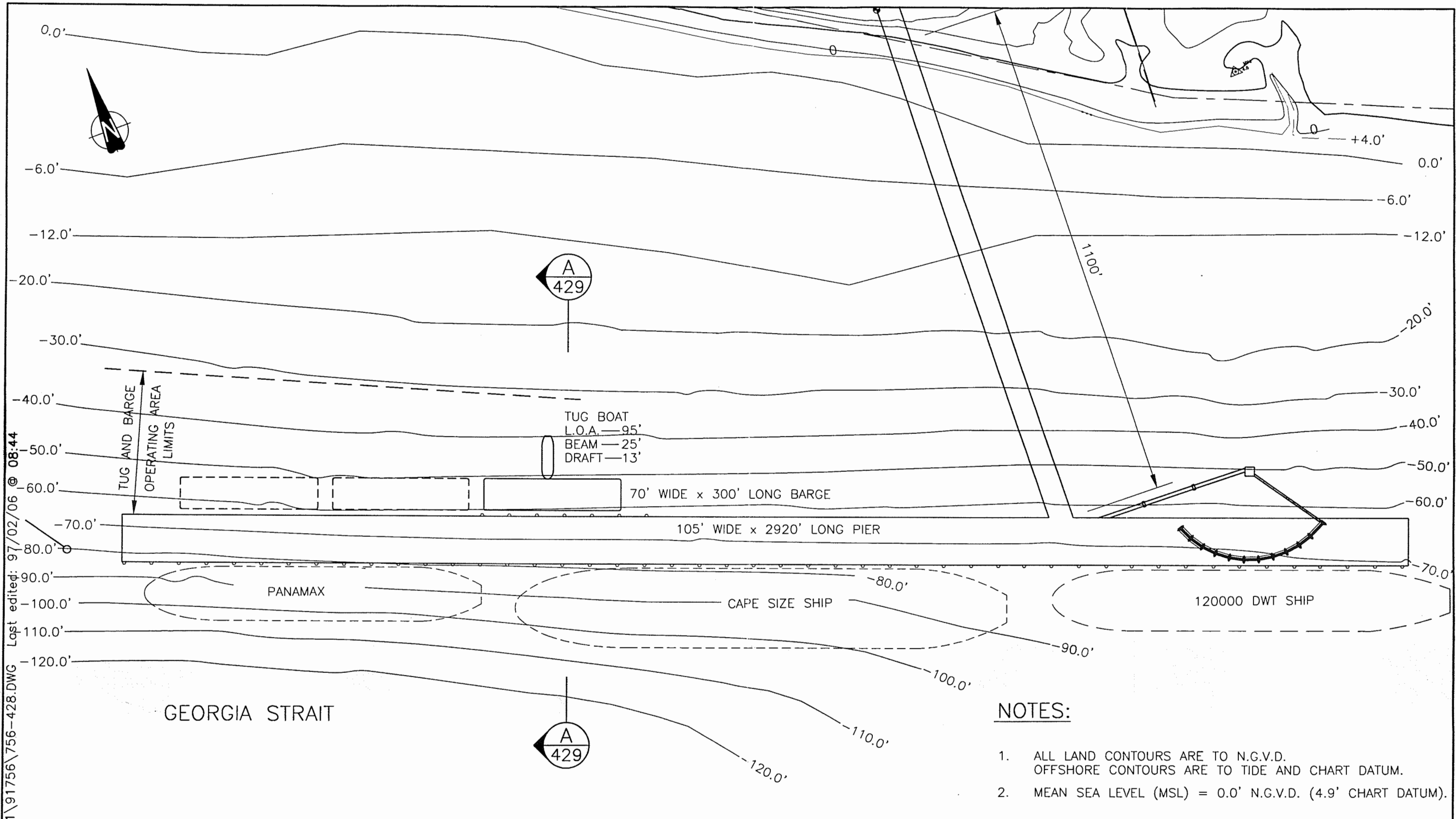
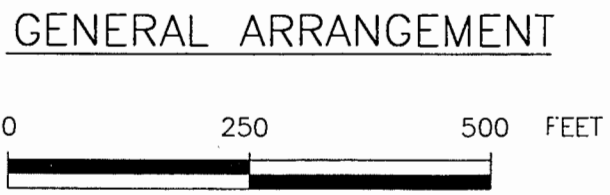



Fig. 9. Sketch showing possible areas of some sediment accretion for West and South waves.

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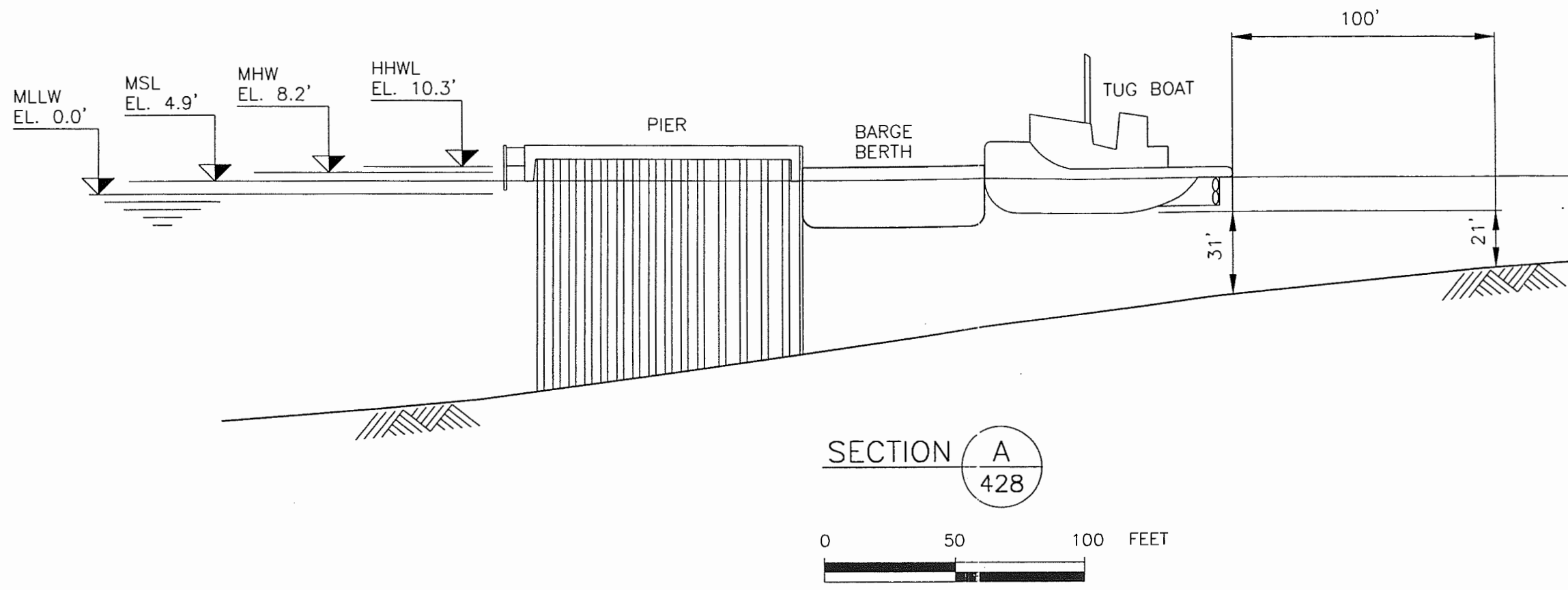


- NOTES:**
1. ALL LAND CONTOURS ARE TO N.G.V.D.
OFFSHORE CONTOURS ARE TO TIDE AND CHART DATUM.
 2. MEAN SEA LEVEL (MSL) = 0.0' N.G.V.D. (4.9' CHART DATUM).




CLIENT GATEWAY PACIFIC TERMINAL		 Westmar Consultants Inc. Consulting Engineers — North Vancouver, B.C., Canada. Tel. (604) 985-6488	
PROJECT CHERRY POINT MULTI-USE IMPORT/EXPORT TERMINAL		TITLE PLAN OF BARGE BERTH SHOWING TUG OPERATION AREA	
SCALE SHOWN		DATE FEB06/97	DRAWING NUMBER 91756-00-428

File name: P:\1991\91756\756-429.DWG Last edited: 97/02/06 @ 08:56



NOTES:

1. ALL LAND CONTOURS ARE TO N.G.V.D.
OFFSHORE CONTOURS ARE TO TIDE AND CHART DATUM.
2. MEAN SEA LEVEL (MSL) = 0.0' N.G.V.D. (4.9' CHART DATUM).

CLIENT		 Westmar Consultants Inc. Consulting Engineers - North Vancouver, B.C., Canada. Tel. (604) 985-6488	
PROJECT		TITLE	
GATEWAY PACIFIC TERMINAL		CROSS SECTION OF TUG AT BARGE BERTH	
CHERRY POINT MULTI-USE IMPORT/EXPORT TERMINAL		SCALE	DRAWING NUMBER
		SHOWN	91756-00-429
		DATE	FEB06/97